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The Effects of Interactions between Management Control Systems and Strategy on Firm Performance: An Empirical Study[1]

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Abstract: *In recent years, there has been growing interest in examining the relationships among management control systems, business strategy and firm performance. In this study, the interactions of management control systems and strategy with their impact on firm performance are examined with an empirical analysis, based on the data from 94 manufacturing firms from the top 500 in Turkey in 2014. The results support the postulate that high interaction between interactive control system (ICS) and differentiation strategy (DS) is associated with high firm performance and that high interaction between diagnostic control system (DCS) and cost leadership strategy (CS) is associated with high firm performance.*

Keywords: Business Strategy, Diagnostic Control System, Interactive Control System, Financial Performance, Non-Financial Performance, General Firm Performance, Factor Analysis, Logistic Regression Analysis

JEL Classification: M10, M40

1. Introduction

It is a natural phenomenon for firms to determine a strategy for being successful and, in this manner, to monitor their own operations and activities that they want to realize. The environment of global competition has made firms more effective regarding this issue. Now more than ever, firms should produce with lower costs and more flexibly and should focus on improvement of their operational processes. As a result, firms can make a difference in realizing their strategies compared to their competitors. In an environment of global competition, making a difference means having good management control system (MCS) that is suitable for the strategy (Langfield-Smith, 1997; Simons, 1987).

According to research, the presence of a net strategy is necessary but not sufficient. Strategy should be supported with different resources and skills, supportive organizational arrangements and control systems (Hyvönen, 2007:345). MCS can play a key role in strategy implementation by helping to translate organizational strategy into desired behaviours and results, communicating expectations, monitoring progress, providing feedback, and motivating employees through performance-based rewards (Banker, Potter, and Srinivasan, 2000; Chenhall, 2003; Chenhall and Langfield-Smith, 1998; Ittner, Larcker, and Randall, 2003; Kaplan and Norton, 2001).

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In an environment of intense competition, firms can prefer different strategies for their different conditions. Both a firm's variable structure based on its environment and the obtained results from MCS have great effects on this preference. To achieve goals, MCS should be compatible with the strategy and should be sufficiently effective to provide opportunities to review and revise the strategy. Thus, because of its characteristics, MCS has been at the centre of the process of strategy creation (Gond, Grubnic, Herzig and Moon, 2012: 206). For example, certain information in areas such as the development of production processes, customer satisfaction, new product and service development, product quality, the growth of business and the sustainability of this growth is very important for firms that adopt a differentiation strategy. Therefore, MCS might be more open, flexible and suitable for informal control. In contrast, for firms following a cost leadership strategy, information about cost control, trend monitoring and efficiency is more important than scanning the environment for new opportunities for formal control.

There have been many studies related with MCS's. In these studies, the relationships between MCS and variables have been examined, including environmental contexts (Vandenbosch, 1999; Widener, 2007), organizational structure (Chenhall, 2003), competitive factors (O'connor, Munoz and Chan, 2011: 246-266), national culture (Chow, Shields and Wu, 1999:441-461), organizational culture (Bhimani, 2003; Henri, 2006a: 77–103), Corporate Social Responsibility (Arjaliès and Julia Mund;2013), learning (Abernethy ve Brownell, 1999; Henri, 2006b: 529-558; Kloot, 1997), professional background (Naranjo-Gil ve Hartmann, 2007: 29–41), unethical behaviour (Pascal Langevin ve Carla Mendoza, 2013), strategy (Hans Bruining, Marcel Bonnet, Mike Wright, 2004; Ralph Kober, Juliana Ng, Byron J. Paul, 2007; Jean-Pascal Gond, Suzana Grubnic, Christian Herzig, Jeremy Moon, 2012; Kumar and Subramaniam,1997), strategy and environment (Sim and Teoh, 1997), strategy and national culture (Bhimani, 2003; Henri, 2006a: 77–103; Tubagus Ismail, Lili Sugeng Wiyantoroa, Meutiab, and Munawar Muchlish, 2012), strategy and external environment (Sofiah Md Auzair, 2011), strategic risks and uncertainties (Widener; 2007), organizational life cycle stage and business strategy (Su, Baird, and Schoch, 2014; Auzair and Smith, 2005), resource sharing and performance (Govindarajan and fisher; 1990), performance and cooperation (Habib Mahama, 2006), and performance and product innovation (Bisbe and Otley, 2004).

In this study, the interaction of the MCS of companies in the top 500 in Turkey with business strategy and the effects on company's performance will be evaluated. This study adopted the contingency approach, based on the findings of studies examining the relationships among firm performance, MCS and strategy.[2]

Our basic assumption is that firms with a differentiation strategy (DS) can show high performance by preferring an interactive control system (ICS); in contrast, firms with a cost leadership strategy (CS) can show high performance by preferring a diagnostic control system (DCS). A review of the literature, identification of samples and empirical testing and reporting of the results are the main stages of our work.

2. Variables and Hypotheses

2.1. Firm Strategy

Examining the strategic management literature, it can be seen that firms can follow many different strategies. Those that consider changes in finished products and markets follow defence-seize opportunities and analyse strategies (Miles and Snow, 1978); those placing priority on product innovation follow conservative or entrepreneurial strategies (Miller and Friesen, 1982); those that aim to establish stability between market share size and short-term profit maximization follow build–hold–harvest and divest strategies (Gupta and Govindarajan, 1984); and those that aim to improve the competitiveness of the market follow low cost, differentiation and focus strategies.

The adoption of two types of strategies has generally been observed in firms. These strategies are low-cost production and differentiation strategies. Firms want to keep their positions at least at a sustainable level against their competitors in a highly competitive environment, so they prefer one of these two methods for cost reduction or differentiation. Performing successfully and systematically the actions of this strategy

naturally increases firm performance against opponents (Porter 1980; Auzair & Langfield-Smith, 2005; Bruggeman & Van der Stede, 1993; Govindarajan, 1988; Jermias & Gani, 2004; Langfield-Smith, 1997).

The meaning of low-cost strategy for firms is being a manufacturer producing with the lowest costs, and in industry and services, adopting the low-cost strategy is to provide products at the lowest cost and to provide services in the sector. In this frame, firms should benefit from all resources that provide cost advantages. For a firm, these sources include economies of scale, access to favourable raw material prices, superior technology, high market share, routinizing of the task environment, standardizing of products (narrow product line) and flattening of the experience and learning curve (Porter, 1998; Gamble, Thompson and Peteraf, 2013: 96-97; Auzair and Langfield-Smith, 2005; Govindarajan, 1988).

It is important for firms that profitability that depends on low cost must be sustainable. To achieve this goal, success in price competition should be indexed to stable growth, namely, the increasing market share. Being successful at this point can turn a firm into a good "cost leader" against opponents.

A differentiation strategy aims to keep alive the sense in customers that goods are constantly produced that are unique and that are needed products and services. This strategy appears in different forms, with the most common forms including brand loyalty, new product technology, product functions and features, product design, after sales customer service and support, reliability distribution systems and marketing (Dess and Davis, 1996:198; Miller: 1988; Hill, Jones and Schilling, 2013: 156).

Thanks to the perception created here, selling at high prices and reducing costs to a serious extent are realized without expending more energy. Because firms are successful in realizing differentiation strategies, they become highly competitive with satisfactory profits, and they can have the power to block the entrance of new competitors into their sector. The features of both strategies are shown in summary form in Table 1.

Table 1. Characteristics of Cost Leadership and Differentiation

Characteristic	Cost Leadership	Differentiation
Inputs	Low-cost materials Labour productivity Capital to sustain necessary investment	Product technology Creativity/innovation
Processes	Efficient scale facilities Process engineering skills Minimal waste/high yield Employee productivity Logistics	Flexibility Quality Continuous innovation
Products or services	Limited selection Acceptable quality Easy production Capital intensity	Technical service Original model creation Quality/reliability options A variety of products
Allied services		Availability/attainability/ distribution Financial support Guarantees New ideas for improved use Market research
Distribution	Efficient scale customers Simple product lines Price discrimination	Credit Sales support Post-purchase service

Source: Tsamenyi et.al, 2011.

Of course, although both strategies are performed successfully, the sustainability of competitive advantage always has a dimension related to the beliefs of customers that the price they pay is well worth it for the purchased product. In other words, as long as the customer value that is created exceeds the cost differentiation, firms will be able to keep their competitive positions sustainable (Hansen and Mowen, 2007: 378). Therefore, firms should set prices by considering their market; in addition, they should grant continuity to investments, such as innovation, research-development and marketing (Acquaah, and Mensa, 2008:96).

A business strategy encourages the differentiation of basic subjects, such as priority tasks within the framework of superior performance objectives, performance switches/keys, types of executive leadership, management systems, motivation systems, control systems and decentralization of administrative structures (Bruggeman and Stede,1993: 207; Helms, Dibrell and Wright, 1997:689). A business strategy encourages differentiation of basic topics, such as task priorities, keys to success, executive leadership types, management systems, motivation systems, control systems and decentralization of the management structure. Of course, this differentiation indicates a change in order.

Because every firm in the process of change will build its own unique business model and management, all the activities and strategies of the action plan that the firm will need to include must always be in harmony. For instance, a firm creates its own unique solutions to issues such as quality, product technology, delivery reliability, rapid deployment, diversity, or personalized product offerings (product flexibility) in the framework of a differentiation strategy; in contrast, a firm following a low-cost strategy must demonstrate its own unique character in fields such as cost control and reduction, customer service, sales force, marketing, advertising and R & D.

There is a reciprocal relationship between MCS and business strategy. While MCS creates the conditions that shape the strategy, MCS can determine the efficiency and functioning of the established strategy. According to experts, the role of the management control system should vary depending on the strategy pursued by the company, and in this context, the MCS must be located at the centre of the process of creating a strategy (Gond, Grubnic, Herzig and Moon, 2012: 206).

2.2. Management Control System

MCS has been used since 1950. MCS can be identified as a process by which managers ensure that resources are obtained and used effectively and efficiently in the accomplishment of an organization's objectives (Anthony, 1965: 27). This definition can be made slightly more detailed, such as that MCS is a means of gathering data to aid and coordinate the process of making planning and control decisions throughout an organization (Horngren, Foster, and Datar, 1994).

MCS is a formal information system providing information gathered from internal and external environments for a decision-making mechanism (Bouwens ve Abernethy, 2000; Simons, 1987). Managers provide direction to the operational activities based on this information. Within a reporting system based on correct and efficient use of information, there are performance measurement systems, computerized information systems, and management accounting information systems consisting of planning, budgeting and forecasting processes (Heidmann, Schäffer and Strahringer, 2008: 244).

While collecting information in a systematic manner and the inclusion of effective decision-making processes are important, MCS' importance is increased. In an environment of rapid change, in which MCS can inform decision makers about the issues necessary to implement changes, at the same time, MCS can ensure that the steps undertaken are the appropriate responses to the demand for environmental change (Atkinson, Balakrishnan, Booth, Cote and Groot, 1997).

For a firm, MCS might consist of beliefs, behaviours, the diagnosis of problems and a feedback system (Simons, 2000). Indeed, in this respect, it is possible to discuss the four basic MCS: belief systems, behaviour systems, diagnostic control systems and interactive (communication-based) control systems. Each is used for different purposes, depending on the adopted strategy. For example, belief and behaviour systems are used in determining the strategic area, while diagnostic and interactive control systems, which are based on

feedback, communication and performance measurement, are used to prepare and apply the strategy (Bisbe and Otley, 2004: 711). Substantial differentiation in control systems is largely related to the changes that occur in the structure of competition and the production environment.

2.2.1. Diagnostic Control System

DCS, as a formal information system, is based on the correction of deviations to compare the results obtained with specific performance standards (Atkinson, Kaplan and Young, 2004: 321; Simons, 1994: 170). This information system has five main characteristics (Green and Welsh 1988). First, there are measurements that enable the quantification of an underlying phenomenon, activity or system. Second, there are standards of performance or targets to be met. Third, there is a feedback process that enables comparison of the outcome of the activities with the standard. This analysis of variance arising from feedback is the fourth aspect of cybernetic control systems. The fifth characteristics is the ability to modify the system's behaviour or underlying activities. In short, diagnostic control systems are used on an exceptional basis to monitor and reward the achievement of specified goals through the review of critical performance variables or key success factors (Bisbe and Otley, 2004:711).

DCS has features that are attractive to firms, such as the monitoring of effective resource allocation, reviewing of assessments made in the past and the saving of time and labour related to management (Simons, 2000: 228). DCS includes some disadvantages, as well as advantages. Because subordinates cannot participate in the process that begins with the preparation of the strategic plan by senior management, it is possible that the strategy and vision cannot be fully understood by subordinate employees; thus, differences of opinion arise between the lower level and upper management. In addition, possible uncertainties cannot be questioned; thus, there might be uncertainties in subjects, such as obtaining different results than planned, whether the planned objectives still to be achieved are the desired objectives and whether the methods of implementation are still appropriate and valid (Kaplan ve Norton, 2001). In connection with this problem, because of the tendency to encourage the status quo and to suppress creativity, preventing differences can be possible in a firm.

DCS is an effective way for managers to transmit the existing strategy to staff and to apply it easily. At the same time, this system, especially in the context of dynamic competition, can be restrictive to issues, such as making a difference and growth. For this reason, managers must be pioneers in shaping new strategies and accordingly must be open to new control systems. In this context, DCS is an important alternative for administrators because the system affords them a proactive position in managing organizational change.

2.2.2. Interactive Control System

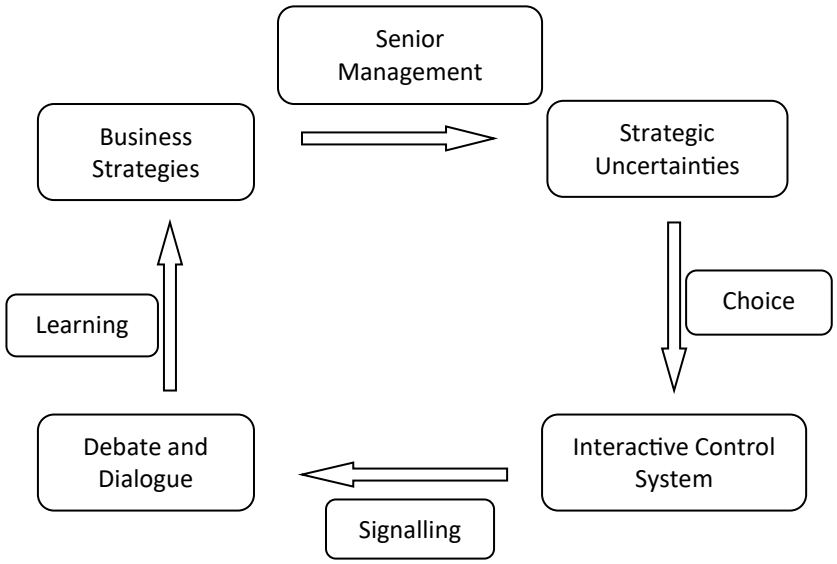
ICS is a control system based on dialogue between top and middle level managers (Kaplan and Norton, 2001: 350). Thanks to this dialogical relationship, ICS can help firms to develop new initiatives and strategies by causing them to focus on critical variables with provided coordination. Thus, this accounting information system can create greater autonomy and accountability for subordinate managers and encourage them to discuss all problems and solutions (Kober, Juliana, and Byron; 2007).

In this system, interactive control is characterized by three elements: intensive use by superiors, intensive use by subordinates, and frequent personal communication between the two groups (Bisbe and Otley, 2004; Tessier and Otley, 2012). Thanks to interactive relationships between managers, taking control of the entire business process and determining and managing all strategic uncertainties can be easier for firms. In addition, firms can take advantage of evaluating opportunities, making it possible for them to be prepared for subjects such as keeping organizational learning processes alive and making readiness for change possible (Bruining, Bonnet and Wright, 2004: 158; Dent, 1990; Batac and Carassus, 2009).

In this context, the interactive control system can be defined as a cycle system based on continuous development and learning. The cycle begins by focusing organizational attention and following a path that

ends with the emergence of a new strategy. A four-stage process occurs, as shown in Figure 1 (Simons, 2000: 216-217).

Figure 1. Using the Interactive Control Process for Learning



Source: Simons, 2000: 217.

Within the framework of value creation intended for customers, the first step is the transmission of firm strategy and management vision, including methods of differentiating products and services to subordinates. The second step is defining possible strategic uncertainties, such as changes in customer preferences depending on management's future vision and strategy, the actions of competitors, new technologies, and the uncertainties related to possible threats and opportunities arising from new government regulations (Simons, 2000: 217). The third step is a stage in which managers choose performance measurements and the control system used to detect ambiguities and focus their own firms (Simons, 2000: 217). The information provided by the selected system is important for managers in the middle to conduct good evaluations of action plans under rapidly changing conditions. The fourth step is the stage in which the discussion occurs, based on dialogue. Mutual discussion and dialogue can occur at all levels of the organization because the new information that has been obtained is analysed. The topics discussed here include whether there is a need to perform activities in different ways. If changes are warranted, then the new process must be discussed, as well as the possible value that the changes will create and, in this context, the changing aspects of firm strategy.

Naturally, this situation both upgrades the level of organizational learning and, at the same time, constitutes a legitimacy platform for new arrangements to be made. In other words, the fourth step constitutes a democratic environment for new firm strategies.

ICS is a system in line with the strategy of adapting dynamically to changing conditions. The high rate of change in technology and markets requires the dissemination of responsibility across all departments and safe and up to date information flow into basic values for firms. Accordingly, an efficient and functional ICS has the following characteristics:

- easy to understand;

- directly related to strategic uncertainties;

- easily used by all administrators; and

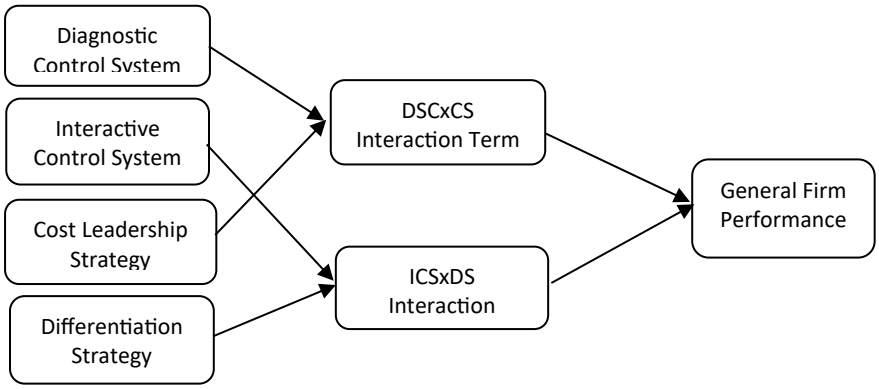
- information that will form the basis of the new action plans that must be produced (Simons, 2000: 220-221).

Based on these characteristics, ICS can provide information on the basic strategy of growth and highly competitive environments in compliance with the differentiation strategy and therefore is preferred.

2.3. The Relationship between Business Strategy and Management Control System

The increase of firm performance is closely related to compatibility between the firm strategy and MCS. Similar to differentiation, a strategy requires flexibility in all processes, which can be realized only by a system that provides elasticity in all control processes. In the same way, decreasing costs effectively can become possible with the system providing instant and routine monitoring capabilities for standardized processes. The figure 2 shows the theoretical model. As a result, a proposition that fits a chosen strategy and MCS and that is positively associated with firm performance is discussed in the remainder of this section.

Figure 2. Theoretical Model



2.3.1. Diagnostic Control System and Business Strategy

DCS is used to ensure the realization of a firm's actions in line with an adopted strategy. In this context, tracking potential problems and difficulties, limiting staff's behaviour and encouraging staff in line with organizational goals are the main characteristics of DCS.

Thanks to DCS, managers have the opportunity to measure the results obtained and to compare them with targets. Thus, managers can easily identify whether they are successful in achieving strategic goals. Sometimes, due to changed conditions, outcomes can occur such as the inability to reach some goal or to reach a level, which is not very desirable. However, sometimes the reason for not reaching the target could be a lack of resources or the occurrence of unforeseen obstacles. Firms often prefer DCS because it makes it possible for them to monitor such incidental situations.

Because DCS only focuses on the excellence of business processes in firms, it is believed to lead to a conservative culture (Acquaah, 2013: 4). It is obvious that this conservative attitude has a limiting effect on firms seeking new opportunities and ideas. To be open to innovation requires having these ideal values in a firm's management philosophy, such as the free flow of information, learning based on feedback and dialogic communication. For firms with this philosophy, both internal and external environmental information and control are important simultaneously. For firms using DCS, excellence of inner workings is a priority. Thus, for firms that want change, using DCS cannot be a strategic preference.

DCS is an attractive system for firms that produce products with a routine working order and therefore that prioritize efficiency and increases in productivity (Porter, 1998; Miller, 1988). For such firms, lowest-cost production has been one of the main strategies. In line with this strategy, tight control of the business process, as well as estimation and management of risks and uncertainties, is important. For

example, firms generally want to reduce costs, and to achieve this goal, they want to benefit from economies of scale, easy access to raw materials, flattening of the learning curve and strict controlling of general expense. Although such firms always need to have information about their inner and external environments, such as their opponents' price polities, they will mainly tend to need financial and historical data, action plans and tight budget control and to generate detailed financial targets for deviation analysis (Chenhall and Langfield-Smith, 1988; Dess and Davis,1984; Miles and Snow, 1978; Nilsson 2002). Because DCS is a system based on a learning culture that arises from communication within an organizational hierarchy, it comes forward as a system that can provide information that is very important for new initiatives and that might bring achievements for firms (Sim and Kiiiough, 1998: 327-328).

In the new production environment in which competition is intense, the functionality of the diagnostic control system has become questionable. This environment, in addition to the cost, adds values such as quality, time, innovation, flexibility, efficiency and rationality, and it renders some activities indispensable, such as monitoring and evaluation of staff, business processes and firms' performance (Young and Selto, 1991). Thus, a conservative approach focused on protecting the existing position by evaluating historical data and its most important vehicle DCS, remains far from meeting the needs of the new competitive environment (Kaplan, 1983; Drucker, 1990; Thomas, 1990: 63; Sim and Koh, 2001). Today, MCS is evaluated based on effectiveness in this context because the ICS that affords opportunities to manage change effectively has become an important alternative today.

2.3.2. Interactive Control System and Business Strategy

ICS is a control system based on an interactive relationship between management and the relevant department. It is a principle of ICS that, if necessary, communication must occur face to face. In the context dominated by values such as time, quality, cost, flexibility and innovation, it is observed that this type of control system is very functional for the adaptation of firms under changeable conditions.

Thanks to the system, while the amount of managers' information increases for strategic decision making, at the same time, the managers can easily understand and identify possible problems and can adopt new initiatives through communication (Molloy ve Schwenk, 1995: 285; Rangone, 1997: 207-208).

ICS has become a natural part of business, making possible its adoption by business professionals that must be done in the strategy framework and thus the realization of effective and efficient methods of decision making (Huber, 1984; Huber, 1990; Molloy and Schwenk, 1995: 285). In particular, firms that implement the differentiation strategy have been observed to obtain a serious competitive advantage with this system (Chong and Chong 1997). According to the authorities, the factors that cause this result are that they are firms that do not have a standardized business processes, results-oriented work, and the qualities of a flexible structure and functioning (Chenhall, 2003: 150).

ICS is a system of promoting the development of new strategies (Henri, 2006b). In this system, senior management can convey organizational goals, targets, performance results and their priorities to subordinates, and subordinates can find opportunities to evaluate their own performance and even self-restoration by making organizational strategy a part of their own goals.

Undoubtedly, the point emphasizing the functionality of the system is the importance of precise and instant information. In particular, in the context of differentiation strategy, firms' much needed information includes competitor tactics, technological innovations, new customer demands, variations in current demand, new product and service development and sustainability of growth. ICS, by providing instant and accurate information related to these areas, allows managers to undertake differentiation by providing the correct answer to the resulting opportunities and threats (Widener 2007; Simons 1991; Bisbe and Otley; 2004).

We can identify ICS as a democratic environment that contributes to the development of organizational capabilities. This democratic context has two basic functions. The first is to inform employees about other firms in their own sectors. With this information, employees will be conscious of what to do to

make a difference and to create value. The second is to make employees a natural part of the definition of problems and of the action and strategies for solutions. This structure is seen as a context created by employee autonomy and responsibility and based on auto-control and the promotion of new ideas and strategies (Merchant ve Bruns, 1986; Wruck ve Jensen, 1998; Chenhall, 1997).

The democratic atmosphere generated by ICS is also seen as a serious contribution to the creation of corporate identity. Employees becoming stakeholders in decision making has been interpreted by some authorities as a live dialogic context for increasing quality, and it is also accepted that knowledge and decisions from this context play basic roles in establishing a corporate culture (Langfield-Smith, 2007:773).

The dominant paradigm today has changed from being a point of resistance for change to the management of change. Therefore, the role of MCS has shifted from conventional feedback to a mode that supports strategic decision making. In this environment, innovation in goods production, business processes and customer value creation has become evident in basic firm policy, and ICS has come forward with its advantages for the formation and application of this policy in a democratic and dialogic context.

3. Methodology

3.1. The Nature of the Research and Sampling

This study uses data from 469 manufacturing enterprises ranked among the top 500 in Turkey. The data forms of the study were sent on May 21 by mail to the top managers (general manager or vice general managers) of the manufacturing firms that participated. The survey form return rate was 20% (94). The industry distributions of the sample respondent firms are shown in Table 2.

Table 2. Industry Distribution of Survey Respondents

Industry	Frequency	Percent	Valid	Cumulative
1 Textile and clothing	7	7.4	7.4	7.4
2 Food	14	14.9	14.9	22.3
3 Construction	4	4.3	4.3	26.6
4 Chemical and Petroleum	6	6.4	6.4	33.0
5 Plastic	6	6.4	6.4	39.4
6 Mining	8	8.5	8.5	47.9
7 Metal wares and machine	22	23.4	23.4	71.3
8 Wood and paper	1	1.1	1.1	72.3
9 Aircraft, ships, Automotive and spare parts	15	16.0	16.0	88.3
10 Glass	3	3.2	3.2	91.5
11 Electronic	7	7.4	7.4	98.9
12 Agriculture	1	1.1	1.1	100.0
Total	94	100.0	100,0	

As seen from the table, the sectoral distribution was realized in the following order: 23.4% in metal wares and machinery; 16% in aircraft, ships, automotive and spare parts; and 14.9% in the food sector.

3.2. Data Collection Tools

This study used a survey approach with scales that were previously tested and validated. In the first part, MCS was measured, based on the study by Acquaah (2013). The aforementioned terms are based on the two sub-dimensions (diagnostic and interactive control systems) of MCS. The respondents were asked to indicate the extent to which their firms currently use various management control initiatives on a five-point scale, ranging from 1, “never”, to 5, “too often”.

The diagnostic control system (DCS) was evaluated using nine items. A factor analysis of the nine items was subjected to principal component analysis, with “none” as a rotation technique. In the analysis, the variable with the least variance was removed, and factor analysis was recalculated. As a result, the Kaiser-

Meyer-Olkin (KMO) measurement of sampling adequacy was 0.884. At the end of the analysis, one factor was determined to have an eigenvalue above 1. This factor explained 71.837 % of the total variance. The results of the factor analysis are shown in Table 3. The Cronbach's alpha coefficient of DCS was 89.2%, indicating very high internal reliability for the scale. An overall measurement of DCS was constructed by averaging the responses of the eight individual items.

Table 3. Factor Analysis of Diagnostic Control System Scale

Questions	Factor
Monitoring employees' attitudes towards budgetary items	0.833
Identifying and analysing the firm's key performance indicators	0.822
Rarely following up on exception reports with significant expectations and initiating actions to get things back on track	0.798
Requiring managers to prepare monthly or quarterly statements and to report actual accomplishments and comparing them with planned goals	0.791
Using feedback systems to track performance goals	0.789
Setting goals for the company's annual profit plans	0.765
Rarely reviewing monthly or quarterly exception reports	0.745
Using incentives as a way of motivating employees to achieve their goals	0.545

The interactive control system (ICS) consisted of seven items. A factor analysis of the seven items was subjected to principal component analysis and "none" as a rotation technique. In the factor analysis, the Kaiser-Meyer-Olkin (KMO) measurement of sampling adequacy was 0.910. At the end of the analysis, one factor was determined to have an eigenvalue greater than 1. This factor explained 67.961 % of the total variance. The results of the factor analysis are shown in Table 4. The Cronbach's alpha coefficient of ICS was 92.2%, indicating very high internal reliability for the scale. An overall measurement of ICS was constructed by averaging the responses of the seven individual items. Interaction terms of the DCS and ICS variables were created by multiplying the average variables of DCS and ICS.

Table 4. Factor Analysis of Interactive Control System Scale

Questions	Factor
Using information generated from annual profit plans, budgets, and other issues to create new action plans	0.895
Frequently involving managers in face-to-face discussions of the information generated from annual profit plans, budgets, and other issues at all levels to address future strategic uncertainties	0.885
Continuously addressing information generated from annual profit plans, budgets, and other issues on a recurring basis at the highest level of the company	0.876
Using information generated from annual profit plans, budgets, and issues to guide the search for new opportunities and to stimulate experimentation and learning	0.859
Engaging managers at all levels of the organization to focus their attention frequently and regularly on budgets and key performance indicators	0.838
Debating the underlying data, assumptions and action plans before setting the company's performance goals	0.811
Continuously monitoring customer needs and market changes to take advantage of emerging opportunities and to mitigate unexpected threats	0.555

In the second part, to measure business strategy, we used the instrument developed by Acquaah (2013). The questionnaire asked respondents to indicate, on a five-point scale, the extent to which their businesses implemented 16 competitive methods over the past three years. To determine the factors that form the business strategy, 16 items were subjected to principal component analysis and "varimax" as a rotation technique. In the analysis, the Kaiser-Meyer-Olkin (KMO) measurement of sampling adequacy was 0.912. At the end of the analysis, two factors were determined to have eigenvalues greater than 1. These factors explained 63.109 % of the total variance. The results of the factor analysis are shown in Table 5.

The differentiation strategy (DS) was operationalized using the average responses to nine items that loaded highly on this factor: advertising and promotion of products and services, building brand and company identification, effective control of distribution channels, offering specialty products and services, offering a broad range of products or services, innovation in marketing products and services, developing new products or services, and improving existing customer service, products or services for high priced market segments.

The cost leadership strategy (CS) was constructed by the average of seven items that loaded highly on this factor: control of operating and overhead costs, operating efficiency, innovation in product process or services, emphasizing high quality standards or high quality services, offering competitive prices for products and services, forecasting market growth in sales, and upgrading or refining existing products. The Cronbach's alpha coefficients of the business strategies were 92% and 88.4%, respectively, indicating very high internal reliability for the scales.

Table 5. Factor Analysis of Business Strategy Scale

Business Strategy	1.Factor	2.Factor
Advertising and promotion of products and services	0.812	
Building brand and company identification	0.809	
Effectively controlling distribution channels	0.760	
Offering specialty products and services	0.741	
Offering a broad range of products or services	0.738	
Innovation in the marketing of products and services	0.724	
Developing new products or services	0.610	
Improving existing customer service	0.607	
Creating products or services for high priced market segments	0.515	
Controlling operating and overhead costs		0.798
Operating efficiently		0.789
Innovating in product process or services		0.754
Emphasizing high quality standards or high quality services		0.744
Offering competitive prices for products and services		0.727
Forecasting market growth in sales		0.607
Upgrading or refining existing products.		0.557

Table 6. Factor Analysis of Firm Performance Scale

Performance Measurements	1. Factor	2. Factor
Return on assets	0.928	
Operating income	0.921	
Return on investment	0.897	
Cash flow operations	0.665	
Cost of sales ratio	0.596	
Market development		0.874
Market share		0.846
New product development		0.781
Human resource development		0.709
Sales growth		0.657

In the last part, top managers were asked to indicate on nine-point Likert scales, ranging from "well below average" to "well above average", their assessment of their firms' performance compared with their major competitors among the ten selected subdimensions. A factor analysis of the ten items was used for principal component analysis, and "varimax" was used as the rotation technique. In the analysis**,** the KMO measurement of sampling adequacy was 0,882. At the end of the analysis, two factors were determined to have eigenvalues greater than 1. This factor explained 73.186% of the total variance. The results of the factor analysis are indicated in Table 6. It is seen that the first factor contains financial information, and the second

factor includes the non-financial performance variables in Table 6. The Cronbach's alpha coefficients of the financial and non-financial performances of firms were 91.7% and 87.7%, respectively, indicating very high internal reliability for the scales. The financial and non-financial performances were constructed based on the averages of items that loaded highly on these factors.

3.3. Data Analysis

In this study, the data were entered into SPSS software, version 13 (Chicago, IL, USA), for data analysis. Multicorrelation, logistic regression and t-test analysis were performed.

3.3.1. Descriptive Statistics and Correlation Analysis for All Variables

Table 7 presents the descriptive statistics for the independent and dependent variables of this study.

Table 7. Descriptive Statistics for All Variables

Variables	N	Min.	Max.	Mean	Std. Deviation
Differentiation Strategy (DS)	94	1.43	5.00	3.8381	0.75369
Cost Leadership Strategy (CS)	94	1.00	5.00	3.4127	0.92989
Interactive Control Systems (ICS)	94	1.14	5.00	3.8571	0.82239
Diagnostic Control Systems (DCS)	94	1.38	5.00	3.9757	0.72576
Financial Firm Performance (FP)	92	1.40	8.60	6.2739	1.50420
Non- Financial Firm Perf.(Non-FP)	93	2.00	9.00	6.4849	1.49550
General Firm Performance	93	1.70	8.30	6.3802	1.34486

According to above data, DS and CS were between 1 and 5, and the averages scores were, respectively, 3.8381 and 3.4127. When the MCS sub-dimensions are examined, the ICS point is between 1 and 5, the average is 3.8571, the DCS points are between 1 and 5, and the average is 3.9757. The financial performance mean scores are between 1.4 and 8.60, and the average is 6.2739. The non-financial performance mean scores are between 2 and 9, and the average is 6.4849. Finally, the general firm performance mean scores are between 1.7 and 8.3, and the average is 6.3802. These average figures show us that the firms using DS, ICS and DCS are at rather high levels, and the financial, non-financial and general performances of the firms are at an above average level.

Table 8. Correlation Analysis for All Variables

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)		(9)
DS (1)	1	.710**	.463**	.425**	.451**	.846**	.715**	.301**	.518**	.455**
CS (2)	.710**	1	.375**	.274**	.329**	.626**	.893**	.164	.485 **	.360**
ICS (3)	.463**	.375**	1	.854**	.962**	.842**	.657**	.354**	.367**	.400**
DCS (4)	.425**	.274**	.854**	1	.941**	.729**	.650**	.320**	.362**	.378**
ICSxDSC(5)	.451**	.329**	.962**	.941**	1	.827**	.678**	.327**	.343**	.371**
ICSxDS (6)	.846**	.626**	.842**	.729**	.827**	1	.808**	.380**	.505**	.491**
DSCxCS (7)	.715**	.893**	.657**	.650**	.678**	.808**	1	.256*	.518**	.429**
FP (8)	.301**	.164	.354**	.320**	.327**	.380**	.256*	1	.613**	.899**
Non-FP(9)	.518**	.485**	.367**	.362**	.343**	.505**	.518**	.613**	1	.897**
General Perf.	.455**	.360**	.400**	.378**	.371**	.491**	.429**	.899**	.897**	1

*** Correlation is significant at the 0.01 level (2-tailed).*

** Correlation is significant at the 0.05 level (2-tailed).*

In Table 8, the correlations between using the aims of MCS and business strategy and firm performance are presented. The numbers marked with an asterisk in the table show that, according to the significance level of 1% or 5%, there is a meaningful relationship between the variables. According to this outcome, financial firm performance is positively and significantly correlated with DS, ICS, DCS, the ICSxDSC interaction term, the ICSxDS interaction term, the DSCxCS interaction term and non-financial performance.

Additionally, Table 8 shows that non-financial firm performance and general firm performance are positively and significantly associated with all the above variables.

3.3.2. Logistic Regression Analysis

In this section, the effects of DSC, ICS and business strategies on general firm performance are explained. For this purpose, logistic regression analysis was used, which is one of the multi-variable statistical techniques that aims to apprise the relationships between the dependent variable and metric independent variables. As known, in logistic regression analysis, the effects of independent variables on dependent variables are determined using the probability of the two levels of dependent variables. In this study, for determining the impact of independent variables on dependent variables, firms with low performance were coded with 1 and firms with high performance were coded with 0.

The Effect of General Firm Performance: In the analysis, the Hosmer-Lemeshow statistic was 11.324, the -2 log likelihood statistic (LL) was 119.767, and the significance level (p) was 0.184 ($p>0.05$) with 8 degrees of freedom. The results of the goodness-of-fit test, which are shown in Table 9, indicated that the logistic regression model was a good fit. The Cox and Snell R^2 was found to be 8.1% in the first step, and this statistic indicated that there was an approximately 8% relationship between general firm performance and using the aim of MCS and business strategy. Additionally, the Nagelkerke R^2 indicated that there was an 11% relationship between independent variables and general firm performance scores.

Table 9. Goodness-of-Fit Test of the Model for General Firm Performance

Step	-2 Log Likelihood	Cox & Snell R^2	Nagelkerke R^2	Chi-square	df	Sig.
1	119.767(a)	.081	.108	11.324	8	.184

Table 10 indicates the results of the regression model, which was constituted to determine the predictors of general firm performance. In this table, a constant and an ICSxDS interaction term predictor variable were entered into the model. In the model, the beta coefficient for the ICSxDS interaction term was 0.123, and the p value was 0.008 ($p<0.05$). The odds ratio of the ICSxDS interaction term was 1.131, which indicated that a one unit increase in the ICSxDS interaction term predictor variable increases by 1.131 times the odds of having high general firm performance.

Table 10. Results of Logistic Regression for General Firm Performance

		B	S.E.	Wald	Df	Sig.	Exp(B)	95,0%C.I.ForEXP(B)	
								Lower	Upper
Step 1(a)	ICSxDS interaction term	.123	.046	7.087	1	.008	1.131	1.033	1.239
	Constant	-1.609	.722	4.970	1	.026	.200		

a: Variable(s) entered on step 1: The ICSxDS Interaction term.

According to classification table, 48.8 % of firms with low general firm performance and 73.1% of firms with high general firm performance were appointed correctly. The correct classification rate of the analysis was 62.4%.

According to the tables, it is possible to direct these evaluations towards the effects of independent variables on dependent variables: the two-way interaction between ICS and DS was an important factor for general firm performance as expected.

Table 11. Classification Table for General Firm Performance

		Predicted		Percentage Correct
		General Firm Performance		
		1	2	
Observed General Firm Performance	0	20	21	48.8
	1	14	38	73.1
Overall Percentage				62.4

The cut value is 0,500

3.3.3. Results of t-test Analysis

In this section, we explore whether business strategies, MCS and interaction terms vary between low and high performance. With this aim, t-test analysis was performed, and the results of the analysis are presented in Table 12.

Table 12. Mean (SD) and t-test for Business Strategies, MCS and Interaction Terms between High and Low Performance.

Variables	Firms having low Financial Performance **Mean (n=40) t-value**	Firms having high Financial Performance **Mean (n=52) Sig.**	Firms having low Non-Financial Performance **Mean (n=47) t-value**	Firms having high Non-Financial Performance **Mean (n=46) Sig.**	Firms having low general Performance **Mean (n=41) t-value(p)**	Firms having high general Performance **Mean (n=52) Sig.**
Interactive Control System (ICS)	3,6571 (-2.298)	4.0440 (0.024)	3.6596 (-2.451)	4.0683 (0.016)	3.6760 (-1.956)	4.0082 (0.53)
Diagnostic Control System (DCS)	3.8054 (-2.229)	4,1370 (0.028)	3.8210 (-2.182)	4.1440 (0.032)	3.8406 (-1.665)	4.0913 (0.99)
Interaction term ICSXDCS	14.4425 (-2.455)	17.1501 (0.016)	14.6183 (-2.319)	17.1704 (0.023)	14.7475 (-1.808)	16.7740 (0.074)
Differentation Strategy(DS)	3.6768 (-1.958)	3.9835 (0.53)	3.5517 (-4.151)	4.1491 (0.000)	3.6359 (-2.469)	4.0137 (0.15)
Cost Leadership Strategy(CS)	3.4225 (-0.057)	3.4338 (0.955)	3.1117 (-3.519)	3.7484 (0.01)	3.2632 (-1.524)	3.5556 (0.131)
Interaction term ICS x DS	13.6191 (-2.754)	16.4239 (0.007)	13.2490 (-3.949)	17.0714 (0.000)	13.5299 (-2.847)	16.4089 (0.005)
Interaction term DCS x CS	13.2031 (-1.133)	14.806 (0.26)	12.0508 (-3.722)	15.6259 (0.000)	12.6819 (-2.002)	14.7158 (0.048)

According to the mean scores for the independent variables, the t-test indicated that firms with high financial performance used ICS, DCS, the two-way interaction between ICS and DCS, and the two-way interaction between ICS and DS to a greater extent than firms with low financial performance. In other words, the results of the t-test indicated significant variations ($p<0.01$, two-tailed test) between the groups in terms of these variables. However, the table indicated that firms with high non-financial performance appeared to use all the above variables more than firms with low non-financial performance. Similarly, as expected, the two-way interaction between ICS and DS and the two-way interaction between DCS and CS showed significant differences between firms with high and low general performance. In other words,

these findings showed that high interaction between ICS and DS is associated with high general performance, and high interaction between DCS and CS is associated with high general performance.

4. Discussion and Conclusion

In this study, the impacts of the diagnostic and interactive use of MCS and business strategy on firm performance were examined. To test this relationship, the study surveyed the data of 94 manufacturing firms placed in the top 500 in Turkey. By examining a relatively new area in which there has been a lack of empirical research, the study has led to a greater understanding of the interaction of MCS with business strategy and its effects on firm performance.

The results of the study, which had the aim of examining the theoretical relationship of business strategy and the defining characteristics of the diagnostic and interactive control systems listed above with the empirical results, confirmed this hypothetical relationship. According to this outcome, the results support the hypothesis that high interaction between ICS and DS is associated with high firm performance, and high interaction between DCS and CS is associated with high firm performance.

To provide more details of the results, the logistic regression model was constituted for determining the effects of predictor variables (diagnostic control system, interactive control system, interaction term ICSXDCS, differentiation strategy, cost leadership strategy, interaction term ICSXDS, interaction term DCSXCS) on the general firm performance.

In this model, it was observed that the ICSxDS interaction was effective for overall firm performance. According to this finding, in our application, the odds ratio of the ICSxDS interaction term was 1.131, which indicated that a one unit increase in the ICSxDS interaction term predictor variable increases by 1.131 times the odds of having high general firm performance.

Additionally, the t-test indicated that firms with high financial performance used the interactive control system, the diagnostic control system, the two-way interaction between ICS and DCS, and the two-way interaction between ICS and DS to a greater extent than firms with low financial performance. However, as expected, the two-way interaction between ICS and DS and the two-way interaction between DCS and CS showed significant differences between firms with high and low general performance. In other words, these findings showed that the high interaction between ICS (DCS) and DS (CS) is associated with high general performance.

Some limitations of this study can be identified. The first is the limitation of the sample by including 500 prominent manufacturing firms in Turkey. Thus, more comprehensive and different sample types might be useful for future studies. Another limitation is related to the subject. In addition to the diagnostic and interactive use of MCS, beliefs and behaviour systems can be included in the model. In addition, the subject could be examined in different aspects such as environmental uncertainties, competition and culture in the future.

End Notes

[1] *Bu çalışma Uludağ Üniversitesi BAP Projesi desteğiyle gerçekleştirilmiştir.*

[2] *Acquaah (2013) and Tsamenyi, Sahadev and Qiao (2011) are the studies taken into consideration.*

References

Abernethy, M. A., & Brownell, P. (1999). The role of budgets in organizations facing strategic change: An exploratory study. *Accounting, Organizations and Society, 24*, 189–204.

Acquaah, M. (2013). Management control systems, business staregy and performance: A comparative analysis of family and non-family businesses in a transition economy in Sub-saharan Africa, *Journal of Family Business Stragety*, xxx, xxx-xxx.

Acquaah, M., Adjei, M.C., Mensa, B., & Isaac, F. (2008). Competitive strategy, environmental characteristics and performance in African Emerging Economies: Lessons from firms in Ghana", *Journal of African Business*, Vol. 9, 1, 96.

Arjaliès, D.L., & Mundy, J. (2013). The use of management control systems to manage CSR strategy: A levers of control perspective. *Management Accounting Research*, 24, 284–300.

Atkinson, A.A., Balakrıshnan, R., Booth, P., Cote, J.M., & Groot, T. (1997). New directions in management accounting research. *Journal of Management Accounting Research*, 9, 79-108.

Atkinson, A.A., Kaplan, R.S., & Young, M. (2004). *Management accounting*. Fourth Edition, Pearson Prentice Hall, Upper Saddle River, New Jersey.

Auzair, M., & Langfield-Smith, K.(2005). The effect of service process type, business strategy and life-cycle stage on bureauctic MCS in service organizations. *Management Accounting Research*, 16, 399-421.

Auzair, S. (2011). The effect of business strategy and external environment on management control systems: A study of Malaysian hotels. *International Journal of Business and Social Science*, Vol. 2 No. 13, July, 236-244.

Banker, R.D., Potter, G., & Srinivasan, D. (2000). An empirical ınvestigation of an ıncentive plan that ıncludes nonfinancial performance measures. *The Accounting Review*, Vol. 75, No. 1, 65-92.

Batac, J., & d Carassus, D. (2009). Interactions between control and organizational learning in the case of a municipality a comparative study With Kloot (1997). *Management Accounting Research*, 20, 102–116.

Bhimani, A. (2003). A study of the emergence of management accounting system ethos and ıts ınfluence on perceived system success. *Accounting, Organizations and Society*, 28(6),523–638.

Bisbe, J., & Otley, D. (2004). The effects of the ınteractive use of management control systems on product ınnovation. *Accounting, Organizations and Society,* Vol. 29, No. 8, 709-737.

Bouwens, J., & Abernethy, M.A. (2000). The consequences of customization on management accounting system design. *Accounting, Organizations and Society, 25(3), 221-259.*

Bruggeman, W., & Van Der Stede, W. (1993). Fitting management control systems to competitive advantage. *British Journal of Management*, 4, 205-218.

Bruining, H., Bonnet, M. & Wright, M. (2004). Management control systems and strategy change in buyouts. *Management Accounting Research*, 15, 155–177.

Bruining, H., Bonnet, M., & Wright, M. (2004). Management control systems and strategy change in buyouts. *Management Accounting Research*, 15, 155–177.

Chenhall, R.H. (1997). Reliance on manufacturing performance measures , total quality management and organizational performance. *Management Accounting Research,* 8, 187-206.

Chenhall, R.H. (2003). Management control systems design within ıts organizational context: Findings from contingency-based research and directions for the future. *Accounting, Organizations and Society*, 28, 127-168.

Chenhall, R.H., & Langfield-Smith, (1998). Factors ınfluencing the role of management accounting in the development of performance measures within organizational change programs. *Management Accounting Research*, 9(4), 361-386.

Chenhall, R.H., & Langfield-Smith, K. (1998). The relationship between strategic priorities, management techniques, and management accounting: An empirical ınvestigation using a system approach. *Accounting, Organizations and Society*, 23(3), 243-264.

Chong, V. K., & Chong, K. M. (1997). Strategic choices, environmental uncertainty and SBU performance: A note on the ıntervening role of management accounting systems. *Accounting and Business Research*, 27, 268−276.

Chow, C.W., Shields, M.D., & WU, A. (1999). The importance of national culture in the design of and preference for management controls for multi-national operations. *Accounting, Organizations and Society,* 24(5/6), 441-461.

Dent, J. (1990). Strategy, organization and control: Some possibilities for accounting research. *Accounting, Organizations and Society, 15*, 3–25.

Dess, G.G., & Davis, P.S. (1984). Porter's (1980) generic strategies as determinants of strategic group membership and organizational performance. *Academy of Management Journal*, 27(3), 467-488.

Drucker, P.E. (1990). The emerging theory of manufacturing. *Harvard Business Review,* May-June, 94-102.

Gamble, J.E., Thompson, A.A., & Peteraf, M.A. (2013). Essentials of strategic management the quest for competitive advantage. Third Edition, McGrow-Hill, Irwin.

Gond, J.P., Grubnic, S., Herzig, C., & Moon, J. (2012). Configuring management control systems: Theorizing the integration of strategy and sustainability. *Management Accounting Research*, 23, 205-223.

Govındarajan, V., & Fisher, J.(1990). Strategy, control systems, and resource sharing: Effects on business unit performance. *Academy of Management Journal*, 33, 259-285.

Govindarajan, V. (1988). A Contingency approach to strategy ımplemantation at the business-unit level: Integrating administrative mechanisms with strategy. *Academy of Management Journal*, 31(4), 828-853.

Green, S.G., & Welsh, M.A. (1988). Cybernetics and dependence: Reframing the control concept. *Academy of Management Review*, 13(2), 287-301.

Gupta, A.K., & Govindarajan, V. (1984). Business unit strategy, managerial characteristics, and business unit effectiveness at strategy ımplementation. *Academy of Management Journal*, Vol.27, No.1, 25-41.

Hansen, D.R., & Mowen, M.M.,(1992). *Managerial Accounting.* Second Edition, South-Western Publishing Co., Ohio.

Heidmann, M. Schäffer, U., & Strahrınger, S. (2008). Exploring the role of management accounting systems in strategic sensemaking. *Information Systems Management*, 25(3), 244–257.

Helms, M.M., Dibrell, C., & Wright, P. (1997). competitive strategies and business performance: Evidence from the adhesives and sealants industry. *Management Decision*, 35(9), 689-703.

Henrı, J. (2006a). Organizational culture and performance measurement systems. *Accounting, Organizations and Society*, 31,77–103.

Henri, J. (2006b). Management control systems and strategy: A resource-based perspective. *Accounting, Organizations and Society, 31*, 529–558.

Hill, C.W.L., Jones, G.R. & Schilling, M.A. (2013), *Strategic Management Theory*. 11 th Edition, Cengage Learning, Stamford, USA.

Horngren, C.T., Foster, G., & Datar, S.M. (1994). *Cost accounting: A managerial emphasis*, Prentice-Hall, Inc., Upper Saddle River, New Jersey.

Huber, G.P. (1990). A Theory of the effects of advanced ınformation technologies on organizational design, ıntelligence, and decision making. *Academy of Management Review,*15, 1, 47-71.

Huber. G. P. (1984). The nature and design of post-industrial organizations. *Management Science,* 30, 8, 928-51.

Hyvönen, J. (2007). Strategy, performance measurement techniques and information technology of the firm and their links to organizational performance. *Management Accounting Research,* 18, 343-366.

Ittner, C.D., Larcker, D.F., & Randall, T. (2003). Performance implications of strategic performance measurement in financial services firms. *Accounting, Organizations and Society,* 28, 715-741.

Jermias, J., & Gani, L. (2004). Integrating business strategy, organizational configurations and management accounting systems with effectiveness: A fitness landscape approach. *Management Accounting Research*, 15, 179-200.

Kaplan, R.S. (1983). Measuring manufacturing performance: A new challenge for managerial accounting research. *The Accounting Review,* 686-705.

Kaplan, R.S., & Norton, D.P. (2001). *The Strategy-Focused Organization*. Harvard Busines School Press, Boston.

Kloot, L. (1997). Organizational learning and management control systems: Responding to environmental change. *Management Accounting Research, 8*, 47–73.

Kober, R., Juliana N., & Byron J.P. (2007). The interrelationship between management control mechanisms and strategy. *Management Accounting Research*, Volume 18, Issue 4, 425-452.

Kumar, K., Subramanian, R., & Yauger, C. (1997). Pure vs. hybrid: Performance implications of Porter's generic strategies among hospitals. *Health Care Management Review*, 22(4), 47-60**.**

Langevın, P., & Mendoza, C. (2013). How can management control system fairness reduce managers' unethical behaviours?. *European Management Journal*, 31(3), 209-222.

Langfield-Smith, K. (1997). Management control systems and strategy: A critical review. *Accounting, Organizations And Society*, Vol. 22, No. 2, 207-232.

Langfield-Smith, K. (2007). A review of quantitative research in management control systems and strategy. *Handbook Of Management Accounting Research,* Edited By Charman, .C.Hopwood A.G. And Shields, M.D.

Mahama, H. (2006). Management control systems, cooperation and performance in strategic supply relationships: A survey in the mines. *Management Accounting Research*, Vol. 17, No. 3.

Merchant, K. A., & Bruns, W. Jr. (1986). Measurements to cure management myopia. *Business Horizons*, May-June, 56-64.

Miles, R.E., & Snow, C.C. (1978). *Organizational Strategy, Structure And Process,* Mcgraw-Hill, New York.

Miller, A., &Dess, G.G. (1996). *Strategic Management*, Mcgraw-Hill, New York.

Miller, D. (1988). Relating Porter's business strategies to environment and structure: Analysis and performance ımplications. *Academy Of Management Journal*, 31, 280-308.

Miller, D., & Friesen, P.H. (1982). Innovation in conservative and entrepreneurial firms: Two models of strategic momentum. *Strategic Management Journal*, 3, 1-25.

Molloy, S., & Schwenk, C.R. (1995). The Effects of informatıon technology on strategic decision making. *Journal Of Management Studies,* 32(3), 283-311

Naranjo-Gil, D., & Hartmann, F. (2007). How ceos use management information systems for strategy implementation in hospitals, *Health Policy*, 81,29–41.

Nilsson, F. (2002). Strategy and management control systems: A study of the design and use of management control systems following takeover. *Accounting And Finance*, 42, 41-71

O'connor, N.G., Vera-Muñoz, S.C., & Chan, F. (2011). Competitive forces and the ımportance of management control systems in emerging-economy firms: The moderating effect of ınternational market orientation. *Accounting, Organizations and Society*, 36(4), 246-266

Porter, M.E. (1980). *Competitive Strategy.* New York: Free Press.

Porter, M.E. (1998). *Competitive Advantage: Creating And Sustaining Superior Performance With A New Introduction.* New York: Free Press.

Rangone, A. (1997). Linking organizational effectiveness, key success factors and performance measures: An analytical framework. *Management Accounting Research,* 8**,** 207-219.

Sim, A.B., & Teoh, H.Y. (1997). Relationships between business strategy, environment and controls: A three country study. *Journal Of Applied Business Research*, Volume 13, Number 4.

Sim, K.L. & Kiough, L.N. (1998). The performance effects of complementarities between manufacturing practices and management accounting systems. *Journal Of Management Accounting Research*, 10, 325-346.

Sim, K.L. & Koh, H.C. (2001). Balanced scorecard: A rising trend in strategic performance measurement. *Measuring Business Excellence*, 5, 2, 18-26.

Simons, R. (1987). Accounting control systems and business strategy: An empirical analysis. *Accounting, Organizations and Society, 12*(4), 357–374.

Simons, R. (1991). Strategic orientation and top management attention to control systems. *Strategic Management Journal*, 12, 49-62.

Simons, R. (1994). How new top managers use control systems as levers of strategic renewal. *Strategic Management Journal*, 15, 169-189.

Simons, R. (2000). *Performance measurement & control systems for ımplementing strategy.* Prentice Hall, Upper Saddle River, New Jersey.

Su, S., Baird, K., & Schoch, H. (2014). The moderating effect of organisational life cycle stages on the association between the interactive and diagnosticapproaches to using controls with organisational performance. *Management Accounting Research*, Xxx, Xxx–Xxx.

Tessier, S., & Otley, D. (2012). A conceptual development of Simons' levers of control framework. *Management Accounting Research*, Volume 23, Issue 3, 171-185.

Thomas, J.H. (1990). Performance measurement for competitive excellence. In Kaplan, R.S. (Ed.). *Measures For Manufacturing Excellence*, Harvard Business School Press, Boston, Massachusetts.

Tsamenyi, M., Sahadev, S., & Qiao, Z.S.(2011). The relationship between business strategy, management control systems and performance: Evidence from China, advances in accounting. *Incorporating Advances İn International Accounting*, 27, 193-203.

Tubagus, I., Lili, S., Wiyantoro, M., & Munawar, M. (2012). Strategy, ınteractive control system and national culture: A case study of batik ındustry in Indonesia, *Procedia-Social And Behavioral Sciences*, 12, 65: 33-38.

Vandenbosch, B. (1999). An empirical analysis of the association between the use of executive support systems and perceived organizational competitiveness. *Accounting, Organizations and Society*, 24, 77-92.

Widener, S.K. (2007). An empirical analysis of the levers of control framework. *Accounting, Organizations and Society*, 32,757–788.

Wruck, K. H., & Jensen, M.C. (1994). Science, specific knowledge and total quality management. *Journal Of Accounting and Economics,* 247-287.

Young, S. M., & Selto, F. H. (1991). New manufacturing practices and cost management: A review of the literature and directions for research. *Journal of Accounting Literature*, 10, 265–298.

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