

The influence of the Strategic Performance Measurement Systems (SPMS) on Business Decisions

ABSTRACT

Strategic management process is dynamic, continuous and systemic. This quantitative study has focused on: performance measurement systems, management decisions, perceived environmental uncertainty and performance.

Results suggest three contributions: first, the focus on congruence between management decisions as an important attribute in the interface between Strategic Plan and Operational Plan, Strategic Management Cycle (Kaplan & Norton); secondly, the research contributes to understand that one of the ways in which SPMS helps management to achieve better performance is through ensuring greater synchrony between management decisions, the paper contributes to the recently opened discussion about if SPMS are appropriate in highly dynamic environments.

Key Words: SMPS, Performance, Decision-Making Process, Congruency

Introduction

The factors affecting strategic stability can be unexpected and volatile. Organizations, in their constant search for value creation, sustainability, competitiveness and productivity, have joined over the years performance measurement systems such as the Tableaux de Bord or the Balanced Scorecard, whose aim is to contribute both to support management decision making and the management and performance evaluation.

These decision-making processes, management policies, and performance measurement are central to strategic management. Strategic management is an interactive system whose key to the organization and as the contact periphery thereof with the surroundings. The strategic management process is a dynamic, continuous and systematic. However, the factors that affect strategic stability may be unexpected, volatile and irregular. Therefore, management decisions are a key link between the natural and organizations and the ability to respond effectively to the factors affecting strategic stability. To the extent that performance measurement systems contribute to policy decisions, it is expected that this will end up as being reflected in improved organizational performance.

Although it may seem intuitive that the relationship between performance measurement systems, managerial decisions and organizational performance, the literature reviewing the matter is limited and inconclusive. Therefore, the author has encountered in this study a knowledge gap that has led him to investigate these relationships empirically analyzing strategic

systems using performance measurement (SPMS) affects the structure of managerial decisions and how this structure in turn, ends up having an effect on organizational performance.

To this end, this study has focused on four objects of analysis: performance measurement systems, management decisions, environmental uncertainty, and organizational performance. Regarding the former, according to Gimbert et. al. (2010) mean by System Performance Measurement and Performance Measurement System (PMS) the summarized set of financial indicators and / or nonfinancial support the process of managerial decision-making by capturing , processing and analyzing information related quantifiable performance and are presented succinctly. Strategic Systems Performance Measurement and Strategic Performance Measurement Systems (SPMS) are a subset of performance measurement systems (PMS) whose distinctive features are: (1) the integration of strategy and operational objectives , (2) the presence of explicit causal relationships , (3) the inclusion of a sequence of goals, targets and action plans , and (4) the organization of the indicators in multiple perspectives.

Management decisions, the second object of analysis, have been classified in this study into two groups: strategic and operational. Each of these two subgroups has been linked respectively with strategic questioning processes and strategic implementation, as well as the distinction between strategic and operational planning strategic control cycle proposed by Kaplan and Norton (2008, 2010). With regard to management decisions, in this study I have focused on analyzing a particular attribute: the degree of synchrony, here called congruence, between different management decisions, strategic and operational.

Given the professional and academic of the author, this is in Ecuador and Colombia, where the political, economic and social environment is very changeable, it was thought appropriate to incorporate environmental uncertainty in the scope of analysis of this study. Thus, the third object of interest in this study is the perception of environmental uncertainty (defined as lack of secure and clear knowledge regarding the characteristics of the environment that managers face as a result of the unpredictability of the actions of the stakeholders and the conditions that affect the organization).

Finally, with regard to organizational performance, in this study I have focused on one aspect of this, the management performance. In previous studies of the author, it is recommended tightening at the focus of analysis to performance management, since economic performance may be affected by a large number of variables that escape the scope of a study such as this, and given the lack of reliability data on economic performance in the countries analyzed. Regarding the

performance of management, I have chosen to analyze three specific dimensions: the speed of strategic response, internal strategic alignment and strategic questioning ability.

The research questions of this study relate these four objects of analysis. From these objects of analysis, my first research question is what extent the SPMS help improve management performance through its intervention in favor of greater congruence between managerial decisions? Thus, the first aim of the study is to conduct an empirical study of the relationship between the structure of performance measurement systems, the congruence between managerial decisions and performance management (represented in this work by the three finished dimensions mentioned: rapid strategic response; internal strategic alignment, and strategic questioning capacity).

As a second purpose is to analyze the influence of perceived environmental uncertainty (PEU) in the relationship between the structure of performance measurement systems and performance management. The uncertainty can generate the environment in organizations (whether caused by changes in economic, political, social, technological and knowledge), along with the unpredictable actions taken by the group of customers or competitors, could affect the extent to which the SPMS are indeed associated with better performance management. Thus, the second research question is to what extent the impact of SPMS on management performance depends on the level of PEU.

This paper is a quantitative study, which compares a series of hypotheses; these hypotheses have been subjected to an empirical data collected from 179 responses to a physical questionnaire, applied to members of the TMT (Top Management Team) of organizations with activities in Ecuador and Colombia.

Literature Review

Performance Measurement Systems (PMS)

The literature review about the PMS definitions shows that there are many different definitions of what PMS is. As a starting point, the proposal by Moullin, who defines the PMS as a system that allows evaluate organizations, its management and value perceived by customers and the others agents involved in organizations (stakeholders). Another PMS definition is the one proposed by Neely (2002) “A PMS has been defined as *the process of quantifying the efficiency and effectiveness of past actions*”. Nevertheless, there is not a PMS specific definition.

Although most of the indicators traditionally used to measure performance have been of financial nature, nowadays many organizations complement financial indicators with a set of non-financial indicators with the conviction that the last ones provide better information on the strategic implementation progress and success. Brancato (1995) and Fisher (1995) say that many organizations think that financial indicators are too historical and have a retrospective approach which generates a divergence to explain the future performance of the organizations.

The Performance measurement as a process of quantifying the *efficiency* and effectiveness of past actions is determined in a comprehensive way and not just an economic or financial performance. Ittner (2003) mentions that management accounting has evolved into a more strategic approach.

Some studies collect the conceptual difference between "Performance Measurement" and "Performance Management". Busi and Bititci, (2006), for example, they establish as purpose of the "Performance Measurement" the monitoring of the performance, the identification of areas that require attention, the promoting of innovation, the improve of the communication and the enrichment of management. Nevertheless, it highlights the importance of looking forward from the performance measurement system in order to transform it into a management based on the performance measurement.

In a similar way Amaratunga and Baldry (2002) define "Performance Management" as the use of information obtained in the performance measurement system in contrast to "Performance Measurement", that has to do with the establishment of goals and objectives and permanent supply of information to managers about the progress in achieving set targets to guidelines in the pursuit of achieving the objectives.

Performance measurement system as the set of metrics used to quantify the efficiency and effectiveness of actions.

Metric sets contained in the Performance Measurement Systems (PMS) have evolved progressively towards including financial and non-financial indicators. So, Bhimani (1994) in the study CIMA (1993) based on responses from 77 manufacturing companies in the United Kingdom, emphasizes: "Many companies use a set of non-financial measures and have developed and designed a set of these indicators. What is significant is that all the companies indicate that these measures have grown in importance". Many French companies have been using the Tableaux du Bord, a scoreboard financial and non-financial key to organizational success, which helps managers to identify key success factors especially those that can be measured as psychological variables, Lebas (1994). Lukka and Granlund, (1994) investigated 135 large and medium manufacturing companies and made a report of non-financial measures found. Results showed that measures such as time delivery, lead-time and productivity level of the employees are also used. Many companies think that the greater emphasis that continues to place financial measures is inconsistent with the relative importance of these measures,

Ittner & Larcker (1998). In conclusion, non-financial measures are equal or more important than financial resources to complete the performance measures.

Features of strategic performance measurement systems (SPMS)

Within PMS are strategic performance measurement systems (SPMS) which have certain different characteristics compared to other PMS. To determine the structure of a SPMS should be considered the basic features that must have (Garengo et. al. 2005). Based on Ittner (2003) and Garengo et al., 2005, have been classified in Strategic and Operational characteristics. These criteria are complemented by a review of literature (Keegan 1989, Lynch and Cross 1991, Fitzgerald et. al., 1991, Kaplan and Norton 1992, 1996, Bititci et. Al., 1997, Neely et. al. 2002 Chennell et. al. 2000, Laitinen 1996). Based on this compilation are considered in this research the following characteristics which are a SPMS.

Strategic Features:

- Strategic Alignment: A SPMS should have clear relationship with strategy and organizational objectives.
- Focus on all the agents involved in the organization (stakeholders).
- Balance between financial and non-financial variables.

Operating Characteristics:

- Orientation process monitoring: If one of the objectives of SPMS is the search for sustainable productivity and if productivity is between output and input, both terms, numerator and denominator have a direct bearing with operational variables related with processes and resources; Robson, (2005).
- Depth: This field must be balanced in order to manage organizations with complementary visions; likewise, this vision is part of the communication to different levels of management that should have SPMS.
- Causality: This attribute of SPMS is fundamental, as it must respond to a business model; this is one of the great attributes granted to Kaplan and Norton (1992, 1993, 1996, 2001, 2004, 2006, 2008).

SPMS roles in strategic management process

Based on the literature review were classified SPMS potential roles in two blocks: the block questioning roles and strategic

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planning (QPA) and the bloc of implementation roles and strategic monitoring (IMS). From the perspective of Questioning and Strategic Approach (QPA), the role of the SPMS is permanent questioning the strategic framework, which means how far strategic hypotheses or assumptions are still valid. From the perspective of the IMS, its role would be to ensure that the organization to fulfill its strategic framework, which means; the strategy is known, understood and executed along the entire organization.

Questioning and Strategic Approach (QPA)

From the perspective of QPA can determine the following roles:

- Transfer the organizational view
- Coordinate organizational units.
- Become the basis of Benchmarking.
- Test permanently strategic components.

Transfer the organizational view

Kaplan and Norton (2004) say that the first step of strategic management is moving the vision into concrete terms, which helps to clarify the vision and build consensus. A practical implication of this aspect is that strategic or tactical objectives determined in organizations must have measurable specifications, that way; you are generating objective information usable in assessment processes (Kaplan and Norton, 1996). The translation of the organizational vision via SPMS implies to define the objectives and the measures to establish these objectives, not just in financially terms but also meeting the stakeholders aspirations in non-monetary terms. The relative importance given to the measurement objectives can show the relative power of the different stakeholders. The organizational effectiveness evaluation could not be directed without confronting these issues. (Otley, 1999).

Coordinating organizational units

Neely 2002, he mentions that promoting the alignment between the strategy, the process and the capabilities, the SPMS also promote the inner coordination oriented to the stakeholders. This SPMS function must be promoted by the coordination of actions between the different organizational components as well as the functional nature, the supply chain or projects. In addition, it must be supported in the implementations of rules, techniques, procedures and knowledge about the organization.

Become the basis of Benchmarking.

Benchmarking is the correct way to identify and increase opportunities for improvement as well as monitoring the performance of competitors, technological development of the industry, the market potential and the macroeconomic variables that affect the causal model of the organization.

Based on Neely (1995), the directives are applying benchmarking as a source search of the best practices and new ideas for the organization. The benchmarking process consists of four steps: planning, analysis, integration, and action. The benchmarking has an innovation process established by four dimensions: Product innovations, development product, process innovation and technology acquisition. Companies must apply benchmarking with these four dimensions

Permanently test strategic components

The strategy formulation is the process when the company defines its global management in long terms. This procedure establishes the way a company creates value with its activities configurations and its resources in the business.

This role has developed as SPMS as the BSC have evolved. Kaplan and Norton (2001) propose that one of the five strategic management principles to become BSC in a management tool is making strategy a continual process. Kaplan and Norton (2008) establish strategy developing as a systemic process.

Strategic Implementation and Monitoring (IMS)

In this section, we list and describe the second block of roles from the SPMS. From the IMS point of view, here are the following roles:

- Measure and control the organization's operations
- Align and focus actions
- Being the basis of incentives.

Measuring and controlling organizational operations

Under the perspective of operational measurement and control, it requires the implementation of a performance instrument. At the same time, the performance measures need to be into a strategic context, as an influence in the process behavior and principally in the people behavior. The measurement can be the "quantification process" but its effect is to stimulate action and this is achieved only through consistency of action, which the strategy is made. This view indicates that measuring this key role is not limited only to measures of financial performance but also non-financial performance measures, the same

that reflect the actions and processes of the organization.

Align and focus actions

They must define the strategies and plans adopted by the organization, what are the processes and activities required to successfully implement and to evaluate and measure the performance of these activities (Otley, 1999). Kaplan and Norton (2004), describing the benefits of strategic maps (one of the components of the BSC), mention that they comprise a powerful management tool to describe and implement the strategy. This is the key when designing a SPMS, as management focuses on a few critical parameters represent sustainability strategy and value creation.

Being the basis of incentives.

The motivation and incentive systems may involve explicit financial rewards (in terms of salary or bonus payments), but also may involve less tangible consequences like appreciation, status and reputation (Otley, 1999). Feltham et. al. (1994) Hauser, et. al. (1994) and Hemmer (1996) demonstrated how incentives based on non-financial measures could improve the management incorporating information about the directives that are not fully captured in the periodic financial results.

Since SPMS provide performance measures, quantifiable and multidimensional objectives, the SPMS can provide constant information to encourage people in the organization, assessing and rewarding them or punishing them based on monetary or non-monetary incentives that depend on the degree of achievement objectives.

SPMS and performance

According to the definition of performance, Neely (1999) indicated that the performance has been defined as the ability of an object to produce results on a dimension that has been determined beforehand with relation to a target. Therefore is important to get in the first place an object which performance is going to be considered; in the second place, a dimension where we are going to be interested, and, in the third place a target for results.

Traditional measures of performance are based on financial metrics. Nevertheless, the literature review is based on the performance measurement. (Hoque y James, 2000) In the last years, academics and practitioners have claimed that traditional management accounting techniques based on financial metrics to extend the measurement in non-financial metrics to include other perspectives of organizational development. Financial indicators and some other non-financial indicators represent the organizational performance from the point of view of the objective consequences management process.

De Geuser et. al.'s study (2009) concluded that the BSC positively contributes to organizational performance seen as

management performance. This study provides empirical evidence BSC contributions depend on three basic principles or content described by Kaplan and Norton, (1) the best translation of the strategy into operational terms, (2) the point at which the strategy becomes a continuous process, and (3) the alignment of several processes services, skills and business units of an organization.

In conclusion, this review of the most relevant studies in favor and against a positive association between the use of SPMS and organizational performance, highlight that there isn't full agreement on the meaning and significance of this relationship, and either if you specifically referred to the relation between the use of SPMS and management performance. This research will focus on this performance management, searching produce a wide horizon of research that makes us understand the phenomenon.

SPMS and Environmental Uncertainty

Adopting the approach of Hartmann (2000), the perception of environmental uncertainty (PEU) is defined as what a manager faces as a result of the unpredictability of the actions of customers, suppliers, competitors and regulatory groups that are external to the organization but that can produce or cause conditions that may affect the organization and its future.

The perception of environmental uncertainty is an important contingency factor, since this is a driving force in the design and use of strategic systems performance measurement (Dávila, 2000). In this line, Hartmann (2005) has examined how environmental uncertainty affects the views of managers about the effectiveness of performance measures, showing that environmental uncertainty affects the effectiveness of the performance measures. Regarding the relation between the perceived of environment uncertainty (PEU) with the process of directives decision Chenhall and Morris (1986) investigated the relationship between perceived uncertainty in the environment (PEU) and use of the information received in time, they observed a significant relationship intrinsically between PEU and punctuality of the information for decision-making.

With these studies highlight the benefits of the SPMS in dynamic environments, recent studies have questioned the discussion in the preceding paragraphs SPMS as useful as a support for decision making in dynamic environments or high PEU. Therefore, Hoque (2005) performed a study in 52 manufacturing firms in Australia, which relates the systems performance measurement, environmental uncertainty, and organizational performance. The study found no significant evidence on the relation between environmental uncertainty and performance through the use of systems of non-financial

performance measurement. Additional studies have emphasized that the SPMS can create organizational inertia or "ossification". Particularly when a SPMS is a large numbers of indicators and is used bureaucratically, organizational inertia and ossification could increase (Bhuk and Vantaa, 2005; Micheli and Manzoni, 2010). On the other hand, Micheli and Manzoni (2010) mention that the SPMS are effective in relatively stable environments, however they lose effectiveness in dynamic environments.

Research Questions

Question 1: The literature review suggests limited evidence of the relation between the structure of strategic performance systems measurement (SPMS), management decisions and management performance. **How far the SPMS help to improve management performance through its intervention in favor of greater congruence between managerial decisions?**

Question 2: The literature review suggests that there is no clear evidence that a structure defined strategic performance system measurement (SPMS) impairs the performance of organizations. This lack of evidence suggests that perhaps the fact that there is influence or not depends on other variables. Therefore, this research focuses on analysis of the influence of other variables that can act as moderators, namely environment perceived uncertainty. **How far the effect of using SPMS on management performance depends on the level of PEU?**

HYPOTHESIS FORMULATION

We are going to focus on argumentation and formulation of testable hypotheses. This study has four main hypotheses and several sub-hypotheses. Figure 1 contains the extended model of research, with all hypotheses and sub-hypotheses.

The first hypothesis has as an independent variable: the use of performance metrics according to their structure (distinguishing between SPMS, PMS non-SPMS and no PMS). The dependent variable in this hypothesis refers to the three groups of congruences associated with managerial decisions. The association between using PMS (SPMS) and each of these three leads respectively congruences three sub hypothesis H1a, H1b and H1c. A second hypothesis introduces the intensity of using measurement systems such as variable moderating the relation between using PMS (SPMS), and each of the three congruences. Therefore, there are also three sub-hypotheses H2a, H2b and H2c.

The third hypothesis has as an independent variable in the respective congruences managerial decisions as dependent variable, performance management. For this hypothesis, the variable management performance is captured through the aforementioned three dimensions: strategic response speed, internal strategic alignment and strategic questioning. By relating the three types of congruence with these three dimensions, are nine sub-hypotheses (H3aa, H3ab, H3ac, H3BA,

H3bb, H3bc, H3CA, H3cb, and H3cc). Finally, the fourth hypothesis PEU introduced as a moderating variable in the relationship between using performance measurement systems and the three dimensions of performance management. Therefore has three sub hypothesis H4 H4a, H4b and H4c. Then set out and justify theoretically each of the study hypotheses. Figure 1 shows the entire research model.

Methodology and empirical study design

This research was executed by applying questionnaires¹ to several executives and business managers to measure the type of structure the performance measurement instrument, the congruence between management decisions, organizational performance and environmental uncertainty, and consequently compare a series hypothesis relating to these variables.

The objectives of this study are business leaders in the region, which for the purposes of this research consists of labor-based management in Quito, Guayaquil and Bogota. The sample consists of executives who attend the Program Executive Master in Business Administration (EMBA) IDE Business School in Quito and Guayaquil (Ecuador), and INALDE Business School in Bogota (Colombia), both the IDE and the INALDE, is aimed at professionals at least five years in work experience, people who have skills and responsibilities in the organization.

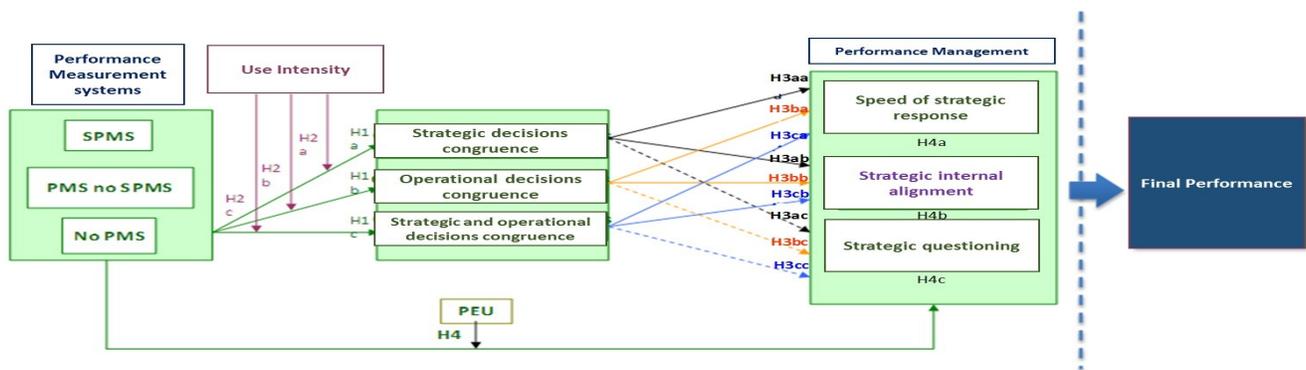


Figure 1. Research model

Hypothesis 1: CONTRAST

¹ For reasons of space, the questionnaire was not included in this document. For more information, please ask the author.

We developed the first set of tests to prove the first hypothesis, according to an expected an association between using strategic systems performance measurement and consistency of managerial decisions. It is expected that the congruence between strategic decisions, the congruence between operational decisions and the congruence between strategic and operational decisions is greater using SPMS systems than using PMS systems no SPMS. With congruence variables operationalized in the previous chapter, we make performance tests to evaluate the consistency in SPMS groups and PMS no SPMS groups waiting to see more consistency in organizations that are using SPMS systems as support for decision making. To contrast the three sub-hypotheses regarding H1, there has been a graphic analysis of the distributions between matching variables distinguishing the SPMS group and PMS no SPMS group and it has performed student t-test to see if there is statistical difference between the 2 groups.

H1a: Companies that have an SPMS as performance measurement system have a greater congruence between the strategic decisions that have a PMS than SPMS as performance measurement system. Hypothesis accepted. The second sub hypothesis H1b treatment was performed similarly to the last one.

H1b: Companies that have an SPMS as performance measurement system have a greater congruence between operational decisions that have a PMS chelae than SPMS as performance measurement system. Hypothesis rejected.

The third sub hypothesis H1c statistical treatment was performed by comparison of means.

H1c: Companies that have an SPMS as performance measurement system have a greater congruence between strategic and operational decisions that you have PMS than SPMS as performance measurement system

Hypothesis 2: CONTRAST

The second hypothesis of this study intends to evaluate the influence of the variable “intensity of use of PMS” in the relationship established in Hypothesis 1. This means, the second hypothesis intends to assess whether, in greater intensity of use, the difference between companies that use SPMS and not with respect to the degree of congruence between managerial decisions increases. To test this hypothesis we use a moderate regression (Hartmann & Moers, 1999). Moderate regression analysis is a specific application of a multiple linear regression analysis in which the regression equations containing an interactive term. This term represents the moderating effect of the variable X2 in the relationship between X1 and Y.

The variable “intensity of use” and “congruence” are quantified in Likert scale when "one" represents the maximum frequency for the intensity of use and the highest congruence to the latter. The moderator variable is the multiplication of

intensity use SPMS indicator variable produces inconsistent and that this new variable would have a scale of 0-7 in which 1 is the maximum value, the value 7 is the minimum and “0” means that is not participating for not being a SPMS. This scale does not maintain a consistent monotony is therefore “zero” is at the end of the maximum value on the Likert scale and not on the bottom end. For this reason, we have inverted the values of 1 to 7 maintaining “zero” with the same value. Thus, “1” is the minimum, “7” is the maximum and “zero” is the non-participation because is not a SPMS or PMS no SPMS.

There are not significant values for moderating variable for any of the three independent variables relating to the three types of congruence ($p > 0.05$).

H2a: (For companies with any performance measurement system) the greater the use of performance measurement system, the greater the difference between the congruence, the strategic decisions using an SPMS and the congruence between strategic decisions when using a PMS that is not a SPMS. Hypothesis rejected.

H2b: (For companies with any performance measurement system) the greater the use of performance measurement system, the greater the difference between the congruence, the operational decisions when using an SPMS and the congruence between operational decisions when using a PMS that is not a SPMS. Hypothesis rejected.

H2c: (For companies with any performance measurement system), the greater the use of performance measurement system, the greater the difference between the congruence, the strategic and operational decisions when using an SPMS and congruence between strategic and operational decisions when using PMS that is not a SPMS. Hypothesis rejected.

Hypothesis 3: CONTRAST

The third hypotheses and sub hypotheses are intended to assess whether there is a positive association between the consistency of managerial decisions, may be strategic or operational, and performance management. Management performance is captured by three dimensions that are strategic response speed, internal strategic alignment and strategic questioning ability. To develop hypotheses H3, we have made tests according to each management performance variable. We analyze how different congruences influence on managerial decisions in each management performance variable.

The first sub-hypothesis H3aa, H3ba H3ca correspond to the relationship between consistency in management decisions (differentiating the congruence between strategic decisions and operational decisions congruence between strategic and

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operational decisions) and speed of strategic response. To study the impact that each of the congruences on performance management has conducted a multiple linear regression of congruence on each of the dimensions of performance management.

To accept or reject the hypothesis formally calculated the correlation matrix with the respective statistical significance (p-value) confirming determined in the previous paragraph. This is corroborated in the correlations box where the “p” value for consistency between strategic and operational decisions is 0.044 and the correlation is -0.177. Therefore:

H3aa: Companies that have greater congruence between strategic decisions have a better performance in the speed management strategic response. Hypothesis rejected.

H3ba: Companies that have greater congruence between operational decisions have a better performance in the speed management strategic response. Hypothesis rejected.

H3ca: Companies that have greater congruence between strategic and operational decisions have a better performance in the speed management strategic response. Hypothesis accepted.

The second sub - hypothesis H3ab, H3bb and H3cb correspond to the relationship between consistency in management decisions (again distinguishing between the three types of congruence) and internal strategic alignment. According to the multiple linear regression, analysis shows that there is a positive relationship between the congruence, strategic decisions and internal strategic alignment as their level of significance is 0.058. This is corroborated in the box correlations, where the “p” value is 0.031 and the correlation is 0.193. The rest of congruences are not significant associations with internal strategic alignment.

H3ab: Companies that have greater congruence between strategic decisions do better management in terms of strategic alignment. Hypothesis accepted.

H3bb: Companies that have greater congruence between operational decisions do better management in terms of strategic alignment. Hypothesis rejected.

H3cb: Companies that have greater congruence between strategic and operational decisions do better management in terms of strategic alignment. Hypothesis rejected.

The sub - hypothesis H3ca, H3cb, H3cc correspond to the relations between consistency in management decisions (differentiating between strategic decisions congruence between operational decisions, and between strategic and operational decisions). According to the multiple linear regression analysis there is only a positive relationship between the congruence between operational decisions and strategic questioning, because their significance level is 0.086 (although the analysis of correlations for this group suggests that there is no relationship between the strategic questioning and the congruences in management decisions). Therefore:

H3ac: Companies that have greater congruence between strategic decisions do better management in terms of strategic questioning ability. Hypothesis rejected.

H3bc: Companies that have greater congruence between operational decisions do better management regarding strategic questioning. Hypothesis accepted.

H3cc: Companies that have greater congruence between strategic and operational decisions do better management regarding strategic questioning. Hypothesis rejected.

Hypothesis 4: CONTRAST

The set of hypotheses 4 of this study was to evaluate the influence of the use of SPMS as performance measurement system on performance management, compared to the use of performance measurement systems that are not SPMS, depends on the level of PEU. To contrast the sub - hypothesis H4, treatment will continue similarly to what was done for the contrast of H2, that is, to test H4 uses a moderating variable is the multiplication of the variable use of SPMS referred to by the variable PEU (defined as the sum of the four variables in matrix PEU constructed as described in the construction of each PEU). Since PEU was redefined, it was necessary to change the direction of the variable as in the case for testing H2. To remember, PEU is set low to performance variables and Likert scale in which one is the maximum value and 7 is the minimum performance agreement.

There are not significant values for the moderator variable performance relative to management quickly understood by the strategic response or understood by internal strategic alignment. In contrast, the results shows a negative moderating effect on the relationship between PEU, the use of SPMS and the management performance as a strategic questioning capacity with a “p” value of 0.013 . This indicates that the association (positive) between SPMS use and performance management, the strategic questioning depend on PEU level and will be weaker than the higher the PEU.

H4a: (For companies with some form of performance measurement system) (PMS), the positive association between the use of SPMS and management performance in the speed of decision-making will be weaker the higher the PEU.

Hypothesis rejected.

H4b: (For companies with some form of performance measurement system) (PMS), the positive association between the use of SPMS and performance management on internal strategic alignment will be weaker the higher the PEU.

Hypothesis rejected.

H4c: (For companies with some form of performance measurement system) (PMS), the positive association between the use of SPMS and performance management in strategic questioning its ability to be weaker the higher the PEU.

Hypothesis accepted.

Results and Conclusions of the Research

In the last years, a huge number of organizations have changed their performance measurement systems (Performance Measurement Systems, PMS), adopting strategic systems performance measurement (SPMS) such as Balanced Scorecards (BSC) performance prisms or dashboards new generation (Speckbacher et. al., 2003; Neely, 2007, 2008, Rigby, 2009, Micheli and Manzoni, 2010).

However, strategic management and management control suggests that there is no clear evidence that a definite structure of performance measurement system affects the performance of organizations. Studies in favor of a positive relationship, such as Kaplan and Norton (1992, 1996, 2001, 2004, 2006, 2008), De Geuser (2009), Hoque and James (2000) and Davis and Albright (2004), but others who question this positive association, such as Davis and Albright (2003), Neely (2008) and Micheli and Manzoni (2010). This suggests the possibility that there are other variables that influence mediating or moderating the relationship.

The results indicate that the congruence between management decisions is associated with performance management. This research allows determinate the relation between the consistency of management decisions and the different dimensions of performance management. This relation is not universal and depends on the type of management decisions concerning the consistency and performance dimensions considered as management.

Specifically, the research results suggest that the congruence between strategic decisions is associated with an increased internal strategic alignment, congruence between operational decisions is associated with a greater capacity for strategic

questioning, and the congruence between strategic and operational decisions is associated with a faster strategic response.

The obtained results suggest that PEU has a negative moderating effect on the relation between using SPMS and management performance when it is captured in its strategic questioning capacity. The results indicate that when the PEU is higher, the differential effect on the use of SPMS the strategic questioning capability becomes weaker.

Conclusions

The research results suggest that a first contribution of this paper to the literature is the focus on the congruence between management decisions as an important attribute in the interface between Strategic Plan and Operational Plan within the Strategic Management Cycle (Kaplan and Norton, 2008 , 2010), which previously has received little attention.

Secondly, the research contributes to understand that one of the ways in which strategic performance measurement systems helps management to achieve better performance is through ensuring greater consistency or synchrony between management decisions, distinguishing how different types of congruence affect different aspects of performance management. Regarding this second contribution, this paper shows specifically that, within performance management, a greater internal strategic alignment is associated with the congruence between the strategic decisions, while the capacity of strategic questioning is associated with the congruence between operative decisions, and speed of strategic response is associated with the congruence between strategic and operational decisions.

Finally, the paper contributes to the recently opened discussion in the literature about if the SPMS are appropriate in highly dynamic environments, and concludes that the differential impact of the use of SPMS on performance management is weaker in dynamic environments, which is in line with current studies that highlight the risks of stiffness of the SPMS.

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