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**Management control and performance of the Moroccan
hospital: Modeling by structural equations**

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Abstract

Several researches have shown that the implementation and development of management control systems bring superior performance to companies. In the public hospital, the determinants of management control have a positive and significant influence on management control and its implementation, and consequently on organizational performance. In Morocco, Two scientific researches focused on the contribution of the determinants of management

control to organizational performance in the public hospital (Boussetta M. and al., 2017, Alami S. and al., 2017). These scientific researches were aimed at a descriptive analysis, which is why we had the idea of supplementing it with a confirmatory study. Our problem can be stated as follows: what is the impact of the determinants of management control on the organizational performance of the Moroccan public hospital? We will present in this paper, a review of the literature, research hypotheses, research methodology, research findings and a discussion.

Key Words: Management control, organizational performance, Moroccan public hospital, LISREL approach

Introduction

Several researches have shown that the implementation and development of management control systems bring superior performance to companies. In the public hospital, the determinants of management control have a positive and significant influence on management control and its implementation, and consequently on organizational performance.

Today, due to various reasons, the introduction of management control in the public sector is hampered, despite the positive correlation between the latter and the improvement of the organizational performance of the organization. In Morocco, Two scientific researches focused on the contribution of the determinants of management control to organizational performance in the public hospital (Boussetta M. and al., 2017, Alami S. and al., 2017). These scientific researches were aimed at a descriptive analysis, which is why we had the idea of supplementing it with a confirmatory study. Our problem can

be stated as follows: what is the impact of the determinants of management control on the organizational performance of the Moroccan public hospital? We will present a review of the literature, research hypotheses, research methodology, research findings and a discussion.

1. Conceptual framework

The theoretical model of research is defined as a set of relations proposing a coherent and comprehensible explanation of a management phenomenon (Roussel et al., 2002). In this model, each relationship between variables is supported by a hypothesis based on a theoretical framework or empirical observations. An overview of the literature devoted to this concept is necessary for the proposition of the theoretical model of the implementation of management control and its impact on organizational performance.

Our model consists in assuming that organizational performance depends on the dimension of "implementation of management control" which itself depends on six dimensions: size, strategic planning, complexity of the activity, control The information system and the profile of the management controller.

According to Anthony R.N. (1988), "Management control is the process by which managers influence other members of the organization to implement organizational strategies." Thus, the transition from a universal classic approach applicable to all organizations to a flexible approach that adapts to the requirements of the context. However, contextual factors of hospital organizations and their impact on management control have been highlighted by contingency theory (Boussetta, M. and al., 2017; Alami S. and al., 2017).

The size of the organization is a factor that is correlated with its propensity to know and adopt the tools of management control. According to Dahlgren et

al. (2001), the size factor is significant in explaining the adoption of management control. It influences the content of management control tools. Nobre T. (2001) states that the size of the organization is a contingency factor explaining the organizational steering practices. Formal non-financial representations of performance are a priori more widely used in large organizations than in medium-sized ones.

Beyond the choice of an activity strategy, managers must opt for a control strategy. During the 1970s and 1980s, the work of Miles and Snow (1978) and Porter (1985) attempted to demonstrate the contingency of the strategy deployed by firms and the configuration of their management control systems. Three types of strategy operationalization in contingent strategy and control research were proposed by: the positioning, mission or typology of Miles and Snow (1978). The relationship between strategy and control insofar as the nature of control systems and processes can not be separated from strategic considerations (Robert Simons, 1987). Langfield-Smith (1997) argues that the strategy was not used as a variable in research on control systems until the 1980s, due to the non-existence until the late 1970s Of typologies making it possible to operationalize the strategy variable as a contingent variable (Chapman, 1997). According to Dent, 1990, Langfield-Smith, 1997, Bouquin, 2000), the strategy which is a factor of contingency holds an increasing place in the explanation of the control systems.

Kalika (1987) pointed out that the most differentiated and decentralized organizations at the structural level have the most developed planning and control systems. According to Moisdon and Tonneau (1999), the complexity of the organization is understood as the impossibility of a formalization where all the actors involved in a sector would find their account, that is to say finally the answers to the questions That they arise. In the hospital, the management

structure must cohabit with a medical structure linked to the medical liability scheme. There is not always a correspondence between the levels of these two structures, which makes the apprehension and evaluation of the activities again little evident for the management control. The complexity is manifested more particularly by the division of the medical activity which requires an always finer analytical division. It becomes evident that the problem of the managerial approach will lie in the actual representation of the activities, thus the impact for management control is important (Boussetta M. and Alami S., 2017).

The hospital, due to the particularity of its activity, does not satisfy the basic conditions (Ouchi, 1977). It faces a double constraint, demands on their performance and budget constraints, which leads to a high demand for management tools (Moisdon, 1999; Halgand, 2000). Bartoli (1997) summarizes the three possible logics of performance in the performance triangle: efficiency, efficiency and budgeting. These three logics link the three concepts: results, means and objectives. The logic of budgeting is traditional in the public sphere, it implies a notion of performance leading to a compliance follow-up. At the hospital, these tools are intended to be used by the Directorate-General for budgetary monitoring, with a justification objective relative to the technical and financial guardianship. This is an external audit, since it aims to inform the latter of the allocation of resources. External control over hospital organizations came from different sources: the Ministry of Health with its regional directorates and the Ministry of Economy and Finance with its regional directors, recipients, state inspectors , And the paying treasurers, to keep track of the expenditure commitments and to check the budgetary supply. Decentralization laws have led to a sharing between the health sector and the social sectors, which has favored the

multiplicity of external auditors (ministries, tutors and various caisses). According to (Burlaud A., Zarlowski P., 2003), "external control, whatever its form, is often motivated by a goal of learning and / or improving performance". The strengthening of external control is legitimate, it improves the company's governance structures, the transparency of its operation, improves its economic efficiency and its efficiency for the benefit of a greater number of stakeholders ".

Theoreticians of the diffusion of information technology innovations have concluded through studies that large enterprises with a large information system are more willing to adopt innovations in information technology. The management controller is at the heart of the company's information process and is confronted with the upheavals associated with the use of Information and Communication Technologies. These upheavals have led to a major change in the informing role of the Controller. The problem is essentially focused on shaping, processing, selecting and commenting information, rather than on how to produce or output data (Löning and Pesqueux, 1998). The information system is an issue in the current practice of organizational management. Combes and Labrousse (1997) believe that the establishment of an information system allows the indicators to be developed quickly, to ensure consistency, to update dashboards at sometimes very short intervals and to Forward them quickly to the various actors in the organization. The information system must adapt to a set of contingent variables such as strategy, size of organization, and environment (Chenhall, 2003; Santin and Van Caillie, 2008). It has facilitated the shift from habitual work to more analytical work. Controllers have more time to perform value-added activities related to management control and decision-making (Scapens and Jazayeri, 2003; De Ronge, 2000).

Management control has developed through the actions of setting standards and financial forecasts, combined with a control of achievements. Chiapello E. (1990) showed that traditional management control was rather the prerogative of former controllers, while counseling was rather common among young graduates. In the bureaucratic design, the management controller was primarily responsible for defining the management control system and making available to decision-makers predefined management information. It should be emphasized that "the role assigned to management control can not be envisaged, without considering the characteristics of management controllers in place in companies. Similarly, a certain style of management control can only work if the management controller adheres to this style and is capable of making it work "(Fornerino, M. and Godener, 2006). Bollecker M. (2002) considers that the purpose of the function according to this current is "the supervision of the activities, mainly in the service of the general management". Studies have shown that the controller's profile allows us to assert that it has an important role in the differentiation of control systems, so a technical profile tends to have a diagnostic or traditional role, while a profile Manager is more interacting with the operational ones and thus, more likely to bring out new strategic opportunities.

The implementation of management control has always been accompanied by performance, as Anthony (1988) points out, management control is "the process by which managers ensure that resources are obtained and used efficiently, Effectiveness and relevance, in line with the objectives of the organization, and that current actions are in line with the defined strategy. It is still the process that ensures that the firm's actions are performing well, that is, the value of the resources used remains well below the value created

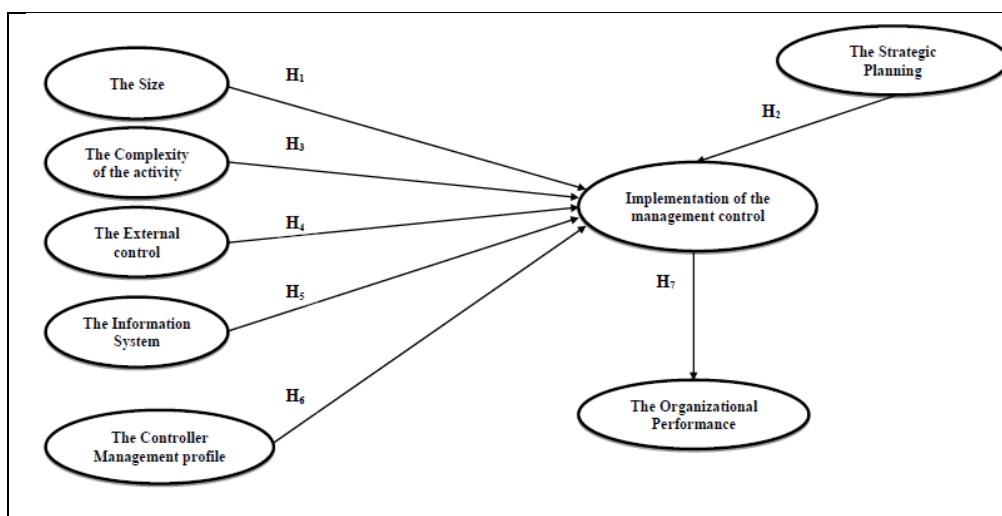
socially recognized by the market ". By completing this definition, Gervais (2009) defined the notion of performance as the combination of efficiency, effectiveness and relevance. Ouchi and Maguire (1975) suggest that controlling through the measurement and management of outputs is used by managers to obtain objective evidence of performance. The work of Ouchi (1979) on control showed different modalities depending on the ability to analyze and to be aware of the performance factors. As a result, "traditional management control, which merely highlights discrepancies between forecasts and achievements, and focuses exclusively on the financial aspect, does not effectively participate in the firm's adaptation to its Environment "(Gervais M. and Thenet G., 1998). Several studies have been conducted since the 1970s to understand the impact of budgetary control practices on performance and on many other organizational facts, but the explanation of the form taken by budgetary control has remained less studied. Other studies have shown that the implementation and development of management control systems bring greater performance to companies. Future-oriented management control is more open to perspectives that are not exclusively financial, and above all more adaptable to the needs of managers. It can help them in their strategic or daily decisions in hospital organizations (Boussetta M. and al., 2017, Alami S. and al., 2017).

From this work, we formulate the following hypotheses:

- H1 :** *"The greater the size of the hospital, the more management control is likely to emerge and develop."*
- H2 :** *"Strategic planning is a prerequisite for the implementation of management control".*
- H3 :** *"The most complex organizations require the implementation of management control".*
- H4 :** *"The reinforcement of external control leads to the implementation of management control".*

- H5 :** "The information system is a prerequisite for the implementation of management control".
- H6 :** "The profile of the person in charge of the management control influences the implementation of the management control".
- H7 :** "Hospitals that have implemented management control are better performing than those that do not."

From the synthesis of this review of the literature on the determinants of the implementation of management control in hospital, our theoretical research model follows:



2. Research methodology

After operationalizing the constructs, we developed a questionnaire that was administered by mail and electronically to a suitability sample of 52 public hospitals with a response rate of 29.71%. We carried out a descriptive analysis using the SPSS.v22 software and a confirmatory analysis using the SPSS-Amos.v24 software. In the first stage of the confirmatory analysis, the instrumentalisation of the Churchill paradigm (1979) enabled a scaling of the scales and the specification of the respective measurement models, and then

the second stage of this analysis was begun By testing the structural model using the LISREL approach.

Table 1 - The type of hospitals in our sample

Hospital	Number	Frequency
Hospital of the (CHU)	27	52%
Public Hospital of (CHR)	12	23%
Public Hospital of (CHP)	11	21%
Semi-public Hospital (HSP)	2	4%
Total	52	100%

Source: made by ourselves

3. Results

We have empirically estimated all the parameters of the model, namely the regression coefficients and their confidence intervals, the shared variables (r^2) of each variable explained by other variables of the model and the variances of the terms of the model, Unconstrained error. In view of the structural model's adjustment indices, it has an acceptable adjustment quality.

Table 2 - Structural Adjustment Indicators

Indices		Model Indicators
Absolutes	P	00
	GFI	0,69
	AGFI	0,63
	SRMR	0,27
	RMSEA	0,08
Incremental	NFI	0,66
	CFI	0,83
Parsimony	χ^2/DDL	1,52
	PNFI	0,62

Source: Output of SPSS-Amos software

The plausibility verification elements of the assumptions associated with the structural model are presented in the following table. Notably the correlation rate β and the Student t (T). The hypothetical relations in our structural model seem to be all significant except for two cases. The first case is the relationship between the complexity of activity and the implementation of management control ($\beta = 0.18$, $T = 1.32$, $P = 0.16$), this relation is both weak And non-significant (this is a hypothesis to reject). The second case is the relationship between the profile of the management controller and the implementation of the management control ($\beta = 0.10$, $T = 1.19$, $P = 0.19$), this relationship is both Weak and non-significant (this is a hypothesis to reject).

Table 3 - Statistical tests of hypothetical relations within the structural model

Hypothesis	Variable effect	Variable cause	Estimate (β)	C.R. (T)	P	Decision
H1	Implementation of management control	Size	,73	4,57	***	validated
H2	Implementation of management control	Strategic planning	,85	5,01	***	validated
H3	Implementation of management control	Complexity of activity	,18	1,32	,16	rejected
H4	Implementation of management control	External control	,56	3,54	***	validated
H5	Implementation of management control	The information system	,83	4,96	***	validated
H6	Implementation of management control	The Controller Profile	,10	1,19	,19	rejected
H7	Organizational performance	Implementation of management control	,77	4,83	***	validated

Source: Output of SPSS-Amos software

The explanatory power of the model is reflected by the percentage of the variance of the endogenous variables that it can explain. Similarly, the

variance explained by the model seems excellent. As shown in the table below, the structural model accounts for 72% of the variance in organizational performance.

Table 4 - The percentage of variance explained by the structural model

	Estimate
Size	,67
Strategic planning	,74
Complexity of activity	,00
Organizational performance	,72
External control	,54
The information system	,82
The Profile of the Management Controller	,00
Implementation of management control	,67

Source: Output of SPSS-Amos software

After testing the validity of modeling the real through empirical observations, the hypothetical-deductive methodology adopted as the framework of this work requires drawing the consequences of the test results on the general theory that has based the hypotheses of model. We have limited our field of research to the quantitative study. It will serve both to argue the external validity of the empirical results to be illustrated and to understand certain realities, and to formulate possibly empirical proposals for further testing. The results of the quantitative empirical study are generally considered sufficient for this purpose.

The structural model of our research was corroborated as a whole by the empirical data collected, it validates five hypotheses out of seven. It indicates to us that the organizational performance of the public hospital could be dependent on the control of management and its implementation Which is itself dependent on its determinants.

The plausibility of almost all hypothetical relationships comforts us as to the determinants of management control and the organizational performance of the public hospital. It also invites us to pay less attention to the configuration of influence of the determinants of management control to devote us more to the in-depth examination of the underlying dimensions. Such a reading of the results could help us better understand the stakes of the determinants of management control associated with the improvement of the organizational performance of the public hospital.

By proposing a modeling of the structural relationships of the explanatory variables, we tested the theoretical model with the collated data of the reality relating to the management control and the impact of its determinants on the organizational performance of the public hospital. Indeed, the regression coefficients of structural relationships were found to be closer to the theoretical recommendations for adaptation to the determinants of management control. Moreover, the coefficient (r^2) of the endogenous variable explained by the structural model has shown a satisfactory value, thus building confidence in the linear character of the relationships that binds them to the determinants of management control.

The notion of organizational performance prescribed by researchers, practitioners and consultants who are strongly committed to the determinants of management control has a real foundation and universal validity. It can be said that the place of management control in the management structure of the public hospital is subordinated to the determinants of management control, which are: size, external control, information system and strategic planning of the hospital, Public hospital.

Conclusion

In the public hospital, the determinants of management control have a positive and significant influence on management control and its implementation, and consequently on organizational performance. The results of the structural model showed that some hospitals have achieved a high level of organizational performance through the introduction of management control and consequently by the determinants of management control. It can be suggested that configurative modeling of structural relationships is probably closer to reality in Moroccan public hospitals. The results that we have been able to find will merit particular attention in future research.

References

- Alami, S. and Boussetta, M. (2017). *Analysis and adoption of management control: Application to the Moroccan hospital*. Revue d'études en management et finance d'organisation. No.5.
- Anthony, R. N. (1988). *The management control function*. The Harvard Business Press.
- Anthony, R. N. (1965). *Planning and control system a frame work for analysis*. Boston, Harvard University Press.
- Bollecker, M. (2002). *Le rôle des contrôleurs de gestion dans l'apprentissage organisationnel: Une analyse de la phase de suivi des réalisations*. Comptabilité-Contrôle-Audit 8(2): 109-126.
- Bouquin, H. (2000). *Contrôle et stratégie*. Encyclopédie de comptabilité, contrôle de gestion et audit: 533-546.
- Bouquin, H. and Y. Pesqueux (1999). *Vingt ans de contrôle de gestion ou le passage d'une technique à une discipline*. Comptabilité-Contrôle-Audit 5(3): 93-105.

- Boussetta, M. et Alami, S. (2017). *L'adoption du contrôle de gestion à l'hôpital marocain : Explication par l'approche PLS*. European Scientific Journal. Vol.13, No.4
- Bruns, W. J. and J. H. Waterhouse (1975). *Budgetary control and organization structure*. Journal of accounting research: 177-203.
- Brunsson, N. (1986). *Organizing for inconsistencies: On organizational conflict, depression and hypocrisy as substitutes for action*. Scandinavian Journal of Management Studies 2(3-4): 165-185.
- Burlaud, A. et P. Zarlowski (2003). *Le contrôle externe : quelles modalités pour quels enjeux ?*. Revue française de gestion, 2003(6):147, page 18.
- Chapman, C. S. (1997). *Reflections on a Contingent View of Accounting*. Accounting, Organizations and Society 22(2): 189-205.
- Chenhall, R. H. (2003). *Management control systems design within its organizational context: findings from contingency-based research and directions for the future*. Accounting, Organizations and Society 28(2): 127-168.
- Chiapello, E. (1990). *Contrôleurs de gestion, comment concevez-vous votre fonction?* Echanges 92(4): 7-36.
- Combes, J.E., et al. (1997). *Audit financier et contrôle de gestion*. Publi-Union Paris.
- Dahlgren, J. , Holmström, M. , Nehler, H. (2001). *Activity-Based Costing - Diffusion and Adoption*. Communication à la conférence annuelle de l'European Accounting Association, Athènes.
- De Rongé, Y. (2000). *Coûts*. Encyclopédie de comptabilité, contrôle de gestion et audit, Economica.
- Dent, J. F. (1990). *Strategy, organization and control: some possibilities for accounting research*. Accounting, Organizations and Society 15(1-2): 3-25.

- Dupuy, C. (1990). *Village associations in Senegal: economic functions and financing arrangements*. Revue Tiers Monde(122): 351-375.
- Fornerino, M. and A. Godener (2006). *Être contrôleur de gestion en France aujourd'hui: conseiller, adapter les outils... et surveiller*. Finance Contrôle Stratégie 9(1): 187-208.
- Gervais, M. and G. Thenet (1998). *Planification, gestion budgétaire et turbulence*. Finance, contrôle, stratégie 1(3): 57-84.
- Gervais, M. (2009). *Contrôle de gestion des activités de service*. in Encyclopédie de Comptabilité, Contrôle de gestion et Audit, 2^{ème} édition : 547-562.
- Kalika, M. (1987). *Structures d'entreprises, réalités, déterminants, performances*. Économica.
- Langfield-Smith, K. (1997). *Management Control Systems and Strategy: a critical review*. Accounting, Organizations and Society 22(2): 207-232.
- Löning, H., et al. (1998). *Le contrôle de gestion*. Dunod Paris.
- Merchant, K. A. (1981). *The control function of management*. Sloan management review 23(4): 43-55.
- Miles, R. E., et al. (1978). *Organizational strategy, structure, and process*. Academy of management review 3(3): 546-562.
- Mintzberg, H. (1982). *Structures et dynamique des organisations*. Paris: Éditions d'Organization.
- Mintzberg, H. (2006). *Filemanager au quotidien*. Les 10 rôles du cadre.
- Moisdon, J. C. and D. Tonneau (1999). *La démarche gestionnaire à l'hôpital: Recherches sur la gestion interne*. S. Arslan.
- Moisdon, J. C. (1999). *L'instrument multiprise*. In Du mode d'existence des outils de gestion, Seli- Arslan : 114-133.

- Nobre, T. (2001). *Méthodes et outils du contrôle de gestion dans les PME*. Finance, Contrôle, Stratégie, juin, 4(2): 119-148.
- Olsen, J. P. (1971). *Local Budgeting, Decision Making or Ritual Act*. Scandinavian Political Studies, 5(3): 85-118.
- Olson, O. (1985). *Quasiplanning and Blind Control*. Working paper, Dept of business administration, University of Gotenburg.
- Ouchi, W. G. (1977). *The relationship between organizational structure and organizational control*. Administrative science quarterly: 95-113.
- Ouchi, W. G. (1979). *A conceptual framework for the design of organizational control mechanisms*. Readings in Accounting for Management Control, Springer: 63-82.
- Ouchi, W. G. and M. A. Maguire (1975). *Organizational control: Two functions*. Administrative science quarterly: 559-569.
- Pettersen, I. J. (1995). *Budgetary control of hospitals-Ritual rhetorics and rationalized myths?* Financial Accountability and Management 11: 207-207.
- Porter, M. E. (1985). *Competitive advantage: creating and sustaining superior performance*. 1985. New York: Free Press.
- Roussel, P. et al. (2002). *Méthodes d'équations structurelles : Recherche et applications en gestion*. Economica.
- Santin, S. and D. Van Caillie (2008). *Le design du système de contrôle de gestion des PME: une quête de stabilité adaptative*. La Comptabilité, le Contrôle et l'Audit entre Changement et Stabilité.
- Scapens, R. W. and M. Jazayeri (2003). *ERP systems and management accounting change: opportunities or impacts? A research note*. European accounting review 12(1): 201-233.
- Simons, R. (1987). *Accounting Control Systems and Business Strategy: an empirical analysis*. Accounting, Organizations and Society 12(4): 357-374.