

The Effect of Management Style and Management Accounting System Design on Performance

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Abstract

This study focuses on the relationship between the design of the management accounting system, management style and the effects on organisational performance. This paper analyses the links between these variables based on a contingency approach. It contributes to the existing literature by providing additional evidence on the relationships between these variables within the public healthcare sector. The study distinguishes between innovative vs. traditional management accounting system designs and proactive vs. reactive management style. Data is collected from CEOs in public hospitals. A two-fold analysis involving interviews and a questionnaire was adopted thus enabling a systematic and comprehensive analysis.

Keywords

**Management Accounting System
Performance Measurement
Management Style
Contingency fit**

Introduction

In order to become more efficient, organisations are adopting forms which encourage participation, communication and coordination within all of its levels. CEOs have to adopt a new style of managing organisations, which demands a broad range of information. This enables CEOs to adopt a more flexible and interactive style of managing their business enterprises (Simons, 1995; Brownell, 1983).

The management accounting system can be conceptualised as one of the most important parts of an organisation's formal planning and control system, which is designed for providing information that is useful to managers inside it (Chenhall and Morris, 1986; Chenhall, 2003). The contingency approach maintains that organisational performance depends on the extent of fit or alignment between its various organisational components, such as control systems, technology or management style (Van de Ven and Drazin, 1985; Donaldson, 2001). Management Style and the Management Accounting System (MAS) and the effect of these variables on performance have been the subject of studies within the contingency approach (Chenhall, 2003). Some of these studies have resulted in confusing and contradictory conclusions. For example, Brownell (1983) found that budgetary participation had strong positive effects on performance under certain opposite leadership styles (e.g. supervisory and participative). Much of the instability and confusion in management research using a contingency approach arises from the lack of explicit and careful development of the underlying concept of fit (Van de Ven and Drazin, 1985; Gerdin and Greve, 2004). In general, the assertion is that if the components "fit well", then the organisation will function effectively, if they "fit poorly", it will not.

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However, not many researchers have studied how the degree of fit (or misfit) between components of fit is actually (as opposed to supposedly) related to the level of efficiency or effectiveness attained (see Chenhall, 2003 and Gerdin and Greve, 2004).

In this study, the contingency approach is used to analyse the fit between management style and the MAS and the effect on organisational performance. Following Chenhall and Morris (1986), the MAS is studied in terms of general information characteristics, distinguishing four dimensions: scope, integration, aggregation and timeliness. Based on these characteristics, two different MAS designs are distinguished: innovative and traditional. Management style is studied based on the decision, planning and control processes (Dean and Sharfman, 1996), and is classified as proactive or reactive (Simons, 1995; Larson et al., 1986). This study was undertaken in public hospitals in Andalusia (the largest region in Spain), where the institutional environment is very suitable to answer the questions posed. The Andalusian public hospital sector has been exposed to significant turbulence in recent years. The public hospital environment has changed since 1997 when there was no competition to a more competitive environment where hospitals have to operate efficiently to improve performance. A two-fold analysis involving interviews and a questionnaire was adopted, thus enabling a systematic and comprehensive analysis. Data were collected from Chief Executive Officers (CEOs) of public hospitals throughout Andalusia. The interviews were used in order to provide a rich understanding of the variables and phenomena of interest, while the questionnaire enhanced generalisability. The questionnaire had a very satisfactory response rate of 76.67 % (23 useful questionnaires). A total of 17 interviews were also performed in the 30 hospitals (56.67%).

This study contributes to the extant literature in several ways. It provides additional evidence within the contingency approach, by analysing the fit between both

variables and by exploring the role of the variables in detail. This paper obtains insights into the interrelationship between MAS and Management Style through in-depth interviews. By also using a questionnaire, reliability of results is enhanced by triangulation, consistent with calls for the use of multiple methods (Birnberg et al., 1990).

The results of this research show the importance of a certain MAS design (innovative versus traditional) and management style (proactive versus reactive), the combination thereof and the influence of these choices on performance in public health care organisations.

The remainder of this paper is structured as follows. Section 2 reviews the relevant literatures and develops a proposition about the relationship between the MAS, management style and performance. Section 3 describes the design of the empirical study. Section 4 presents the results. Finally, section 5 presents the discussion and conclusions of this study.

Theoretical development and proposition

Contingency-based research has assumed extensively that if certain structures are more common than others in a given situation, these structures would also lead to higher performance (Gerdin and Greve, 2004; Donaldson, 2001). Contingency-based research in management intends to demonstrate an appropriate fit between specific aspects of the organisation (internal and/or external). However, the meaning of *fit* is ambiguous; and different methods of analysing fit express different interpretations of it (see for example, Gerdin and Greve, 2004; Van de Ven and Drazin, 1985; Donaldson, 2001). In this study, therefore, the concept of fit is defined as the degree to which the needs, objectives and/or structure of one component are consistent with the needs, objectives and/or structure of another component (Donaldson, 2001).

Management style is a contingency variable that indicates much about the degree of formality of the organisation, the

management control process, the appropriate motivation process, the degree of participation, and the level at which decisions are made (Daft, 1988; Larson et al., 1986). Management style affects the attainment of organisational goals through organising, leading, and controlling organisational resources (Daft, 1988; Simons, 1995). *Organising* is concerned with how managers will accomplish its organisational plan, that is, deciding how best to achieve organisational goals. It includes assigning tasks and allocating resources to departments. *Leading* is the use of managerial influence to motivate employees to achieve the organisational goals. *Controlling* is concerned with monitoring the organisation's progress toward goal attainment against the objectives and standards derived during planning (Daft, 1988).

Following Larson et al. (1986) and Simons (1995) management style is classified as proactive or reactive. A *proactive* management style is defined as a participative, democratic style, oriented towards the future and the external environment, including a broad planning, with managers looking for possibilities for coordination and synergy between departments and re-evaluating organisational goals. However, a *reactive* management style is more autocratic, focuses more on individual objectives and expectations than on organisational goals, and focuses more on controlling the quantitatively measurable events inside the organisation.

An important issue related to the management style is the extent to which managers are involved with the collection of relevant information for optimising their decision making (Dean and Sharfman, 1996). One of the most significant information sources is the MAS, which can be conceptualised as an important part of the organisation's formal planning and control system which is designed to provide information to managers that can help them in the decision making process (Govindarajan and Gupta, 1985). The management style employed by management or its efficiency can thus be

expected to be dependent on or interrelated with the MAS in place.

There is a large body of research on the design of MAS within the contingency approach (see Chenhall, 2003). The basic assertion is that there is no universally appropriate MAS that can be applied to every situation, since the effectiveness and usefulness of MAS is contingent on certain external organisational circumstances (e.g. market and environment) and internal factors (e.g. technology and management style). Chenhall and Morris (1986) described the MAS according to the perceived usefulness of four information attributes, namely timeliness, scope, aggregation, and integration. *Timeliness* refers to the speedy provision of requested information and the frequency of reporting collected information. *Scope* refers to the extent to which information generated by the MAS reflects external versus internal events, future-oriented versus historical data and qualitative versus quantitative data. *Aggregation* refers to the summation of temporal and functional information (e.g., cost centre, marketing departments). Finally, *Integration* refers to the coordination of the various segments within a sub-unit. The MAS can be categorised as more traditional or innovative based on the score on these four dimensions. An innovative MAS, as opposite to a traditional, supplies information more focused on the external environment, reports information quantified in both monetary and non-monetary terms, is more long term orientated, and relates to future data more frequently. An innovative MAS also supplies information aggregated by time period and functional area to a greater extent, and specifies related services or programs (Chenhall, 2003; Chenhall and Morris, 1986).

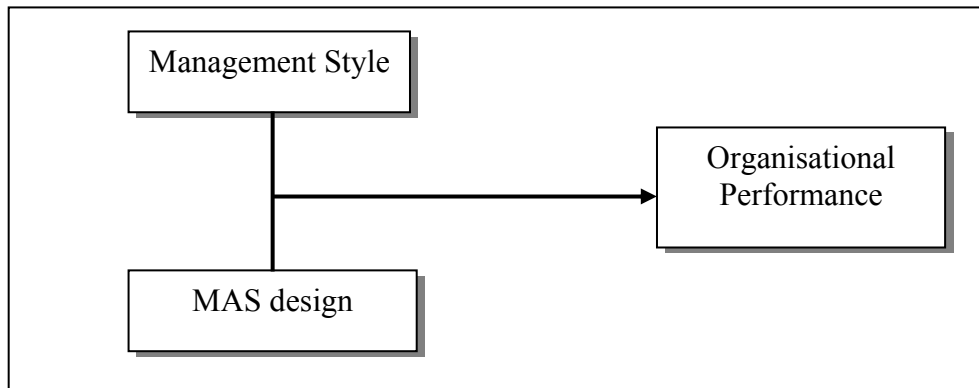
This study analyses the interrelationship between management style and MAS information, and the effect on organisational performance of both variables. Since the accounting system is intended to transmit information to the decision makers, it can influence the orientation, direction and formality of the decision making style. A proactive

management style would require an innovative MAS design to cope with the uncertainty and to optimise decision making (Simons, 1995; Otley and Pierce, 1995). CEOs using a more proactive management style would be more inclined to use broader accounting information, in order to encourage participation and task coordination (Abernethy and Brownell, 1999). In contrast, it is expected that reactive management styles are linked to a traditional MAS rather than an innovative MAS design. A traditional MAS provides information which is very suitable for managing routine, regular and programmable activities, which are characteristics of a reactive management style (Larson et al., 1986; Simons, 1995). It

was thus expected that a fit is required between the design of the MAS and the management style (MS) for optimal organisational performance. Figure One below shows the general model regarding the relationship between management style, MAS and performance. The following general proposition is formulated:

P1: Organisations with a fit between the MAS and management style (innovative MAS/proactive MS or traditional MAS/reactive MS) will have higher organisational performance than those using different combinations.

Figure One: The General Model



Empirical Study

Data were collected through a questionnaire of CEOs in public hospitals in Andalusia. This setting was selected for several reasons. First, the public hospital sector has been the object of some recent studies exploring the effect of management accounting systems on performance (Abernethy and Brownell, 1999), which enhances comparability of results. Second, a single sector was focused on for purposes of reducing the noise in the measures and controlling for variables of no theoretical interest. Third, the Andalusian health care authorities have introduced competition in the public hospital sector.

CEOs are encouraged to improve performance and change from a hospital-centered, disease-focused model to one of

disease prevention, health promotion, and primary care (Errasti, 1997; Cuervo, 1996).

The changes in the health care system encouraged hospitals to control the costs of service while increasing flexibility and quality, with the ultimate objective to enhance both hospital efficiency and effectiveness. To achieve these objectives, CEOs would have to change their management style so that the patients are treated like customers, their hospitals strategy is adapted to the disciplines of a competitive market and the use of information is enhanced.

The questionnaire was constructed based on prior literature, archival data and interviews with three CEOs in the field. These procedures were undertaken to ensure that

the variables of interest in this study were relevant to this industry and that the questions used to measure each variable captured the constructs of interest in the right way. The questionnaire was administered to the CEOs of the public hospitals in Andalusia (a total of 30). A satisfactory response rate was achieved with 23 useful questionnaires returned (76.67%). In order to obtain additional evidence, 17 CEOs were interviewed. A semi-structured interview was designed in order to provide important evidence about the different variables used and how these variables were related inside the hospital. The interviews of approximately one hour each were conducted with the CEOs of 2 Regional Hospitals (large hospitals), 6 Speciality Hospitals and 9 Rural Hospitals (smaller hospitals)¹.

Measurement of Variables

The design of the *management accounting system* was measured using the Chenhall and Morris (1986) MAS dimensions, which consider MAS design in terms of four broad information characteristics: (1) Scope, (2) Timeliness, (3) Aggregation and (4) Integration. CEOs were asked to indicate where they would place their hospital regarding these information characteristics on a Likert scale, with anchors of “very low” and “very high” (see questionnaire in appendix, after the references). The answers were given values of 1 to 4 (from low to high) for the data analysis. Following Gul (1991), all information characteristics were treated as complementary to construct the variable MAS design by averaging the scores for all items. The Cronbach alpha for the overall scale was 0.74, exceeding the recommended minimum level (Nunnally, 1978). A higher score corresponds to a more highly innovative MAS design.

The measurement scale for *management style* was based on Simons (1995) and Larson et al. (1986). CEOs were presented

two descriptions of management style (proactive and reactive).

The *proactive* management style was described as follows:

The hospital is managed according to the strategy designed by the top manager with participation from lower levels. The top manager actively initiates action, seeks out others, relies on a continual challenge and formal and informal debate of underlying data, assumptions and action plans. The top manager looks for synergy between departments, focusing on controlling deviations before they appear.

The *reactive* management style was described as follows:

The hospital is managed according to the strategy designed exclusively by the top manager. The top manager responds to initiations and requests from others. The top manager uses hierarchical reporting procedures and tends to be involved in debates of underlying data infrequently and on an exception basis. The top manager focuses on monitoring and controlling deviations after they appear.

CEOs had to indicate the extent to which their style corresponded to either of the descriptions on a five-point scale, with anchors of “Reactive Style”(=1) and “Proactive Style”(=5). So, the higher score on this scale, the more proactive the management style is.

Organisational Performance was measured using CEOs’ self-rated performance. Performance was captured as a relative rather than an absolute measure (Abernethy and Brownell, 1999; Govindarajan and Gupta, 1985). This overcomes some of the measurement difficulties associated with a cross-sectional sample where organisational performance may be affected by other factors (Abernethy and Brownell, 1999, p. 197). This study captured the multi-dimensional nature of hospital performance in terms of efficiency, effectiveness and quality. The items measuring performance were based on statements from several CEOs during a pilot study. A total of 18

¹ The Regional Hospitals have more beds and also they can treat a broader range of diseases than Rural Hospitals. Specialty Hospitals are focused on certain types of diseases and treatment. The latter hospitals have a medium size in terms of numbers of beds.

items measured performance in terms of costs compared to other hospitals, the use of health care resources (e.g. beds, theatre rooms, etc.), reputation of medical programs, investment in research, and quality of care (Abernethy and Brownell, 1999). CEOs were asked to indicate their hospital's performance, relative to other hospitals of the same category on a five-point Likert-type scale, anchored at the poles by "well below average" (=1) and "well above average" (=5). The average of the 18 items was used as the performance variable.

Results

The response by type of hospital is shown in Table One, where the responses obtained are compared with the total population by every type of hospital. Table One shows that each type of hospitals was proportionally represented in the sample, with the largest number of responses from the largest hospitals. Descriptive statistics for our sample are shown in Table Two.

Table One: Responses by Type of Hospital

Type of Hospital	Total population (%)	Response (%)
Regional	5 (16.67%)	3 (10 %)
Specialty	9 (30%)	7 (23.33 %)
Rural	16 (53.33%)	13 (43.33 %)
Total	30 (100%)	23 (76.66 %)

Table Two: Descriptive Statistics

	Mean	SD	Median
MAS design	2.28	0.09	2.21
Management Style (MS)	3.04	0.21	2.98
Performance	3.26	0.28	3.29

An analysis was undertaken to determine if MAS design and management style are correlated to performance. That is, it was investigated to ascertain whether performance was higher for a more innovative MAS or a more proactive management style. Table Three shows the results of the zero-order correlation

analysis. The correlation between the MAS and performance is positive and significant at the 0.05 level of significance. Table Three also shows that the correlation between management style and performance is positive and significant but at the 0.1 level of significance.

Table Three: Pearson correlation coefficients (p-value, N=23)

	MAS design	Management style
MAS design	1	–
Management Style	0.14	1
Performance	0.27 ^a	0.19 ^b

^a Significant at 0.05 level (two tailed)

^b Significant at 0.1 level (two tailed).

In order to evaluate the effect of both variables (MAS and management style) on performance, the following regression equation was tested:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_1 X_2 + \mu$$

Where Y denotes organisational performance, X₁ denotes MAS design (higher values indicate a more innovative design) and X₂ denotes management style (higher values indicate a more proactive style).

Since the focus is the contingency fit, only the regression coefficient β_3 is of interest. Consistent with our proposition, a positive β_3 indicates that a more innovative MAS design has a greater impact on performance when the management style is more proactive. The main effects cannot be interpreted, since the effect of one variable is conditional on the other (Hartmann and Moers, 1999). The results in Table Four do not provide support for the proposition since the regression coefficient β_3 is positive but not significant. This means it was not possible to statistically support the proposition that a fit between MAS design and management style affects performance. The correlation between organisational performance and hospital size was not significant, which suggests that size was not a confounding variable (Gul, 1991).

Table Four: Regression Analysis (N=23)

Variables	Coefficients (p-value)
Constant	3.66 (0.00)
MAS (innovative) (β_1)	0.13 (0.04)
Management Style (proactive) (β_2)	0.08 (0.12)
MAS design x Management style (β_3)	0.05 (0.14)
	Adj. $R^2=0.058$
	$F = 6.751 (0.00)$

Dependent variable = Organisational performance.

To add some intuitive appeal and extend the results of the regression analysis a two-way ANOVA was run for analysing the effect on performance of the fit between management style and MAS design. Management style was split on the basis of the median scores to create two groups: Proactive Style (above median) and Reactive Style (below median). MAS design was also split at the median to create two groups: Innovative MAS (above median) and Traditional MAS (below median). Since ANOVA assumes equality of variance between groups, a check of variance using the Levene test was conducted. The significance value of the Levene statistic was higher than 0.05, indicating homogeneity of variance. The mean scores for performance shown in Table Five indicate that performance is highest when an innovative MAS is matched with a proactive management style. Table Five also shows that performance is lowest when an innovative MAS is combined with a reactive management style (mismatch). These results support the central contention of contingency approach, which is that all components of an organisation must fit well with each other or friction is created that prevents it from performing optimally (Donaldson, 2001).

The interviews provide additional evidence on the fit between management style and the MAS. Below are shown some representative excerpts. The interview data suggested that there was congruence between MAS design and management style, as illustrated by the following remark from a CEO:

Table Five: ANOVA Results: Mean Performance Scores

	Innovator MAS	Traditional MAS
Proactive Management Style	3.19 n=8	2.86 n=2
Reactive Management Style	2.98 n=2	3.08 n=11

“The information system reported to me, aggregated and “fast” information from all services and levels within the hospital, which allows me to have meetings and to have discussions with other directors involved about how the hospital is performing”

Most CEOs seemed to have adapted the management style to the existing MAS design, thus indicating that the MAS may be dominating in determining the type of fit. The following excerpt from an interview serves as an example of this, showing how a CEO adopted a reactive management style based on the existing MAS:

“I receive information on how services are going on (e.g. patients infected in the surgery rooms, number of re-admissions...), but this information is reported once a month ...I know that other CEOs can get the same information once a week... thus I have to focus on managing the hospital simply by analysing the deviations from the monthly planning to keep organisational targets on track”

Another CEO asserted that his proactive management style was enabled by the information reported by the MAS.

“I quit my job in another hospital because the management information was too late and aggregated for decision making. In this hospital I feel comfortable discussing the information on the service process with other directors almost every day. As in other hospitals, our information system reports the main clinical and economic indicators per service and department... but the most important thing is that I have the data almost instantly...which facilitates me in making fast and flexible management decisions.”

Table Six shows descriptive statistics of the interviews. Although the table admittedly contains some subjectivity in rating the interviews, one can note from it that most CEOs interviewed appeared to be in a situation with a fit between management style and MAS design (10 of 17). The right column of Table Six also shows the proportion of CEO’s in that particular situation that perceive that a fit between management style and MAS design (a combination from one of the first two rows of the table) affects or would affect organisational performance positively (11 of 17).

Table Six: Interviews statistics

	Interviews indicating fit/misfit (%)	Performance enhanced by fit (%)
Proactive Management Style – Innovative MAS	6 (35.30%)	4 (66.67%)
Reactive Management Style – Traditional MAS	4 (23.53%)	3 (75%)
Proactive Management Style – Traditional MAS	4 (23.53%)	2 (50%)
Reactive Management Style – Innovative MAS	3 (17.64%)	2 (66.67%)
Total	17 (100%)	11 (64.70%)

Discussion and Conclusions

The objective of this paper was to analyse the relationship between MAS design and management style and its effect on performance. This objective was in line with Chenhall’s (2003) call for further research about the use of the MAS to facilitate and support management styles and processes. Specifically, this research has examined a general proposition, by attempting to answer two related questions:

- What is the relationship between the MAS and management style and its effect on performance?
- How is a fit more likely to be achieved; i.e. do CEOs adapt their management style to the existing MAS design or is it the other way around?

The findings of both questionnaires and interviews support our general proposition that organisations can improve performance with a fit or alignment between the MAS and management style. In other words, in the case of non-congruent fit or misfit, the organisation will perform worse than its competitors. These results are consistent with Abernethy and Brownell (1999), who found that the interaction between strategic change and a participative style of using budgets had a positive effect on organisational performance. The CEO interviews provided additional insight into the relationship between the MAS and the adoption of a certain management style. Based on the interviews, it was concluded that a fit is mostly achieved by adapting the management style to the MAS in place.

Many studies have analysed types of fit involving external variables. This paper extends the previous literature by analysing the role of two internal variables (management style and management accounting system) in a fit affecting organisational performance. Also, this paper extends the management literature in the public sector. The issues of management effectiveness and organisational performance are critical problems confronting managers in public organisations (Connors, 1990). This paper concludes that governmental authorities have to design the MAS to provide suitable information to healthcare managers. In doing so, managers can improve organisational performance and also they can face the challenge of creating a healthier system that balances and coordinates patient, physician, financial and community needs (Connors, 1990).

A further practical implication is that managers can be made aware of the type of performance information that has to be provided by management control techniques, such as the Balanced Scorecard, in order to optimise organisational effectiveness. To be effective, management control techniques may have to include performance indicators reflecting external environment and more long term and future oriented data, quantified in both monetary and non-monetary terms. However, not only do the appropriate information characteristics matter; the alignment between MAS design and management style is also required for organisations to be able to drive more value from the top to the bottom line (Simons, 1995). Similarly, encouraging a management style that emphasises delegation and flexibility to face a dynamic environment does not automatically enhance organisational effectiveness. Organisations have to encourage a certain management style which corresponds to the MAS design in order to optimise their performance. Thus, the study concludes as a further practical implication that boards of directors of hospitals, being responsible for appointing the hospital CEOs, will require more detailed, factual information on their management style to determine if there is a

proper balance with the management information from the MAS. In sum, what this research has shown is that the MAS design is a critical feature for organisations that want to improve their performance. Organisational practitioners involved in the training and hiring of CEOs need to focus more on the information system design when evaluating the management style of CEOs.

Limitations and Future Research

Several limitations of this study must be acknowledged. The small sample size is a probable cause for the lack of statistical significance. Second, this paper relies on works with contradictory findings and studies with different methods to measure the same variables, which have not been replicated and refined (see Chenhall, 2003). Regarding MAS design, the Chenhall and Morris (1986) information characteristics have been used in different ways, with some researchers focusing on the usefulness of the information, the availability of the information and the use of information by managers (see, Gul, 1991, Bouwens and Abernethy, 2000, and Chenhall, 2003). Furthermore, some authors have retained the information dimensions of the original construct (Bouwens and Abernethy, 2000), whilst others have focused only on some dimensions (Mia and Chenhall, 1994). Still others have grouped all the items to create a new construct (Gul, 1991).

Further work is therefore needed to integrate the research measuring MAS design based on information characteristics differently (Chenhall, 2003). Management style has also been measured differently, using items related to evaluation style, leadership style or style of using management control systems (Hartmann, 2000; Simons, 1995). Again, this lack of consistent use of measurement of the same variables across studies is disadvantageous from the perspective of comparing results.

Organisational performance is a complex and multidimensional variable, involving different objectives and strategic goals, which can create a problem when comparing findings among different studies

(Galunic and Eisenhardt, 1994). Furthermore, organisational performance has been measured using both a self-rated managerial performance instrument and hard performance data (e.g. ROI and sales), again detracting from comparability. In sum, the concerns outlined above limit the comparability of our study to previous work.

Another limitation of this paper is that the methods used do not permit an assessment of the cause and effect relationships among the analysed variables. This limitation can be partially solved by interview data but additional research could help clarify the cause/effect relationship. Clearly, empirical testing of the proposition in a different industrial setting may provide more insight into the external validity of the results. Future research could also examine the effect on performance of other characteristics of MAS (e.g. techniques, uses etc.) and management styles (e.g. cognitive biases of CEOs).

References

- Abernethy, M.A. and Brownell, P. (1999), "The role of budgets in organisations facing strategic change: an exploratory study", *Accounting, Organisations and Society*, 24, pp. 189-204.
- Birnberg, J.G., Shields, M.D. and Young, S.M. (1990), "The case for multiple methods in empirical management accounting research", *Journal of Management Accounting Research*, 2, pp. 33-66.
- Bouwens, J. and Abernethy, M.A. (2000), "The consequences of customisation on management accounting system design", *Accounting, Organisations and Society*, 25, pp. 221-241.
- Brownell, P. (1983), "Leadership style, budgetary participation and managerial behavior", *Accounting, Organisations and Society*, 8, pp.112-129.
- Chenhall, R.H. (2003), "Management control systems design within its organisational context: findings from contingency-based research and directions for the future", *Accounting, Organisations and Society*, 28, pp.127-168.
- Chenhall, R.H. and Morris, D. (1986), "The impact of Structure, Environment, and Interdependence on the Perceived Usefulness of Management Accounting Systems", *The Accounting Review*, 61, pp. 16-35.
- Connors, E.J. (1990), "Reflections on Leadership in Health Care", *Hospital and Health Services Administration*, 35, pp. 309-320.
- Cuervo, J.L. (1996), "Hospital y cambio organizativo: un equilibrio entre descentralización de la gestión, participación de los profesionales y costes asistenciales", *Todo Hospital*, 125, pp. 45-48.
- Daft, R.L. (1988), *Management*, The Dryden Press: Chicago, IL.
- Dean Jr, J.W. and Sharfman, M.P. (1996), "Does decision process matter? A study of strategic decision-making effectiveness", *Academy of Management Journal*, 39, pp. 368-396.
- Donaldson, L. (2001), *The Contingency Theory of Organisations*, Sage Publications: California.
- Errasti, F. (1997), *Principios de Gestión Sanitaria*, Diaz de Santos S.A.: Madrid.
- Galunic, D.C. and Eisenhardt, K.M. (1994), "Renewing the Strategy-Structure-Performance Paradigm", *Research in Organisational Behavior*, 16, pp. 215-255.
- Gerdin, J. and Greve, J. (2004), "Forms of contingency fit in management accounting research-a critical review", *Accounting, Organisations and Society*, 29, pp. 303-326.
- Govindarajan, V. and Gupta, A.K (1985), "Linking control systems to business unit strategy: impact on performance", *Accounting, Organisations and Society*, 10, pp. 51-66.

Gul, F.A. (1991), "The effects of management accounting systems and environmental uncertainty on small business manager's performance", *Accounting and Business Research*, 22, pp. 57-61.

Hartmann, F.G.H. (2000), "The appropriateness of RAPM: toward the further development of theory", *Accounting, Organisations and Society*, 25, pp. 451-482.

Hartmann, F. G. H. and Moers, F. (1999), "Testing contingency hypotheses in budgetary research: an evaluation of the use of moderated regression analysis", *Accounting, Organisations and Society*, 24, pp. 291-315.

Larson, L., Bussom, R.S., Vicars, W. and Jauch, L. (1986), "Proactive Versus Reactive Manager: Is the Dichotomy Realistic?", *The Journal of Management Studies*, 23, pp. 385-400.

Mia, L. and Chenhall, R.H. (1994), "The usefulness of management accounting systems, functional differentiation and managerial effectiveness", *Accounting, Organisations and Society*, 19, pp. 1-13.

Nunnally, J.D. (1978), *Psychometric theory*. 2d ed. McGraw-Hill: New York

Otley, D.T. and Pierce, B.J. (1995), "The control problem in public accounting firms: An empirical study of the impact of leadership style", *Accounting, Organisations and Society*, 20, pp. 405-420.

Simons, R. (1995), *Levers of Control: How Managers Use Innovative Control Systems to Drive Strategic Renewal*, Harvard Business School Press: Boston, Ma.

Van de Ven, A.H. and Drazin, R. (1985), "The Concept of Fit in Contingency Theory", *Research in Organisational Behaviour*, 7, pp. 333-365.

Appendix 1: QUESTIONNAIRE

Management Accounting System

CEOs were asked to indicate on scale from “very low” to “very high” the extent to which their MAS exhibited each of the following information characteristics:

- It relates to historical data
- It relates to future data
- Focus on events within the organization
- Focus on external environment
- Information Quantified in monetary terms
- Information Quantified in non-monetary terms
- Focus on long term
- Focus on short term
- Reports aggregated information (by functional area, time period...)
- Information accuracy
- Information available for decision making
- Coordination of different services or programs