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# Management control systems and Strategy. A missed link?

An empirical investigation of Italian middle firms

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## Abstract

This study analyses the use of management control systems (MCS) across different business-level strategies. Adopting a contingency approach, the study seeks to get insights on the theoretical assumption that management control systems should be designed and used to suit the firm's business strategy (Otley, 1980; Langfield-Smith, 1997). We conceptualise MCS in terms of Simon's level of control framework and strategy in terms of Miles and Snow's typology in order to investigate the differences in MCS attributes among four groups of firms adopting specific business strategies.

Using data collected from a survey of top managers in 227 middle firms of North-East Italy, this study demonstrates that the interdependencies among control levers slightly differ depending on the business-level strategy in use.

Findings show that all the control levers are used by firms and are independently associated with business strategy, suggesting the capacity of firms to balance different use of MCS (Mundy, 2010). Diagnostic lever of control is shown to be more associated with "analyzer" and "reactor" business strategy typologies. Furthermore, evidences suggest that the combined and complementary use of the all the levers of control contribute to generate a dynamic tension necessary for managing different business strategies simultaneously.

## Introduction

A consolidated stream of research has revealed that Management Control Systems (MCS) are both affected by and affect the strategy process (Langfield-Smith, 1997). A significant body of literature has explored the effects of strategy on MCS and, to a lesser extent, the effects of MCS on strategy (Henri, 2006). Rooted in contingency theory, scholars have recognized that formal controls increase the effectiveness at the strategic business unit level in diversified firms (Gonvidarajan, Gupta, 1985) and have argued that control systems should be designed and used in accordance with the business strategy of a firm to lead to competitive advantage and superior performance (Dent, 1990).

Following a contingency approach, most prior systematic investigations have considered the role of the MCS in supporting and influencing the firm's strategic processes, with focus on business strategy at the top management level of the firm (Simons, 1994). Thus understanding the effects that MCS have on top managers' strategic activities can help firms develop more effective MCS to align the implementation of strategy and thereby lead to desired strategic results (Marginson, 2002).

As such, it is still unclear if the same control mechanisms and tools are equally effective across different firm's business strategy and how MCS are used in pursuing multiple and potentially contradictory strategic patterns. Moreover, numerous scholars have pointed

out that the results provided by the studies on the relationship between MCS and strategy remain ambiguous and sometimes contradictory (Chenhall, 2003).

This study seeks to extend the research at the interplay between MCS and strategy by investigating the MCS use by top managers for firms that pursue a single business strategy or that try to integrate different approach to the markets.

We conceptualize MCS in terms of the Simons' levers of control framework (Simons, 2000). This framework is particularly appropriate for this study as it explicitly put attention to the combination of controlling and enabling uses of MCS controls in facilitating the creation of dynamic tensions and unique organisational capabilities (Mundy, 2010; Widener, 2007). In order to understand how and when the full range of control levers are used by top managers as an interdependent system (Chenhall et al., 2010), this study investigates both the individual and the complementary effects of control levers on firm's business strategy.

We conceptualise business strategy as a given entity (accordingly to the content perspective) and we restrict its scope to the notion of intended strategy. As suggested by Miles and Snow (1978), the firm's strategic choice is based on how top management respond to a changing environment and align the external dynamism with the internal structure. The Miles and Snow's framework indentifies 4 types of business strategies, labelled defender, prospector, analyser and reactor, accordingly to the rate of change in products or markets.

The remainder of this study is organized as follows. The next section reviews the literature and develops hypotheses that associate the use of control levers with firm's business strategies. Then we describe the research method followed by the presentation and discussion of results. The study concludes with an outline of the managerial implications of this study.

## **Literature review**

### **Management control systems**

Starting from the mid 1960s, academic literature has provided with several definitions of MCS. Changes in the business and social environment have depicted an evolutionary trajectory from the initial definition focused on the provision of formal and quantifiable information for ensuring that «resources are obtained and used effectively and efficiently in the accomplishment of the organization's objectives» (Anthony, 1965), to the more recent one that extend the scope and practice of MCS including external, non-financial information for a broad array of decisions (Otley, 2016).

The adoption of the contingency theory in management accounting has contributed to diffuse the image of MCS as a passive tools, designed for providing information to support managers at the top and middle levels. Moreover, the contingency-based approach assumes that the appropriate design of MCS is influenced by the specific context in which firm operates. Scholars have attempted to explain the effectiveness of MCS design by investigating the impact of some contextual variables: environmental uncertainty, firm's size, firm's strategy, firm's structure, technology and national culture (Chenhall, 2003).

Recently, following the sociological orientation, MCS are viewed as a more active tools, able to exercise power in the achievement of organisational goals. This approach draws attention to a more symbolic, meaning-focusing view of MCS rather than on technocratic and output measurement one (Alvesson, Karreman, 2004). Also the concept of MCS operating as a package has assumed strong emphasis in the last decade because it helps to better focus the impacts of MCS «as a collection or set of controls and control systems» (Malmi, Brown, 2008, p. 287).

In this study we adhere to the contingency approach and we use the definition of MCS as «the formal, information-based routines and procedures used by managers to maintain or alter patterns in organizational activities» (Simon, 2000, p.4).

## **Levers of control framework**

The LOC framework is an analytical tool explicitly concerned with the controlling and enabling uses of MCS to solve the problems of information asymmetry and to reduce uncertainty. As Henri (2006) stated, this dual use of MCS improves both ex-post decision-making (decision-influencing) and ex-ante (decision-facilitating). Empirical studies in management control literature have adopted this framework to get insights on how firms use MCS to allow experimentation and creativity to flourish, while simultaneously providing constraints on employees' behaviour and exerting control over how objectives are achieved. (Tuomela, 2005).

The key levers for supporting strategy-implementation are: belief, interactive, boundaries and diagnostic systems. The power of this framework in implementing strategy lies in the interplay among the different and integrated roles of each lever of control. The combination of positive and negative forces creates a dynamic tension between innovation and desired goal achievement, with effects on firm's performance and competitive advantage (Mundy, 2010). Two of the levers of control, beliefs systems and interactive control systems, inspire employees in their search for opportunities and solutions (Marginson, 2002). These systems enhance intrinsic motivation by creating a knowledge environment that encourages knowledge sharing and individual and organisational learning. Other levers, boundary systems and diagnostic control systems, are used to restrict opportunity-seeking behaviours and to monitor goals achievements by identifying deviations from plans.

Belief systems are «the explicit set of organizational definitions that senior managers communicate formally and reinforce systematically to provide basic values, purpose, and direction for the organization» (Simons, 1995, p. 34). Their aim is to stimulate employees to follow the values and objectives defined by top management (Widener, 2007). The role of belief systems is three-fold. They represent a relatively stable reference point for the alignment of individual sense-making with the strategic intent of the firm as events unfold. They provide a knowledge-exchange environment where the information, experience and knowledge sharing are facilitated. Finally, they help to prevent organisational inertia and legitimize change-oriented behaviours.

Interactive control systems are formal information systems that facilitate intense information exchange, enabling emergent opportunities and removing strategic uncertainties (Simons, 1995). They are a positive control lever as stimulate change and innovation. Interactive systems play two fundamental roles. First, they facilitate the exchange of tacit knowledge among different organisational levels, pursuing opportunity search and enabling the allocation of resources into initiatives that display high potential for delivering firm's value. Second, they provide a ideal place for debate between top and middle managers, breaking out routines and consolidated assumptions of performance metrics.

Boundary systems are formal mechanisms used to identify the perimeter of organizational activity (Simons, 1995). These systems are a negative control lever as they restrict the space of the employees' behaviour and limit the scope of opportunity-seeking. They narrow attention of employees toward the critical variables for the performance of current activities and discouraged employees from searching frequent adjustments beyond optimal and planned solutions (Mundy, 2010). Moreover, they tend to restrict experimentations to the domains that have been selected by the top management, improving the efficiency of search activities and knowledge exploitation.

Diagnostic control systems are associated with mechanistic structures because they are used to compare actual performance to pre-planned targets (Henri, 2006). The identification of exceptions from plans leads to organisational efficiency, making firm able to adopt

corrective actions triggered by negative variances. Their role is two-fold. First, when goals are clearly defined, diagnostic control systems help to reduce uncertainty and facilitate coordinate action toward desired outcomes. Second, they are «not simply a constraining influence on managers' behaviors, because monitoring processes highlight problems and motivate managers to achieve their goals, sometimes through novel means» (Mundy, 2010, p. 501). As a consequence, they can stimulate flexibility for employees behaviours to seek incremental adjustments to their tasks.

### **Dynamic tension**

The effectiveness of the levers of control resides not only in how they are used in isolation but «rather in how they complement each other when used together» (Simons, 2000, p. 301). This assumption put emphasises on the complementary effects between control levers and also implies that the use in isolation of these levers can constrain the achievement of significant firm's performance benefits (Mundy, 2010). Scholars have recognised mutually reinforcing effects between the positive levers of control and also between the negative ones. The interplay between belief and interactive control levers enable more exploratory activities and the identification of emerging opportunities (Simons, 2000). The realisation of emergent initiatives and their translation in higher firm performance ask for the allocation of increased resources and the strategic identification of those initiatives that hold the most potential. Interactive controls supports the effective realisation of innovative outputs stimulated by knowledge-exchange environment, while belief system helps to build a stronger consensus among top and middle managers on the fundamental values of the firms. It is expected that the complementary effect of positive levers of control improves the ability of the firm to respond to the environmental turbulence and supports the implementation of a opportunity-based business strategy. Diagnostic and boundary systems are intrinsically linked because they encourage employees to pursue the organisational goals by imposing constraints within a defined space of action. This is essential for the reduction of risk exposure, the management of operational discontinuity and the more efficient use of firm's resources.

Then, it is expected that the complementary effects of negative levers of control support the implementation of a efficiency-based business strategy. Additionally, the use of both positive and negative control levers in combination is conducive to a dynamic tension that encourages top managers to simultaneously manage contradictory strategies both at innovation-level as well as business-level: exploitation and exploration innovation strategies (Bedford, 2015), efficiency-based and opportunity-based business strategies (Widener, 2007).

As a consequence, the joint use of positive (interactive and belief) and negative (diagnostic and boundary) lever of controls would be expected to enhance the performance in ambidextrous firm rather than in non-ambidextrous ones. Organisational ambidexterity is defined as the ability of a firm to manage demands that require trade-offs (Gibson, Birkinshaw, 2004). From a strategic point of view the reconciliation of difficult trade-offs arises when a firm manage different and conflicting business strategies simultaneously (Markides, 2013).

### **Business strategy and the Miles and Snow's framework**

Strategic management research refers to the term “business strategy” to identify how a firm could develop sustainable competitive advantages in a specific industry in order to obtain greater than normal economic performance (Barney, 1986). Contingency approach to research on MCS draws attention to the link between MCS and firm's business strategy with strong emphasis on strategy implementation (Langfield-Smith, 1997).

Business strategy has been generally considered from a content perspective and conceptualised as an outcome of a deliberate decision-making process focused on (Henri,

2006): 1) market positioning; 2) strategic pattern; 3) strategic mission; 4) strategic priorities. These common point in all these business strategies is the relative emphasis the firm places on the efficiency or the search for new opportunities to acquire a competitive advantage relative to its competitors. For instance, the Porter's (1985) generic competitive strategy framework distinguishes two different types of business strategies: - cost leadership, when firm pursues efficiency to become the lowest cost producer in the industry; - differentiation strategy when firm embraces innovation to offer unique products and services to customers.

This study focuses on Miles and Snow's (1978) strategic typology to depict the business strategy orientations of firms. The Miles and Snow's framework addresses the alternative ways in which firms approach their product-market segments and categorizes firms into 4 organisational types: defender, prospector, analyser, reactor.

Firms that belong to "defender" type have a narrow product range and attempt to create and maintain a stable position in a well-identified portion of the entire market. They undertake little innovation activities with emphasis on process improvement and, consequently, cost efficiency. Controlling operating costs is the crucial aspect of this strategy especially because it permits the building of barriers to entry that are difficult for competitors to penetrate.

Firms that belong to "prospector" type try to continually search for new opportunities in order to cultivate the reputation as innovator in product and market development. High profitability is perceived as short-term success as the strategic priority is to maintain the industry leadership in product innovation, to which competitor must respond. They offer a wide range of products that are targeted at a large array of market segments and adopt technological flexibility in order to put in place a rapid response to changes in external environment.

Firms that belong to "analyser" type pursue hybrid strategy combining the strongest features of defenders and prospectors. They act like prospectors in rapidly evolving environments while in the stable marketplaces they adopt a defender style. As a consequence, they attempt to minimise risk exposure while maximising the profitability of innovation.

Finally, firms that belong to "reactor" type lack a coherent strategy and are viewed as dysfunctional strategic type because they respond inappropriately to environmental changes.

## **Research method**

### **Research questions**

Research questions focus on the relationships between MCS (Ioc framework and dynamic tension) and business strategy (Miles and Snow's strategic types). These relationships were investigated using data collected from a survey of top managers in 227 Northeast Italy middle firms.

Despite the Miles and Snow's framework continues to be one of the most enduring strategy categorisation available (Desarbo et al., 2005), scholars have emphasised the need for further empirical validation and testing of its assumptions. This leads to the following research question:

RQ1: what strategic patterns in use can be recognised that adhere to the Miles and Snow's framework?

Diagnostic and boundary levers of control are used to support the implementation of the efficiency-based strategy, with focus on controlling operational costs, reducing strategic risks and constraining employees' behaviour (Simon, 2000). This leads to the following research question:

RQ2: Does the use of negative control levers influence the implementation of efficiency-based strategy?

Interactive and belief levers of control facilitate the implementation of the opportunity-seeking strategy because they foster attitude towards market orientation, innovativeness, entrepreneurship and organisational learning (Henri, 2006). This leads to the following research question:

RQ3: Does the use of positive control levers influence the implementation of opportunity-based strategy?

The combined use of negative and positive levers of control creates a dynamic tension that integrates the benefits of each control levers by balancing control with innovation and learning (Mundy, 2010). This leads to the following research question:

RQ4: Does the use of dynamic tension influence the implementation of firm's business strategy?

## **Data collection**

Data were collected through a cross-sectional questionnaire sent to the CEOs of each firm. The target population consisted of a sample of 1249 Northeast Italian middle firms obtained from the AIDA\_Bureau Van Dijk database. All firms are independent companies with a maximum of 250 employees and Euro 50 million in revenues. The implementation and administration of the survey followed three steps. First, a letter was sent to the CEOs of all the firms of the sample to inform them about the research. Second, questionnaires were sent within 1 week of the presentation letter to the CEOs of all the firms of the sample. Third, two reminders were realised by mailing, the first one and a half weeks following mailing and the second entailed a follow-up telephone call made to non-respondents after 4 weeks. Responses were received from 227 firms, yielding a response rate of 18.1%. Respondents answered questions for levers of control use and firm's business strategy separately.

The sixteen (16) items used to operationalise the control variables (levers of control and dynamic tension) were derived from the work of Simons (1995, 2000), Henri (2006), Widener (2007) and Mundy (2010). The respondents were asked to indicate the extent to which CEOs currently use control levers on a five-point scale, ranging from (1) "not at all" to (5) "a great extent."

The nine (9) items used to operationalise the strategic variables (business strategy) were derived from the work of Miles and Snow (1978), DeSarbo et al. (2005), Parnell and Wright (1993) and Thomas and Ramaswamy (1996). The respondents were asked to assess the extent to which their firm has implemented each of the 18 strategic items over the past three years on a five-point scale ranging from (1) "much less" to (5) "much more."

## **Data analysis**

In order to verify that the items representing control and business strategy explicated the latent constructs, a factor analysis was conducted both on the sixteen items used to operationalise the control variables and on the nine items used to operationalise the strategic variables as well.

The diagnostic lever of control was measured using the average of the 4 items that loaded highly on this factor: formalised reports for the review of key areas of performance; cost and profit centres; financial benchmarking analysis; budgetary control.

The boundary control system was measured using the average of the 4 items that loaded highly on this factor: policies and procedures manual; formalised role and responsibilities of subordinates; systems for award and sanction management; tools for verifying rules and regulations.

The belief control system was measured using the average of the 4 items that loaded highly on this factor: informal sharing of values, beliefs and norms; systematic

communication of core values to subordinates; use of formal statements of organisational values; commitment to the long-term vision of top management.

The interactive lever of control was measured using the average of the 4 items that loaded highly on this factor: information sharing with subordinates; interdisciplinary team meetings; systematic meetings with subordinates; decentralisation of power.

The defender strategic type was measured using the average of the 3 items that loaded highly on this factor: focalisation in a market niche; business excellence and leadership in niche markets; organisational inertia in the face of discontinuous environmental changes.

The prospector strategic type was measured using the average of the 3 items that loaded highly on this factor: first mover competitive advantage; ability to respond rapidly to changes in market demand; strong emphasis on product innovation.

The analyser strategic type was measured using the average of the 3 items that loaded highly on this factor: second-mover competitive advantage; marginal propensity to product and process innovation; systematic analysis of competitors.

Unfortunately, all the control items cross-loaded highly on diagnostic, interactive, boundary and belief variables. Thus they loaded only on one factor, that we can define overall control. The same result come from the factor analysis conducted on the strategic variables.

Table 1. Descriptive statistics of data.

						total	vg	ariance	V
Diagnostic lever of control									
Formalised report	,8%	0,1%	2,0%	9,1%	3,9%	00%	,77	,35	1
Cost and profit center	,1%	,3%	8,9%	4,8%	7,9%	00%	,99	,06	1
Financial benchmarking analysis	4,5%	6,4%	0,8%	9,4%	,8%	00%	,81	,36	1
Budgetary control	,2%	,6%	8,1%	6,1%	7,0%	00%	,99	,01	1
Boundary control system									
Policies and procedures manual	,2%	4,5%	3,8%	0,0%	5,6%	00%	,54	,42	1
Formalisation of roles and responsibilities	,7%	8,9%	8,6%	1,7%	5,0%	00%	,31	,24	1
Rewards and sanctions	,7%	0,7%	0,8%	2,5%	6,3%	00%	,15	,45	1
Bureaucratic control	,4%	3,3%	1,3%	4,2%	2,8%	00%	,10	,31	1
Belief control system									
Informal sharing of values	,5%	1,0%	2,0%	4,4%	9,1%	00%	,74	,20	1
Systematic communication of core values	,8%	,9%	7,3%	1,0%	8,9%	00%	,61	,07	1
Formal statements of values	,3%	9,8%	1,7%	1,3%	1,9%	00%	,25	,14	1
Commitment to									1



strategic vision	,2%	3,3%	2,2%	6,9%	1,5%	00%	,14	,19	
Interactive lever of control									
Information sharing	,4%	,8%	7,6%	1,9%	1,3%	00%	,95	,88	0
Interdisciplinary team meetings	,2%	4,1%	5,1%	2,6%	2,0%	00%	,50	,34	1
Systematic meeting with subordinates	,1%	0,1%	2,5%	7,9%	6,4%	00%	,74	,11	1
Decentralisation of power	,5%	8,1%	4,8%	2,6%	1,0%	00%	,30	,00	1
Defender strategic type									
Focalisation in a market niche	,4%	3,7%	6,4%	4,8%	0,7%	00%	,54	,20	1
Leadership in a market niche	,0%	,6%	7,6%	5,7%	6,1%	00%	,93	,15	1
Organisational inertia	8,8%	8,8%	1,9%	,0%	,5%	00%	,98	,11	1
Prospector strategic type									
First mover	1,0%	2,9%	8,2%	0,0%	,9%	00%	,01	,29	1
Rapid response to changes in demand	,6%	,3%	4,7%	5,2%	8,2%	00%	,77	,08	1
Product innovation	0,6%	6,9%	5,2%	2,9%	,4%	00%	,84	,07	1
Analysers strategic type									
Second mover	2,3%	7,8%	6,1%	0,3%	,5%	00%	,75	,05	1
Marginal propensity to innovation	,7%	3,3%	8,3%	2,9%	,7%	00%	,07	,07	1
Systematic analysis of competitors	,2%	3,8%	8,2%	5,6%	6,3%	00%	,22	,34	1

### Findings and discussion

In order to get some insights from data, we decided to realise a correlation matrix. Findings are reported in the table below.

Table 2. Pearson correlations

	D efender	Pr ospector	A nalyser	Di agnostic	Int eractive	B oundary	Be lief	Be
Defender	1							
Prospector	0,458	1						

Analys	An	0.	0.	1				
439			858					
Diagnostic	Dia	0.	0.	0.	1			
209			681	731				
Interactive	Inte	0.	0.	0.	0.	1		
206			517	540	913			
Budgetary	Bo	0.	0.	0.	0.	0.	1	
151			529	588	954	849		
Belief	Bel	0.	0.	0.	0.	0.	0.	1
397			620	561	895	902	847	

Pearson correlations show significant and relatively high correlations between positive and negative levers of control and between the diagnostic lever of control and the opportunity-based business strategies (e.g., the correlation between diagnostic and prospector is 0.681, while the correlation between diagnostic and analyser is 0.731).

The first relationships may indicate that the dynamic tension created by the simultaneous use of positive and negative levers of control is perceived by CEOs as an overall control system able to influence business strategy implementation and, in general, firm's performance. The Dynamic Tension could be effectively used to manage the inherent organisational paradox between radical and incremental innovation and episodic and continuous change (Smith, Lewis, 2011). These tensions arise among the board members, creating conflict and ambiguity regarding strategic action. Thus, facing challenges surfaced by tensions in the implementation of business strategy requires a balance to be struck between positive and negative levers of control (Mundy, 2010). Also, we can suppose that CEOs are to benefit from combination effect while facing highly uncertain business environment. Assuming that the competitive environment is entirely unpredictable can lead CEOs to abandon the rational rigor of the planning processes and build strategic decisions primarily on gut instinct. The combination of rational and instinctive strategic style asks for a right balance that should also be supported by the simultaneous use of positive and negative levers of control. These findings complement the study of Henri (2006), who found that dynamic tension could be used to create and maintain organisational capabilities in order to adopt critical strategic decisions about products, markets and technologies.

The second relationship may reveal that diagnostic control, focusing on the achievement of predetermined goals, doesn't discourage the search for new opportunities and experimentation. Opportunity-seeking strategy focuses on innovation and this is inconsistent with the emphasis on predetermined goal achievement advocated by diagnostic control systems. However the diagnostic lever of control can support both prospector and analyser strategic behaviours with its focus on effective resource allocation, clearly defining firm's objectives, communicating the firm's key success areas to subordinates, and facilitating information exchange through budgetary control (Simons, 1995). Moreover, diagnostic control system can act positively on the implementation of opportunity-seeking strategy by motivating and encouraging subordinates to align behaviours with firm's expected outcomes so that managers are able to verify operational effectiveness and implement procedures targeted to the improvement of internal activities that ensure product and process innovation (Simons, 2000).

## Conclusion

This study has analysed the relationships among MCS and business strategy in Italian middle firms. Specifically, the main research question is about the impact of levers of control and dynamic tension created by combining the use of both positive and negative levers as well on the implementation of firm's business strategy.

The empirical investigation has reported that the effect of dynamic tension of control on business strategy is perceived as a overall control system by CEOs of analysed firms because it encourages to manage the potentially conflicts between efficiency and innovation. Such balance may play a key role for managers to face challenges surfaced by paradoxes. The acceptance of paradoxes may be a powerful behaviour to unleash enhanced performance in highly uncertain business environment. Moreover, findings reveal the crucial role of diagnostic lever of control for the creation of value when implementing a business strategy (efficiency-based and opportunity-based). Diagnostic control lever seems to be beneficial in combination with other control levers when a middle firm is implementing an efficiency-based (defender strategic type) strategy or an opportunity-based strategy (prospector and analyser strategic types). The perceived importance of MCS is in the balanced use of lever of controls to implement both efficiency-based and opportunity-based strategy. It provides an overall control system to support an intended strategy able to continuously adapt firm to the business environment changes.

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