MANAGEMENT CONTROL SYSTEMS AND STRATEGY: A CRITICAL REVIEW*

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Abstract

This paper reviews research that studies the relationship between management control systems (MCS) and business strategy. Empirical research studies that use contingency approaches and case study applications are examined focusing on specific aspects of MCS and their relationship with strategy. These aspects include cost control orientation, performance evaluation and reward systems, the effect of resource sharing, the role of MCS in influencing strategic change and the choice of interactive and diagnostic controls. More contemporary approaches to the relationship between performance measurement systems and strategy are also considered. It is concluded that our knowledge of the relationship between MCS and strategy is limited, providing considerable scope for further research. A series of future research questions is presented.

In recent years there has been a growing interest in the relationship between management control systems (MCS) and strategy. It has been suggested that the MCS should be tailored explicitly to support the strategy of the business to lead to competitive advantage and superior performance (Dent, 1990; Samson et al., 1991; Simons, 1987a, 1990). Also, there is evidence that high organizational performance may result from a matching of an organization's environment, strategy and internal structures and systems (Govindarajan & Gupta, 1985; Govindarajan, 1988). Strategy was not used explicitly as a variable in MCS research until the 1980s. This is surprising considering the field of business strategy or business policy has become increasingly important since it emerged in the 1950s (see Chandler, 1962). Much of the empirical research in this area follows a contingency approach and involves a search for systematic relationships between specific elements of the MCS and the particular strategy of the organization (Simons, 1987a; Merchant, 1985b; Govindarajan & Gupta, 1985). Case studies have also been undertaken to investigate the role of the MCS in supporting and influencing the strategic processes within organizations (Simons, 1990; Roberts, 1990; Archer & Otley, 1991). The focus has been primarily on business strategy at the senior management level of the organization. However, since the mid-1980s, in the operations management literature there has been a growing interest in researching the way that manufacturing strategies can be used to gain competitive advantage (Buffa, 1984; Schonberger, 1986; Hayes et al., 1988). Normative studies and single case studies have explored the relationship between MCS and

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strategy at the manufacturing level (for example, Kaplan, 1990). However, empirical research only began to emerge recently (for example, Daniel & Reitsperger, 1991).

The objective of this paper is to review and critique research that studies the relationship between MCS and strategy, and to evaluate the state of knowledge in this area. In the first section of this paper, the changing domain of MCS is considered. The second section contains a description of terminology and frameworks from the strategy literature, and an outline of strategy variables used in empirical MCS research. In the third section, contingency-style research and case studies that study the relationship between MCS and strategy are examined and critiqued. These conventional research approaches are also viewed in the light of more contemporary approaches to the design of performance measurement systems. In the final section, the limitations of the research reviewed are discussed and suggestions for further research presented.

**MANAGEMENT CONTROL SYSTEMS**

Management control was defined by Anthony (1965) as "the process by which managers ensure that resources are obtained and used effectively and efficiently in the accomplishment of the organization's objectives." This definition limited subsequent researchers not only to envisage MCS as encompassing the largely accounting-based controls of planning, monitoring of activities, measuring performance and integrative mechanisms, it also served to artificially separate management control from strategic control and operational control. MCS have also been described as processes for influencing behavior (Flamholtz et al., 1985). MCS provide a means for gaining cooperation among collectives of individuals or organizational units who may share only partially congruent objectives, and channelling those efforts toward a specified set of organizational goals (Ouchi, 1979; Flamholtz, 1983).

Controls have been categorized in many ways. For example, formal and informal controls (Anthony et al., 1989), output and behavior controls (Ouchi, 1977), market, bureaucracy and clan controls (Ouchi, 1979), administrative and social controls (Hopwood, 1976), and results, action and personnel controls (Merchant, 1985a). A brief discussion of these classifications will illustrate the breadth of controls used in research.

Formal controls include rules, standard operating procedures and budgeting systems. These are the more visible, objective components of the control system, and thus, the easiest to research. Empirical research that studies MCS and strategy has focused primarily on formal controls. These include output or results controls which are of a feedback nature, and often financially oriented. They include controls that aim to ensure that specific outcomes will be achieved and involve monitoring, measuring and taking corrective actions. Controls that focus on feedforward control (ex-ante controls) include administrative controls (standard operating procedures and rules), personnel controls (human resource management policies) and behavior controls (the ongoing monitoring of activities and decisions).

Informal controls are not consciously designed. They include the unwritten policies of the organization and often derive from, or are an artefact of the organizational culture. Ouchi (1979) described clan controls that derive from the shared values and norms, or the culture of the organization. Usually clan controls are informal, rather than formal controls. However, some formal controls also derive from the organizational culture. For example, the formal organizational mission or objectives may reflect the values and beliefs of the dominant culture. Informal controls are important aspects of MCS.

The terms "clan control" and "social control" are often used synonymously. However, Ouchi's (1979) definition of clan control requires that there be a norm of reciprocity, the belief in a source of legitimate authority and social agreement on the range of shared beliefs and values for a "clan" to exist. Social controls can exist when there is agreement on purposes or outcomes, without there necessarily being shared belief systems.
and the effectiveness of formal controls may be dependent on the nature of the informal controls that are also in place (Otley, 1980; Flamholtz, 1983).

While these conventional definitions of MCS may have been adequate in the past, it has been argued that they need to be reviewed to accommodate the changed business conditions of the 1990s (Otley, 1994). For example, the role of MCS in the formation and implementation of strategy is becoming of greater interest in both academic and professional management journals, so our understandings of MCS may need to be broadened to encompass these areas. More recently, Goold and Quinn (1990) described strategic controls, which are concerned with formulating competitive benchmarks and using non-financial performance measures to develop short-term performance indicators that are explicitly linked to achievement of long-term strategic goals. The emphasis on senior management that has dominated MCS research is becoming less relevant with an increasing interest in employee empowerment (Otley, 1994; Simons, 1995). Many believe that it is becoming more common for lower level employees to be actively involved, not only in the day-to-day processes that were once the domain of middle and senior managers, but in activities that are of strategic significance. Thus, the artificial boundaries between operational, managerial and strategic control, as initially described by Anthony (1965), may no longer hold.

In the light of these concerns it is apparent that the orientation towards accounting controls and accounting information, which has dominated much of the MCS research, is not sufficiently broad to capture more modern approaches to effective control (Emmanuel et al., 1990, p. 36). The dynamic nature of MCS and its potential role in strategic change is an area of increasing interest (Simons, 1990, Dent, 1990).

**STRATEGIC FRAMEWORKS**

Strategy has been operationalized in many different ways in MCS research. Interestingly, the basic concepts and frameworks developed in the strategy literature during the past two decades have not always been widely adopted in these studies and the multidimensional nature of strategy is seldom recognized (Govindarajan & Gupta, 1985, is an exception). These problems can lead to under-specification, or a misspecification of the research design and may affect the integrity of research findings. In this section, some strategic concepts and frameworks will be outlined to position MCS research within a more general strategic context. Also, the strategic typologies and variables that have been used in empirical research on MCS and strategy will be described and compared.

**Defining strategy**

Strategy has been defined in many ways. For example, strategy has been described as a pattern of decisions about the organization's future (Mintzberg, 1978), which take on meaning when it is implemented through the organization's structure and processes (Miles & Snow, 1978). Johnson (1987, pp. 4-5) stated that strategic decisions occur at many levels of managerial activity. They are concerned with the long-term direction of the organization, the scope of an organization's activities, the matching of organizational activities to its environment and resource capabilities, the allocation of major resources within the organization, and consideration of the expectations and values of the organization's stakeholders.

Corporate strategy is concerned with decisions about the types of businesses to operate in, including what businesses to acquire or divest, and how best to structure and finance the company (Johnson & Scholes, 1989, p. 9). It is concerned with the way resources are focused to convert distinct competences into competitive advantage (Andrews, 1980, pp. 18-19). Business (or competitive) strategies relate to each business unit of the organization and focus on how individual SBUs (strategic business units) compete within their particular industries, and the way that each SBU positions itself in relation to competitors. Operational strategies address how the various functions of
the organization contribute to the particular business strategy and competitiveness of the organization. Much of the research that studies the relationship between MCS and strategy focuses on business strategy. However, there is an increasing interest in considering the nature of MCS and operational strategies (particularly manufacturing strategies).

**Strategy formulation and implementation**

Strategic management is often conceptualized as the rational progression from strategy formulation to strategy implementation (Snow & Hambrick, 1980). Strategy formulation is the managerial activity (often of a cognitive nature) involved in forming strategies while strategy implementation is concerned with translating the chosen strategy into actions (Johnson & Scholes, 1989, p. 15). These actions encompass allocating resources and designing suitable administrative systems, including MCS (Preble, 1992). Contingency approaches to research on MCS and strategy often (implicitly) address strategy implementation (see, for example, Govindarajan, 1988), while case study applications often emphasize the processes of strategy formulation and change (see, for example, Simons, 1990).

Descriptions of strategy formulation and implementation often imply that strategy is an outcome of a deliberate stream of decisions. However, not all implemented strategies arise in the same way (Mintzberg, 1978, 1988). Intended strategies are those that are formally planned, but may not always be realized due to unrealistic expectations, misjudgments of the environment, or changes in plans during implementation. Realized strategies may develop from those intended strategies, or may emerge incrementally. A MCS that is designed to support a certain intended strategy may not contribute to effectiveness if that strategy is never realized, and a different strategy emerges. However, in empirical research the importance of the distinction between intended and realized strategy is rarely acknowledged, and only in case studies are the processes of strategy development and change considered.

**Alternative research paradigms**

Like many areas of research, different discipline bases and paradigms have been used to study strategy. Some research follows a positivist approach, assuming that strategy is an outcome of rational choice. Alternatively, strategy may be considered a craft. Mintzberg (1987) and Quinn (1980) stress the ambiguous and messy nature of strategic decisions, and the need to design systems that allow for flexibility and encourage creativity in strategic planners. In such situations, formal control systems may be counter-productive as they impose constraints and discipline (Goold & Quinn, 1990). A more extreme view is that rational normative models of strategy exist in organizations only as ritual, and that the "true" strategy of an organization is not the one formally espoused in mission statements and company documents; strategy develops and resides in the minds of key managers. Using a normative model of strategic decision making, Schwenck (1984) illustrated how cognitive simplification processes may limit the rational procedures within each stage of the model. Porac Thomas and Emme (1987) explained how cognitive constructions of managers consist of beliefs about the actions of competitors, suppliers and customers, and the causes of success and failure. A manager may choose to engage in certain strategic activities based on those beliefs. This cognitive view of the strategy process is difficult to adopt in research which embraces a positivist stance when objective measures of strategy are sought, but may be used in case study approaches where subjective perceptions of strategy can be recognized.

**Operationalizing strategy**

Hambrick (1980) proposed four different approaches to operationalizing strategy: textual description, partial measurement, multivariate measurement and typologies. Textual description was seen as appropriate for case study research and theory building, but too weak for theory testing as descriptions cannot be generated in large enough numbers to produce generalizable results. Also, the reliance on the
researcher's qualitative judgement limits comparison across cases and the replication of studies. Partial measurement of strategy involves considering variables such as market share, or a particular manufacturing strategy (for example, based around high quality products), but does not capture the full breadth of an organization's strategy. Multidimensional measurement is common to strategy and marketing research and involves measuring a series of variables and conducting large-scale statistical analyses of associations. However, the sheer complexity of the outcomes of these studies may make it difficult to detect the internal logic of a particular strategy. Typologies are comprehensive profiles of different strategic types and have the advantage of emphasizing the integrative components of each strategy. The particular focus of a typology (for example, the rate of product change, or a cash flow emphasis) makes measurement possible. There is strong support for the development and use of strategic typologies in empirical research (Schendel & Hofer, 1979; Miller, 1981) as a way to "bring order to an incredibly cluttered conceptual landscape" (Hambrick, 1984, p. 28). The different strategy typologies and variables that have been used in research on the relationship between MCS and strategy will be discussed briefly and compared.

Strategic variables

Miles and Snow (1978) described three successful organizational types - defenders, prospectors, and analyzers. This typology addresses business strategy, and focuses on the rate of change in products or markets. Defenders have a narrow product range and undertake little product or market development. The functions critical for organizational success are finance, production and engineering with less emphasis on marketing and research and development. The functional organizational structure reflects the specialization of products, markets and technology. Prospectors are described as continually searching for market opportunities and as being the creators of change and uncertainty to which their competitors must respond. The marketing and research and development functions dominate finance and production, so efficiency and profit performance are not as important as maintaining industry leadership in product innovation. Analyzers combine the strongest characteristics of defenders and prospectors.

Porter (1980, 1985) described three generic strategies - cost leadership, differentiation and focus. Each of these intended strategies provides a basis for a sustainable competitive advantage within an industry and potentially defines the context for actions in each functional area of the organization. The successful implementation of each strategy involves different resources and skills, supportive organizational arrangements and control systems. Cost leadership implies that the organization aims to become the lowest-cost producer in its industry. The source of this competitive advantage may arise from factors such as economies of scale, access to favourable raw material prices, and superior technology. An organization with a differentiation strategy focuses on providing products with attributes that are highly valued by its customers. These include quality or dependability of the product, after-sales service, the wide availability of the product and product flexibility. In a focus strategy a company dedicates itself to a segment of the market that has special needs that are poorly served by the other competitors in the industry. Competitive advantage is based on either cost leadership or differentiation.

Miller and Friesen (1982) categorized firms as conservative or entrepreneurial, using the extent of product innovation. The two types differed in their degree of environmental hostility, organizational differentiation, environmental heterogeneity and technocratization. Conservative firms engage in innovation with reluctance, usually as a response to serious challenge. Entrepreneurs aggressively pursue innovation, and control systems were used to warn against excessive innovation.

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2The reactor was an unsuccessful organizational type and is not discussed in this paper.
The classification of build, hold, harvest and divest focuses on variations in strategic missions (Gupta and Govindarajan, 1984). The choice of strategic mission signifies the organization's intended trade-off between market share growth and the maximizing short-term earnings. A business that follows a build strategy aims to improve market share and competitive position, even though this may decrease short-term earnings or cash flow. This can only be achieved if the firm has some competitive superiority within the industry. Under a harvest strategy a firm strives to maximize short-term profit and cash flow rather than increase market share. A hold mission is often used by businesses to protect market share and competitive position, aiming to maintain market share while obtaining a reasonable return on investment. These firms often operate with a high market share in high growth industries. A divest strategy occurs when a business plans to cease operations.

**Integrating the strategy variables**

The range of strategic variables that have been used in research that studies the relationship between MCS and strategy can create confusion and may hamper the integration of research findings. To assist in integrating this research, the differences and similarities between the various strategy classifications can be considered. These differences can be viewed as related to scope and focus. For example, the typology of prospector vs defender has a broad scope, while the competitive positioning of cost leadership vs differentiation is much narrower. The entrepreneur vs conservative classification is focused on the extent of product innovation, while build vs harvest is based on the market share vs short-term profit trade-off. As illustrated in Figure 1, the strategies followed by particular business units can be described along three dimensions: typology, strategic mission and competitive position. When the detailed descriptions of these typologies and variables are reviewed common characteristics, particularly in relation to the degree of environmental uncertainty, are revealed, which leads to the configurations proposed in Figure 2. For example, a viable combination may be for prospectors to compete via differentiation and to pursue a build mission. However,

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3Govindarajan and Shank (1992) presented a matrix of potential fit between strategic mission and competitive position, but did not consider prospector vs defender typologies.
it would seem inconsistent for a prospector to pursue differentiation and a harvest strategy. While further empirical research needs to be undertaken to validate the combinations proposed in this diagram, the classifications will be used in the following section to compare the findings of various empirical research studies.

ANALYSIS OF RESEARCH EVIDENCE

This section contains an analysis of research that examines the relationship between specific aspects of MCS and strategy. First, early normative studies and empirical contingency research are reviewed. This is followed by an examination of the findings of case study research. Finally, the orientation of more recent research that addresses the relationship between performance measurement systems and strategies are discussed.

Contingency research

In contingency research that studies the relationship between MCS and strategy, strategy has been defined and measured in many ways. In the following discussion the strategy variable within each research study has been classified as relating to either prospector or defender strategies, in line with the schematic presented in Figure 2. Table 1 contains a summary of the empirical research studies reviewed.

The nature of control systems and strategy.

From the literature, two contrasting pictures emerge of the nature and role of control systems in organizations following a prospector-like strategy and defender-like strategy. Miles and Snow (1978) characterized the planning and control systems of defenders as likely to be very detailed, focusing on reducing uncertainty, emphasizing problem solving, but being unable to assist in new product development or to locate market opportunities. As finance and production are the focus, technological efficiency will be important. Control systems are likely to be centralized and there may be a heavy reliance on feedforward control. Control may also be achieved through creating highly specialized work roles, formalized job descriptions and standard operating procedures. The combination of simple sequential relationships between subunits, repetitive operations, the absence of non-routine decisions and the stable environment can foster simple and inexpensive forms of cooperation. Similarly, Porter (1980) suggested that highly structured organizations supported a cost leadership focus. Miller & Freisen (1982) focused their strategy classification on the ability of a firm to pursue product innovation. They described conservative firms (defenders) as needing a control system that signals the need for innovation by indicating significant drops in market share, reductions in the sales of old or obsolete products and declining profitability.

Miles and Snow described prospectors as having difficulty implementing comprehensive planning systems due to the changing demands
### TABLE 1. Research design of empirical studies of MCS and strategy

<table>
<thead>
<tr>
<th>Research Study</th>
<th>Method</th>
<th>Sample Selected</th>
<th>Control Variables</th>
<th>Operationalization of Strategy</th>
<th>Dependent Variables</th>
<th>Source of Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Khandwalla (1972)</td>
<td>Questionnaire administered to company Presidents</td>
<td>Sample of 92 manufacturing firms, selected to capture wide variations in techno-economic characteristics</td>
<td>9 broad controls, financial and non-financial</td>
<td>Intensity of price competition</td>
<td>Intensity of price competition, Intensity of market competition</td>
<td>Measured by perceptions of each President</td>
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<td></td>
<td></td>
<td>Source of control variables not provided -- measure on 7 point scale</td>
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<td></td>
<td></td>
<td>Source of control variables not provided -- measure on 7 point scale</td>
</tr>
<tr>
<td>Miller and Friesen (1982)</td>
<td>Questionnaire administered during interview by teams of students</td>
<td>Managers at Divisional VP or higher in 52 firms, non-random but wide-ranging</td>
<td>6 broad controls, financial and non-financial</td>
<td>Entrepreneurs and conservative firms</td>
<td>Innovation</td>
<td>The average response to product innovation and risk-taking questions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Controls not at or below SBU level</td>
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<td></td>
<td></td>
<td>Controls - 6 questions on 5-point scale, responses averaged</td>
</tr>
<tr>
<td>Merchant (1985b)</td>
<td>Questionnaire based on interviews and literature - results analyzed by strategic type</td>
<td>Random sample of 54 PC managers within the one company - some managers below SBU level</td>
<td>5 formal controls</td>
<td>Used managers' own classification based on planned rapidity of growth</td>
<td>Economic Performance</td>
<td>Subjective rating of comparison to other PC on 1 to 4 scale - financial performance</td>
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<tr>
<td></td>
<td>Strategy and MCS were a small component of the study</td>
<td>Controls were viewed from their importance in discretionary decisions</td>
<td></td>
<td></td>
<td>Control variables: Net income targets, Expense targets, Headcount targets, Procedural controls, Meetings, Strategy, Plus other variables</td>
<td>Controls that managers thought had the most significant effect on discretionary decisions (from pilot study). Measured on 5-point scale</td>
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<td></td>
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<td>Managers asked directly</td>
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TABLE 1. (cont).

<table>
<thead>
<tr>
<th>Research Study</th>
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<th>Independent Variable</th>
<th>Source of Measures</th>
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</thead>
<tbody>
<tr>
<td>Gowsadaran and Gupta</td>
<td>Mailed questionnaire</td>
<td>46 SBU managers within 8 firms, where maximum variable bonus a &gt;25% basic salary. Non-random but believed to be strategically diverse.</td>
<td>Incentive bonus schemes</td>
<td>Build, hold, harvest strategies</td>
<td>Effectiveness</td>
<td>Reliance on formula vs subjective incentive systems</td>
<td>Subjective assessment weighted by relative importance attached by superiors to SBU performance on 12 dimensions (5-point likert scale). 12 dimension on 3-point likert scale</td>
</tr>
<tr>
<td>Simons (1987a)</td>
<td>Questionnaire developed from interviews and prior research - results analyzed by size within strategy</td>
<td>Sensor management within 76 firms</td>
<td>10 financial controls</td>
<td>Prospector and defenders</td>
<td>Strategy</td>
<td>Control Systems Attributes: Tight budget controls External scanning Results monitoring Cost control Forecast data Goals relating to output effectiveness Reporting frequency Formula-based bonus remuneration Tailored control systems Control system changeability</td>
<td>Assessment by industry executives + researcher interviews 33 scaled control systems variables reduced to 10 factors which accounted for 75.2% of the variance</td>
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<td></td>
<td>Performance</td>
<td>Same 10 control variables Industry Dynamism</td>
<td>Mean of 3 year's ROI of SBU - checked against published statements Khandwalla (1977), two 7-point likert scales</td>
</tr>
<tr>
<td>Research Study</td>
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<tr>
<td>Govindarajan (1986)</td>
<td>Questionnaire developed from interviews with managers and the literature</td>
<td>Managers of 75 SBUs, from 24 firms, representing a mix of SBU strategies</td>
<td>Budget evaluative style</td>
<td>Differentiation and low cost strategies</td>
<td>SBU effectiveness</td>
<td>Administrative mechanisms (budget evaluative style, decentralisation, locus of control, company size SBU size Competitive strategy)</td>
<td>See Govindarajan and Gupta (1983) BES - used Hopwood (1972)/Otley (1978) measure Developed new instrument - few details provided</td>
</tr>
<tr>
<td>Govindarajan and Fisher (1990)</td>
<td>Mailed Questionnaire</td>
<td>Managers of 145 SBUs, from 24 firms, representing a mix of strategies</td>
<td>Reliance on output control or behavioral control</td>
<td>Differentiation and low cost strategies</td>
<td>SBU effectiveness</td>
<td>Control mechanism (output or behavior) Strategy Level of resource sharing (between SBUs)</td>
<td>See Govindarajan and Gupta (1983) Agreement/disagreement with one of two statements Developed instrument - percentage reliance on either strategy for individual products Developed instrument- importance of functions for implementation of SBU strategy, and weighted average of degree of resource sharing across SBUs</td>
</tr>
<tr>
<td>Daniel and Reinberger (1991)</td>
<td>Mailed questionnaire</td>
<td>A selected sample of companies listed on Japanese stock exchanges. A range of managers in each company responded.</td>
<td>Frequency and type of goal and feedback information</td>
<td>Quality strategies</td>
<td>Quality strategy</td>
<td>Goal-setting and feedback for rejects, rework, scrap and downtime</td>
<td>8 dimensions - source not provided Developed for this research</td>
</tr>
<tr>
<td>Daniel and Reinberger (1992)</td>
<td>Mailed questionnaire</td>
<td>A range of managers from selected listed Japanese and US companies</td>
<td>Goal-setting and feedback for production and quality internal failures</td>
<td>Quality improvements</td>
<td>Goal setting and feedback for rejects, rework, scrap and downtime</td>
<td>Developed for this research</td>
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</table>
of their environment. Control systems may focus more on problem finding than problem solving, and flexible structures and processes may assist the organization to respond rapidly to environmental change and to create such change. However, coordination may be expensive and difficult due to overlapping project teams and shared information and resources. The use of broadly defined jobs and the lack of standard operating procedures may encourage innovation. Control may be decentralized and results oriented. Porter (1980) saw a differentiation strategy as also relying on control through coordination, rather than on formal controls, to encourage creativity and innovation. It has also been argued that firms that follow an entrepreneurial strategy (similar to prospectors) require a control system that signals when productivity and efficiency have fallen, to signal when innovation needs to be curbed (Miller & Freisen, 1982).

These studies clearly suggest there is a level of consistency between the organizational and control characteristics of a defender and cost leader, and a prospector and differentiator, which further supports the proposed fit between these two dimensions of strategy.

Control systems and the level of competition. Before the 1980s there were no published research studies that examined explicitly the relationship between strategy and control systems. However, Khandwalla (1972) studied the relationship between control systems and competition, an aspect of the environment that may determine the nature of an organization's strategy. He distinguished between three forms of competition - product, process and marketing - and found the more intense the level of competition, the greater was the reliance on formal control systems. In particular, he argued that intense product competition may require complex organizational forms, with departments for research and development, new product testing, and scanning for new markets; sophisticated control systems may play an integrative role. While the nature of strategy was not explicitly considered, organizations that face intense product competition are likely to be those that follow the strategies of a prospector or differentiator (Miles & Snow, 1978; Porter, 1980). However, the specific controls measured by Khandwalla - formal accounting controls such as standard costing, flexible budgeting, internal auditing, use of ROI and inventory control - are not those that might be expected to act as an integrative device in an innovative, product-focused organization, with an emphasis on flexibility and quick responses, and after-the-event control (Miles & Snow, 1978; Porter, 1980). Burns and Stalker (1961) suggested that innovation was more suited to unstructured and organic organizations, where there was less reliance on formal controls. Similarly, Thompson (1967) argued that innovation and administrative controls were not compatible.

Khandwalla (1972) is notable in providing the first empirical evidence of the relationship between MCS and the level of competition. However, it contributes little to our knowledge of the relationships between MCS and strategy, and the findings of this study are ambivalent, particularly when compared with subsequent research studies. A further limitation is the study's focus on the use of controls, without considering whether those controls were effective in supporting a particular strategy or level of competitiveness.

Controls and discretionary decision making. Merchant (1985b) studied control systems, strategy and discretionary decision making in the divisions of a single company. Strategy was defined by managers within the company as rapid growth, selective growth, maintain or generate cash flow, and harvest. The controls studied extended beyond financial controls, to include procedural and personnel controls. Merchant found that the controls used in businesses that followed a growth strategy were not noticeably different from the controls used under a maintain or selective growth strategy. When a rapid growth strategy was followed discretionary decisions were more highly affected by controls such as net income targets, headcount controls (especially hiring freezes) and
the use of meetings where senior management gave directives. The findings of the study, in terms of relating MCS and business strategy are limited and Merchant acknowledges that his research was exploratory. No arguments were presented to support a conceptual relationship between growth strategies, control systems and discretionary decision making. While the link to other research on strategy and control systems is not strong, it should be recognized that at the time this study was written there was limited prior empirical research.

Strategy and cost control. There is some agreement among researchers that cost control is more important in firms following a defender-type strategy compared with the "opposite" prospector-type strategy. Porter (1980) suggested that tight cost controls were appropriate when following a cost leadership positioning. Miles and Snow (1978) argued that in defenders, control systems focus on cost objectives that are translated into specific operating goals and budgets. Efficiency and ongoing cost monitoring were more important to defenders, while prospectors were more results oriented.

The findings of Miller and Friesen (1982) are more difficult to integrate with prior research as strategy was defined in terms of product innovation. However, their argument for the lack of sophisticated cost controls in entrepreneurs is consistent with Miles and Snow's view of prospectors (and inconsistent with Khandwalla, 1972).

Simons (1987a) is an empirical investigation of the relationship between MCS and strategy. However, many of the findings conflict with other research. First, Simons (1987a) found high performing prospectors placed importance on controls, such as forecasting data, tight budget goals and the careful monitoring of outputs, but gave little attention to cost control. Also, large high performing prospectors emphasized frequent reporting and the use of uniform control systems, which are modified when necessary. Simons (1987a) also found that control systems were used less intensively by defenders, particularly large defenders, compared with prospectors. In large defenders, high financial performance was negatively correlated with tight budget goals and the use of output monitoring. It was only in small defenders that tight budget goals were positively correlated with high performance. These findings are not consistent with those of Miles and Snow (1978) and Porter (1980). While Simons expressed "surprise" at his findings, particularly regarding defenders, he offered little explanation or speculation about the possible reasons.

There are two aspects about Simons' results that are puzzling. First, why were certain aspects of formal control systems considered important to prospectors, but used less intensively by defenders, particularly large defenders? Second, why should organizational size make a difference to the importance of controls? Small defenders found tight budget goals important, but large defenders did not. While we can cite the usual reasons for conflicting findings - different samples, different industries, empirical versus normative studies, national cultural differences - other interpretations are possible.

Dent (1990) proposed several explanations for Simons' findings. First, in prospectors control systems may restrict risk taking, particularly where authority for product development and market innovation is delegated. Thus, control systems may balance the innovative excess encouraged by prospectors' organizational arrangements (Miller & Freisen, 1982). Second, prospectors may rely on performance monitoring to encourage organizational learning in the face of high task or environmental uncertainty. Finally, financial controls may be the only way that the wide scope of a prospector's activities can be captured. Also, defenders, being more stable organizations, may not require intense cost control, but may more effectively achieve efficiency using non-financial measures (Dent, 1990). A major limitation of Simons' study (which may reflect the era in which it was undertaken) was the focus on financial controls. However, as non-financial controls were not considered by Simons (1987a) the above explanations remain speculative. In a later section of this
paper, we will consider more contemporary ideas about strategy and control systems that may cast a different light on these issues.

**Performance evaluation and reward systems.** Several contingency studies have focused on the relationship between strategy and performance evaluation and reward systems. In particular, the choice of subjective or objective approaches to rewarding performance has been researched.

We will first consider the findings for companies following defender, cost leadership and harvest strategies. Simons (1987a) found that high performing defenders awarded bonuses for the achievement of budget targets (an objective measure). Govindarajan (1988) found similar results for high performing firms following a low cost strategy, as did Gupta (1987) for harvest and low cost strategies and Porter (1980) for cost leaders. Further, the reliance on long-run criteria and subjective bonuses hampered effectiveness in firms following a harvest mission (Govindarajan & Gupta, 1985). Thus, the research findings are consistent: objective performance evaluation and reward systems have been found to support defender-like strategies.

In firms that follow prospector, differentiator and build strategies the evidence is also fairly consistent. Porter (1980) argued that subjective performance evaluation was appropriate for differentiators. This was supported by Govindarajan and Gupta (1985) for organizations following a build mission, and by Gupta (1987) for firms following a build and differentiation strategy. Govindarajan and Gupta (1985) also argued that as build strategies demand a long-term orientation, incentive bonuses should also be based on long-run criteria. (Interestingly, they did not find a strong relationship between the use of short-run criteria for bonuses and effectiveness for build or harvest firms.) The reliance on behavior controls by differentiators in the Govindarajan and Fisher (1990) study may imply that subjective bases are used for performance evaluation, as may the low emphasis on meeting budget targets in Govindarajan (1988). In contrast, Gupta and Govindarajan (1986) found that while subjective, rather than objective approaches to determining bonuses were more beneficial when there is a high degree of resource sharing between business units, resource sharing itself makes a greater contribution to effectiveness in cost leaders than in differentiators. Simons (1987a) and Miles and Snow (1978) did not specify the subjective or objective nature of performance evaluation systems for particular strategies.

The apparent consistent findings regarding performance evaluation and reward systems for prospector-like strategies is not surprising, especially as high environmental uncertainty is usually associated with these strategies. In these situations it may be difficult to develop performance measures that accurately reflect managers' performance. Also, the critical success factors associated with these strategies, such as new product development, innovation and research and development, are of a long-run nature and difficult to quantify objectively. Similarly, defender-like strategies usually operate within a low level of environmental uncertainty. Their limited and stable product range, and their focus on internal efficiency may allow performance levels and rewards to be specified with greater precision.

The relationship between environmental uncertainty and performance evaluation is well researched (see Briers & Hirst (1990) for a review). For example, Gupta and Govindarajan (1984) confirmed that high performing firms facing high environmental uncertainty place greater reliance on subjective performance evaluation. While environmental uncertainty may partially explain the choice of a subjective or objective performance evaluation system, it should not be assumed that strategy is a surrogate for the environment (although it is probably highly correlated). Also, to date we have only limited knowledge of the nature of performance evaluation systems under different strategies. There is a range of questions that remain unanswered, which may be contingent on the strategic orientation of the firm. These include the appropriate mix of salary and
non-salary components within rewards, the potential for linking rewards to both business unit performance and corporate performance, and the frequency of performance measurement and bonus payments. While the research reviewed in this paper only considered performance evaluation and rewards of senior managers, future research may also consider non-managerial employees. The recent literature on balanced scorecards (Kaplan & Norton, 1992, 1993), and performance measurement hierarchies (Lynch & Cross, 1992) may stimulate future research agendas.

**Resource sharing and control systems.** Govindarajan & Fisher (1990) studied cost leadership and differentiation strategies, the extent of resource sharing between strategic business units (SBUs) and the use of controls. Resource sharing refers to the sharing of functional resources by two or more SBUs within a single firm, and may include using common sales forces and common R&D facilities. They argued that the potential for synergistic benefits from resource sharing varies across strategic contexts, and the realization of these potential benefits depends on how effectively the linkages between SBUs are managed.

In high performing cost leaders, Govindarajan and Fisher (1990) found that output controls (and not behavior controls) were combined with high resource sharing. However, this is not consistent with Miles and Snow (1978), who described the use of standard operating procedures by defenders, and Porter (1980) who argued that cost leaders may rely on frequent cost reports. To some extent, the interaction effect of resource sharing and controls could explain this apparent conflict. Also, Govindarajan and Fisher found that differentiators with high resource sharing relied on behavior controls (the continual monitoring of decisions and actions), which seems at odds with the entrepreneurial mode of prospectors and their reliance on subjective performance assessment (discussed in the previous section). However, it was found that where there was low resource sharing, output controls were used by effective differentiators, but that the level of effectiveness was not as great as for SBUs with high resource sharing.

Control systems theorists, such as Ouchi (1977) and Eisenhardt (1985), concluded that behavior controls are more suitable where there is high task programmability and where outcomes can be readily measured. This would seem to describe the situation facing defenders and cost leaders. As task programmability decreases and outcomes can still be clearly specified, greater reliance may be placed on output controls. This is not the situation usually faced by prospectors, as the innovative and spontaneous nature of their operations could preclude high task programmability, but the situation could still apply to defenders. Thus, the findings of Govindarajan and Fisher (1990) for differentiators conflict with Ouchi (1977). However, Ouchi (1977) also described a third situation that does seem to match the environment of prospectors - where there are neither programmable tasks nor measurable outcomes. In this situation socialization or clan controls might be appropriate. While Govindarajan and Fisher did not explicitly consider social controls, curiously, they did equate behavior controls with social controls when interpreting their findings. This is despite there being sufficient discussion in the literature to support the different nature of these two forms of control (Eisenhardt, 1985; Merchant, 1985a).

Govindarajan and Fisher rely on agency theory to argue that output controls are effective in SBUs following a low cost strategy, and behavior controls in differentiators. However, their arguments are not convincing, given the specific information and operational needs of prospectors and differentiators.

**Operational control systems and strategy.** A developing area of research interest is the relationship between control systems and manufacturing strategy. This topic has been covered in the professional literature with anecdotal case studies, and in the academic literature several normative papers have been published (see, for example, Nanni, Dixon and Vollman, 1992). However, there has been little empirical
research that has studied explicitly MCS and specific manufacturing strategies. Notably, Daniel and Reitsperger (1991) studied the nature of the control systems that support particular quality strategies using two different approaches to managing quality. Under the economic conformance level model a cost minimizing quality level is achieved by balancing prevention and appraisal costs against internal and external failure costs. In these situations standard costing and the detailed recording of quality costs may be important. The zero defects model recognizes that the indirect costs of poor quality cannot be measured. Control may be achieved through continuous improvement of quality goals, the reduction in defective units and frequent feedback on quality performance to employees. Cost quantification may not be considered important (and may even be misleading), as achieving high quality is assumed to lead to lower costs. These findings are supported by Banker Potter and Schroeder (1993) who, while not formally researching strategy, examined the changes in performance reporting and control systems needed at the operational level to support an emphasis on increasing productivity and quality.

In a related study, Daniel and Reitsperger (1992) compared the control systems of Japanese and US electronics manufacturers. They found that Japanese businesses were more likely to have modified their control systems to better focus employees on achieving higher production, lower costs and better quality than their US counterparts. While the nature of the firms' strategy was not investigated, the findings of the study supported the need for MCS at the operations level to specifically support manufacturing strategies, using performance targets and feedback information.

These two papers are significant for several reasons. First, they examine the nature of the control system and a specific differentiation strategy (that of quality). Second, they consider how two different approaches to viewing the nature of quality can affect the choice of control system. Finally, control systems and strategy are considered at the operational level.

**Conclusion.** The above research studies give us only limited knowledge about the forms of control systems that suit particular types of strategies. A common feature of these studies is the focus on intended business strategy; MCS are viewed as playing a supportive role within the rational strategy implementation process. However, as our knowledge in this area is limited, and sometimes ambiguous, there is clearly significant scope for further research studies to clarify some of the conflicts. Some methodological limitations of these empirical research studies are described in a later section.

**Case study research**

Case study research offers the potential for a deeper examination of the processes involved in the relationship between MCS and strategy formulation and implementation. The aim of case research is not necessarily to identify the best fit between MCS, strategy and other variables, but to study the interactions between MCS and strategy. This may be contrasted with the empirical research reviewed in the preceding section that was cross-sectional in design and therefore presented a static view of MCS and strategy; the dynamic nature of the relationships cannot be inferred. Also, case studies can allow a wide range of controls to be studied, including those that are difficult to measure with surveys. In this section, the cases reviewed address a series of interrelated issues: managers’ perceptions as mediating the link between MCS and strategy, the role of MCS in effecting or impeding strategic change, and choice of interactive and diagnostic controls to manage strategy.

Managers’ perceptions as mediating MCS and strategy. Archer and Otley (1991) presented a rich description of the control system used in an agricultural manufacturing company. The managers of Rumenco saw their company as having limited opportunities to determine and pursue strategic goals, due to the declining industry and capital resource limitations. Managers characterized their competitive advantage as cost leadership (production) and
product differentiation (based on technical expertise) within a specialized niche market.

Rumenco was a small company that relied on a mix of formal and informal controls. The choice of formal controls reflected managers’ thinking about the existing strategy. Extensive budgetary controls and detailed cost reports supported the production cost focus, and extensive market information supported the maintenance of the technical advantage. Regular product development committee meetings played an integrative role, formally linking the three critical areas of the business - production, technical and marketing - which were the sources of competitive advantage. However, the close proximity of managers encouraged frequent informal discussions that were also important in achieving control and coordination. All of these control mechanisms acted to coordinate the major activities of the business and encourage efficient and effective implementation of the current strategy. However, while managers formally recognized there was a performance gap and a need to change strategy, the MCS only encouraged managers to “do what is currently being done more effectively.” The MCS was unable to assist in developing new strategies, and the company was eventually sold.

There are three main issues that arise from this case. First, a complementary mix of formal and informal controls can be used to support a strategic direction. Second, committee meetings may play an integrative role in linking MCS and the execution of strategy. Finally, the potential for MCS to support existing strategy and lead to strategic change may be mediated by managers’ perceptions.

Accounting controls and strategic change. In Archer and Otley (1991) the nature of the MCS was one factor constraining the development of new strategies. This theme also appears in Roberts (1990), who studied strategic change in a large decentralized company. The high level of decentralization encouraged competition between profit center managers, and distanced corporate managers from changes in market conditions that affected profit centers. Accounting information was seen as a powerful influence in shaping managers’ activities and relationships. However, while it created an external image of success, it concealed potentially damaging strategic consequences.

Roberts’ study emphasized how accounting controls can create a climate that can act against successful strategy formation and implementation processes. The accounting controls emphasized individuality, instrumentality, autonomy and dependence. They encouraged conformity and distorted communications, which conflicted with the requirements for successful formulation and implementation of strategy. However, as in Archer and Otley (1991), management conferences (meetings) intervened to play an important integrative function to help resolve conflict between accounting controls and strategy. These meetings provided managers with a means for developing strategy as they encouraged interdependence and reciprocity among the profit center managers and enabled a sharing of market knowledge. They also helped create a set of shared meanings around which actions could be mobilised.

This study is valuable as an example of how accounting controls, which for some organizations may have dysfunctional implications for strategy development, can be balanced by non-accounting controls (in this case, management meetings). The integrative role that meetings played was to balance conflicting perspectives, whereas in Archer and Otley (1991) meetings served to integrate the three sources of competitive advantage. Again, perceptions were considered important in influencing strategic change.

Knight and Willmott (1993) provides a contrasting case to that of Roberts (1990), describing how new accounting control systems were used to effect strategic change in an insurance company. Unlike Rumenco (Archer & Otley, 1991), strategy was a “conscious choice” of management from a range of viable alternatives. The authors studied the company over a three year period to present a unique story of the implementation of a strategy, and the detailed development of the new control system. Cost control was the major control mechanism used
to move the sleepy paternalistic company to an aggressive competitive company. The control system played a role in adapting managerial attitudes and behavior to be more consistent with the new strategy and the new competitive environment. A similar situation was presented in Dent (1991) who explained how accounting control systems can be instrumental in effecting organizational change, which in turn may lead to control systems change. Knight and Wilmott (1993) reveal the power of accounting controls in influencing attitudes and behavior, however, in contrast with Roberts (1990), the dysfunctional effects of a heavy reliance on cost control were not apparent. This may have been because the new cost control orientation encouraged was consistent with the thrust of the new strategy.

The choice of interactive and diagnostic controls to manage strategy. Simons (1987b, 1990, 1991, 1994) presented a series of cases that contribute to a theory of how senior managers can use controls to implement and develop business strategy, which culminated in his book Levers of Control (Simons, 1995). Simons argued that it is not the identification of controls associated with particular strategies that are important, but the distribution of management attention among controls. Like the cases already reviewed, MCS are not viewed merely as devices that constrain and monitor activities to ensure that organizational goals are achieved, but play a role in maintaining or altering patterns of organizational activity. Simons describes “interactive controls” as those that senior management choose to monitor personally. This directs attention towards strategic uncertainties and allows managers to monitor emerging threats and opportunities. 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 the interactive management controls. “Diagnostic controls” are then used to implement intended strategies (Simons, 1995, p. 63). These controls measure critical performance variables, and their management is delegated to staff specialists. While firms competing within the same industry may face the same set of strategic uncertainties, managers' identification of relevant environmental uncertainties, and hence, choice of interactive and diagnostic controls may differ. Notably, Simons does not consider how managers' perceptions and other information processing characteristics affect these choices (Gray, 1990).

Simons (1990) compared the competitive characteristics and MCS of two companies operating in the one industry. Company A was a defender, a cost leader and adaptive, while Company B was a prospector, followed a differentiation strategy (based on product innovation and quality) and was entrepreneurial. Company A operated in a relatively stable environment and many aspects that were important for sustainable competitive advantage were highly controllable, and therefore, were treated as diagnostic. Interactive control focused on the strategic uncertainties of product or technological change that could undermine the company's low cost position. Company B used budgeting systems and planning systems interactively to set agendas to debate strategy and action plans in the face of rapidly changing environmental conditions. Simons found that subjective reward systems motivate organizational learning in rapidly changing environments where rewarding team effort is important. This is consistent with research described in an earlier section (such as Govindarajan & Gupta, 1985) which supported the use of subjective bonus systems in firms following a differentiation strategy.

In a subsequent study, Simons (1991) refined his theory and identified five different types of control systems which managers may choose to use interactively: programmed management systems, profit planning systems, brand revenue budgets, intelligence systems and human development systems. Three propositions were presented. First, senior managers with a clear sense of strategic vision may choose one type of control system to use interactively, and this choice is influenced by technological dependence
within product markets, complexity of the product chain and the ability of competitors to respond to product market initiatives. Second, senior managers use multiple control systems interactively only during short periods of crisis, and when the organization is in transition. Third, senior managers without a strategic vision, or without the urgency to create a strategic vision, do not use control systems interactively. Interactive controls force personal involvement, intimacy with issues and commitment which guides the formal strategy-making process.

Simons (1994) extended his earlier work to examine how ten newly-appointed senior managers used formal control systems as levers of strategic change and renewal. While there were differences between managers implementing revolutionary and evolutionary change, the following features were common. The managers used control systems to overcome organizational inertia, communicate the substance of their strategic agenda, organize implementation timetables and targets, ensure continued attention through incentives, and to focus organizational learning on the strategic uncertainties associated with their new strategy.

These studies represent a move towards providing a model of the ways that senior managers may select and use MCS in strategy formation and implementation, and to stimulate strategic change. Unlike the empirical studies reported in an earlier section, the content of the strategy is not critical to understanding the nature of the relationship between controls and strategy. Simons (1995) hypothesized that senior managers may use different aspects of the control system to focus on four key constructs that are critical to the successful implementation of strategy. Core values (which influence belief systems) and interactive control systems (which control strategic uncertainties) are described as creating positive and inspirational forces. Boundary systems (which control risks) and diagnostic control systems (which control critical performance variables) create constraints and ensure compliance with rules. Simons argued that the dynamic tension between these opposing forces allows the effective control of strategy. Simons considered the broad range of formal, informal and cultural controls in his model. However, unlike the previous cases reviewed which took a more interpretive approach, his model adopts a more functionalist approach to explaining the relationships between MCS and strategy.

**Conclusion.** These case approaches provide evidence about how MCS can influence strategic formulation, implementation and change. The notion of control systems playing a proactive role in shaping change is not the conventional approach taken by some prior researchers who saw control systems as passively following change (Den Hertog, 1978; Markus & Pfeffer, 1983), or by the contingency research reviewed in a previous section. Unlike the empirical studies the case approaches provide little evidence about the specific types of controls that suit particular strategies. However, the case authors would possibly contend that their research objectives were of greater significance. They provide valuable insights into how MCS may assist in the formulation and implementation of strategies.

Case studies have been criticized for their lack of generalizability and their inability to provide a body of accumulated knowledge. However, common themes emerge from the cases reviewed. All cases emphasized the importance of managers' perceptions effecting the nature of strategic change, or the orientation of the MCS. Managers' perceptions can be considered a mediating variable in the relationship between MCS and strategy (Archer & Otley, 1991). The interdependence of formal and informal controls and strategic processes, and the role of MCS in either supporting, or impeding strategic change was common to all cases. Management meetings were viewed as an important integrating mechanism, facilitating the relationship between MCS and strategy, by Archer and Otley (1991) and Roberts (1990). In particular, the Simons studies provide a stream of case investigations that contribute towards a model of the dynamic relationship between
MCS and strategic change, which is moderated by the ways that managers direct attention to controls.

Contemporary approaches to performance measurement systems

In recent years many normative studies and practitioner-oriented case studies have emerged which assert that performance measurement systems should be designed to directly support the strategic priorities of the business (see, for example, Kaplan, 1990; Nanni et al., 1992; Meyer, 1994). Lynch & Cross (1992) promoted a performance measurement hierarchy that articulates an integrated performance measurement system, from senior management level to the operational level, which addresses both market and cost considerations to support aspects of strategic importance. Kaplan and Norton (1992, 1993) presented a balanced scorecard model that emphasizes the need for balance between short-term and long-term measures, and across the strategic dimensions of the business.

In professional journals, such as Harvard Business Review, Management Accounting (both the USA and UK journals) and Journal of Cost Management for the Manufacturing Industry, the number of papers that reinforce the notions of consistency and integration between performance measures and strategy are numerous. It is interesting to consider how these contemporary papers relate to the issues reviewed in the preceding sections of this paper. For example, there was conflicting evidence in the empirical research on the different degrees of reliance on cost control of prospectors versus defenders. Supporters of the contemporary approaches to performance measurement systems claim that performance measures should support the focus of the strategy - be it cost, quality or delivery - to promote the "correct" orientation and behavior among all employees, and that a range of performance measures is important to provide "balance".

The contentious issues in papers that take contemporary approaches to performance measurement arise from intuitive arguments, rather than empirical evidence and include the issue of balance (short-term versus long-term measures), the degree of emphasis among various measures, the level of detail of performance measures at different managerial levels, and the degree of consistency between measures at all levels of the organizational hierarchy. The assumption is that performance measures direct attention and motivate employees to act in strategically desirable ways, and help management to assess progress towards strategic goals. Performance measures are assumed to be necessary in all situations, no matter what strategy is pursued. This supports earlier findings of Miller and Friesen (1982) who argued that MCS are useful for entrepreneurs (prospectors) to curb, or balance, innovative excesses, and may also cast light on the seemingly surprising findings of Simons (1987a) regarding the use of cost control in prospectors.

METHODOLOGICAL LIMITATIONS OF CONTINGENCY RESEARCH STUDIES

It can be seen from the preceding review that research evidence about the relationship between MCS and strategy covers a broad range of perspectives and methods. Unfortunately, this wide coverage means that our body of knowledge remains in its early stages. In particular, in the contingency studies the integration of the available evidence is hampered by certain aspects of the research designs.

While the general limitations and contributions of contingency research have been covered in detail elsewhere (Otley & Berry, 1980; Duncan & Moores, 1989; Moores & Chenhall, 1994), research studies are still being designed with methodological weaknesses. In this section, we will consider methodological limitations relating specifically to empirical research that addresses the relationship between MCS and strategy that need to be considered if valuable research is to be produced in the future.

Operationalizing management control systems

A key difference in each study is the breadth
of controls measured (see Table 1). For example, Simons (1987a) selected 10 financial controls, whereas Govindarajan and Gupta (1985) and Govindarajan (1988) each focused on one control - incentive bonus schemes and budget evaluative style, respectively. The variation in the number and type of controls that have been researched makes it difficult to develop a coherent body of knowledge. While the period in which most of the research was completed may preclude the specific recognition of "strategic controls" (Goold & Campbell, 1990), interestingly there were no strategically-driven performance measures included as part of the control variable.

The important distinction between the existence and the use of controls was not acknowledged in many research studies surveyed. For control systems to support a certain strategy, it may not be sufficient for certain controls merely to exist. It can be argued that the appropriate orientation for examining controls is their use and importance to key decision makers. Simons' (1995) theory of diagnostic and interactive controls is useful in clarifying this distinction.

The omission of clan controls and a wider range of formal and informal controls can also be criticized. It has been claimed that focusing on a few financial or non-financial formal controls is an under-specification of an organization's control system (Otley, 1980). However, designing instruments to measure accurately the incidence or use of informal and clan controls is difficult. While there are practical limitations to the number of controls that can be included in research studies, the recognition of a wider control definition may assist in the interpretation of some research findings. For example, while Miller and Friesen (1982) found that "controls" were negatively correlated with innovation in entrepreneurs, this could have been due to successful entrepreneurs relying on strong clan controls, derived from a strong culture that promotes aggressive product innovation (consistent with Ouchi, 1977). If the study had considered clan controls, then a different picture of the relationship between control system and strategy may have emerged.

Measuring effectiveness

Effectiveness has been presented as a necessary dependent variable in contingency research as it provides the means for determining the appropriate fit between MCS and organizational variables (Otley, 1980; Merchant & Simons, 1986). However, Simons (1987a) defined firm performance as the dependent variable, whereas in Merchant (1985b) it was an independent variable. Effectiveness can be considered an independent variable (Otley & Wilkinson, 1988). For example, the adoption of certain controls or of a particular strategy might be in response to low (or high) effectiveness. However, in this situation what is the appropriate dependent variable? And how can "the proper fit" between organizational aspects and strategy be assessed if there is reverse causation?

While Simons (1987a) and Merchant (1985b) defined effectiveness as financial performance, it can be argued that this is not always an appropriate definition. For example, in a prospector that focuses on product innovation high (short-term) profits may not be considered a good measure of the effectiveness of their strategy. Criticisms have also been voiced concerning whether ROI is even adequate for measuring the performance of financially-oriented firms (Merchant, 1989; Dearden, 1987). If the measure of effectiveness is not appropriate for all the firms studied, then the results of analyses must be interpreted carefully. For example, in Simons (1987a) prospectors' performance was negatively correlated with cost control. However, these results might be better interpreted as prospectors with high ROI rely on few cost controls, and prospectors with low ROI rely on a high level of cost control. However, this provides little evidence about the nature of controls used in high performing (that is, high product innovation) prospectors.

Miller and Friesen (1982) used innovation to measure effectiveness, and considering the nature of the entrepreneurs and conservative classification, this seems a reasonable measure of strategic performance. Govindarajan & Gupta (1985), Govindarajan (1988) and Govindarajan and Fisher (1990) defined effectiveness using
10 or 12 dimensions, which respondents weighted to reflect the relative importance to their business. They recognized that there are many possible performance dimensions that are critical in measuring the success of a firm, requiring a subjective approach be taken in measuring effectiveness.

Weaknesses in operationalizing strategy

There are several weaknesses in the way that researchers operationalized strategy. First, it is clear from earlier discussions in this paper that strategy can be measured using several variables. However, few studies acknowledged the multi-dimensional nature of strategy. Second, using certain strategic typologies can potentially result in a circular research design. This is because strategic typologies are defined by recognizing patterns between many interrelated environmental and organizational variables. Hambrick (1980) warned that researchers should only test for associations between strategic types and other variables that do not constitute the basis for the strategic typing. For example, the Miller and Friesen (1982) typology focuses on product innovation, but the different types are categorized using variables such as environmental hostility, organizational differentiation and technocratization. Studying the strategic type (conservative and entrepreneurial) and the degree of environmental hostility would be invalid. However, there would be no difficulty in studying the relationship between strategy and performance measurement systems.

The third weakness is that the distinction between intended and realized strategy was not explicitly recognized in all studies, or in the wording of the measurement instruments. Thus, in responding to surveys, managers could report their intended strategies and not emergent or realized strategies, or realized strategies may be presented by managers as the strategy that was always intended.

The fourth aspect is that some survey instruments did not recognize the relative nature of strategy, which may have led to inaccurate classifications of strategic types. While Govindarajan and Fisher (1990) focused on measuring cost leadership and uniqueness of products (differentiation) relative to competitors, other researchers assessed strategy in isolation from competitors. For example, the questions on risk taking and product innovation used by Miller and Friesen (1982) to classify firms as entrepreneur or conservative did not relate these characteristics to those of the competitors. A company with only a few new product introductions in a fast moving highly innovative industry might be considered highly innovative in a more conservative industry.

A further criticism of methods used to operationalize strategy is an underlying assumption that managers view their organization’s strategy using the same orientation or focus adopted by the particular strategic variable or typology. The conceptualization of strategy as, say prospector vs defender, may be useful from a researcher’s viewpoint, but may have little relevance to managers who formulate and implement strategy (Snow & Hambrick, 1980; Archer & Otley, 1991). This conflict could affect the validity and reliability of responses. Closely related to this issue is the assumption that managers who are surveyed are fully aware of the strategy of their organization, especially of the intended strategy. Quinn (1977) suggests that it may be a deliberate policy of some senior managers to avoid communicating intended strategies to all managers. Also, it has been shown that perceptions of intended strategy can vary among managers within the one organization (Snow & Hrebiniak, 1980; Dess & Davis, 1984). If we take the view that the “true strategy” of an organization is not always that which is formally espoused, then even more complex questions arise.

Finally, there was a failure to recognize that strategy can be an ongoing developmental process. Potentially, strategy could be measured in a number of organizations, which may all be at different stages in the strategic change process.

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4This has also been the writer’s experience when experimenting with instruments of Snow and Hrebiniak (1980) and Porter (1980). Some managers had difficulty relating to the particular orientations of those instruments which differed from the way that strategy was thought about in their companies.
Also, the MCS needed to support a particular strategy may only be partially developed at the time of the study as the change process may be continuous or span many years. This would clearly affect the validity and comparability of research findings.

CONCLUSION AND DIRECTIONS FOR FUTURE RESEARCH

The purpose of this paper was to review and critique research that examines the relationship between MCS and strategy, and to consider the state of our knowledge in this area. Surprisingly, relatively few empirical research papers have been published, despite strategy being of interest in the academic and professional literature in recent years. However, several case studies have served to expand our understanding of the potential interplay of MCS and strategy.

The contingency studies focused on identifying the characteristics of MCS associated with effectiveness under different strategies. However, the research evidence is fragmentary and sometimes conflicting. These conflicts were believed to be partially a result of the differences in research designs (as occurs in all contingency research), but also arose from the way that control, effectiveness and strategy were operationalized and measured. Future research in this area could aim to develop consistent classifications for controls and other contingent variables, and use established classifications of strategy. The case studies addressed the relationship between MCS and strategy in much greater depth and often in a dynamic way to provide interesting propositions and theories. The case studies included the importance of managers' perceptions in influencing the relationship between MCS and strategy, and the role of MCS in influencing strategic change. More contemporary approaches to MCS and strategy that have appeared mostly in the profession literature focus on the design of performance measures at all managerial levels to effect balance and consistency with strategy.

The focus of most of the empirical and case studies reviewed was on senior management - divisional heads, profit center managers and business unit managers - and on business strategy (Daniel & Reitsperger, 1991, 1992 are exceptions). This may be an appropriate focus, as it is these managers who usually formulate and often implement business strategy. However, the continued focus on senior management's use of controls could be misplaced. The success of a strategy may be directly influenced by activities that take place in other areas of the business, for example, at the operational, and research and development areas of the organization. The types of controls and the way that they are used by shop floor workers and their managers may be critical to the success of the strategy. Determining the nature of the controls that are suitable at the operational level for different types of manufacturing strategies may be an important research question. Also, when advanced manufacturing philosophies are adopted (for example, JIT, TQM) the implications for control systems at all levels of the organization is a potential area for research. While normative research and single case studies have considered these issues, empirical research may provide much needed evidence.

Calls have been made for a greater commitment to more in-depth (case-based) research (Hopwood, 1983; Kaplan, 1986). However, there is clearly a place for both case and survey research, and both forms of research should continue to play a role in the future. However, future survey research may reflect a greater maturity in the structure of the research design and could draw on the insights and perspectives provided by innovative case studies. However, in studying MCS and strategy the interactions are complex and perhaps only in-depth research can help us understand the complex nature of these relationships. This is particularly so if we recognize that strategy is an evolving and multifaceted concept. It is difficult to envisage how Simons' theory of the dynamic interactions between MCS and the strategy formation process could have resulted from survey-based research, or how Roberts (1990) could have studied the constraining effect of accounting controls on strategic processes.
Many research opportunities and unresolved questions remain. It is not clear what role MCS can play to bring intended strategies to realization, or whether MCS can minimize the disruption caused by strategic change (especially when those changes are spread over a considerable period of time). Research could be undertaken to explore whether the role and composition of MCS change as a company matures. The significance of resource sharing between SBUs for the design of MCS under different strategies could also be examined in more detail, particularly concerning the reliance on either behavior or outcome controls. Analysis of research which examined the use of subjective and objective performance measures under different strategies revealed consistencies, but also raised questions about the forms of performance measures suitable for other employee groups. Empirical research to explore how performance measures and reward systems may be used under particular operational strategies, and to support new manufacturing philosophies is a broad topic for research.

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