

## The Contingency and Steering of Performance in the Moroccan SMEs: Test of a Conceptuel Model

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**Abstract:** This research, being enrolled in the discipline of management control and performance management, proposes and empirically tests a model that explains the integration of a balanced performance measurement system and its impact on the performance of Moroccan SMEs. A proposal of a conceptual framework explaining this integration was based on the contributions of the contingency theory that enabled us to consider three families of determining factors, namely, environmental variables (environmental uncertainty), behavioral variables (manager's education, experience and shareholding) and organizational variables (culture, strategy, level of centralization, size, age of the company and capital structure). A total of 122 Moroccan SMEs were surveyed. Data was collected online, face-to-face and via Email. The results demonstrated the importance of environmental and cultural variables in adopting balanced performance measurement systems by SMEs and asserted the impact of adopting balanced systems on organizational performance.

**Keywords:** SME; Performance measurement; Balanced performance measurement system; Environmental variables; Behavioral variables; Organizational variables; Corporate performance.

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### I. INTRODUCTION

Small and medium-sized enterprises (SMEs) play a crucial role in the new economy, and most of them operate in a highly competitive environment. In Morocco, SMEs account for 95 per cent of private sector companies, provide 50 per cent of private sector jobs (HCP, 2014) and produce 20 per cent of value added.

Therefore, it is crucial to optimize the managerial practices of this type of corporate and to adopt performance management tools. In business, performance is placed at the center of decision-making and strategic design of any organization. It represents a key variable in the economic, financial and social balances of any organization (Bouamama, 2015).

Faced with the necessity to continuously adapt performance measurement tools in an uncertain business environment, several researchers criticized accounting models for measuring the performance of organizations (Gomes and al., 2004; Kennerley and Neely, 2003; Said, Hassabelnaby and Wier, 2003; Medori and Steeple, 2000), especially those adapted to SMEs. These performance measurement models are often "unbalanced" compared to what the Balanced Scorecard advances as the latter models do not incorporate the variety of indicators that make it possible to link "client performance, internal processes, employees and systems with long-term financial performance" (Kaplan & Norton, 1998).

This article seeks to answer the following question: **What are the determinants of the adoption of a balanced performance measurement system by SMEs, and what is its impact on corporate performance?**

To address this research question, we first tackle the interest and evolution of the concept of performance measurement (I). Secondly, we outline the theoretical framework of the contingency theory, which according to Scott (2003), serves as an important frame of reference for understanding business performance measurement practices (II).

We then formulate the hypotheses and present the research theoretical model to examine the object of our research (III). Finally, we propose to test our hypotheses using the linear regression method (IV).

### THE EVOLUTION OF INTEREST IN PERFORMANCE MEASUREMENT

Corporate performance has been a subject of academic and managerial interest for at least 65 years (Drucker, 1955). Several international renowned experts and researchers in the various fields of management are still not convinced that corporate performance is, in fact a research discipline on its own.

These researchers support their point of view by stressing that there are many scholars from many research disciplines such as strategic management, operational management, human resources, organizational behavior, information systems, marketing, cost accounting and management control, all of which have alluded, but are not yet convinced, that corporate performance is a coherent and independent body of knowledge (e.g. Marr and Schiuma, 2003; Neely, 2005; Taticchi, 2008).

In the early 1980s, discontent led to rumblings (Garvin, 1987; Johnson and Kaplan, 1987; Miller and Vollmann, 1985) about the continued use of financial measurement as the sole scale of performance evaluation. Kaplan (1983) called on the US accounting research and education community to expand performance measurements and include non-financial measurements such as productivity and quality. These challenges have contributed to shifting the focus on performance assessment from traditional financial measurements (such as revenue, profit and margin management) to the consideration of non-financial measurements (such as quality and customer satisfaction), and especially, the development of a more balanced performance measurement system.

In the 1990s, performance measurement research was based on the development of several measurement systems on the corporate scale (Bititci, Carrie and McDevitt, 1997; Kaplan and Norton, 1992). The research focused on more specific performance measurement frameworks, such as those in the service sector (Heskett and al., 1994), quality (Rust, Zahorik and Keiningham, 1995) or trade directions that are market-oriented (Gale, 1994).

Since the 2000s, research has moved from the development of new performance measurement systems to the evaluation of the different performance measurement systems developed in the 1990s (Chow, Haddad and Williamson, 1997; Greatbanks and Tapp, 2007; Ittner, Larcker, and Meyer, 2003; Norreklit, 2000), and to the retrospective adaptation of these systems for use in Small and Medium Enterprise environments (Andersen, Cobbold and Lawrie, 2001).

## **II. THE CONTINGENCY THEORY AS A THEORETICAL FRAMEWORK FOR RESEARCH**

### **1. BACKGROUND AND HISTORY OF THE CONTINGENCY THEORY**

In a literal sense, what is contingent is what may or may not happen. In the literature of organizations, contingency is a variable that moderates the effect of organizational characteristics on performance (Donaldson, 2001). The purpose of the contingent approach is to take into consideration the context or the situation in order to define the adequate management (Thévenet, 2018). This refutes the idea of a single, universally efficient managerial mode of action.

The theory of contingency was originated in the early 1960s in the framework of the theory of organizations. The underlying idea is that the structure of the organization must adapt to the characteristics of the context in order for the enterprise to perform well.

The first major study, and one of the most influential in structural contingency theory, was conducted by Burns and Stalker (1961). They examined the effect of the external environment's uncertainty on the structure of organizations. They identified two ideal-type organizations that form responses to a low or high level of uncertainty, namely the mechanistic structure and the organic structure.

The mechanistic organization is seen as an adequate response to a stable environment. In this type of organization, activities are divided according to areas of specialization and coordinated by a vertical hierarchy. The organic organization, on the other hand, is seen as an adequate response to a more unstable environment. In this type of organization, each individual must carry out their work knowing the situation of the firm as a whole. The different units must mutually adjust their operations to achieve the company's overall objective.

Woodward (1965) also looked at the influence of production technology on the structure and types of controls established by the organization. She demonstrated that there is a structure adapted to each particular technological context. The structure is rather flexible and informal in the context of unit production, while it is rather mechanistic and administrative in the case of mass production.

This theory is based on the following hypothesis: the environment and internal conditions determine the organization and its structures. It therefore insists on the basic assumption that organizations, which internal structures best meet the demands of the environment, will achieve better adaptation and thus greater efficiency

*"To diverse and varying situations may correspond diverse and varying modes of organization"* (Rojot, 2005, p.91). This principle originally developed by Lawrence and Lorsch (1967) refutes the "One best way" paradigm dominant in the schools of thought of certain traditional theories of organizations such as that of the classical school of thought or even that of human relations.

### **2. THE EVOLUTION OF THE FIELD OF CONTINGENCY THEORY**

The contingency theory was developed over three decades around three main fields of interest. The 1950s highlighted the role played by technologies, the 1960s by structures and the 1970s by strategy (Rouleau,

2007). To each of these periods correspond key researches that served as the basis for contemporary ones on the theory of contingency.

### **2.1. THE TECHNOLOGICAL CONTINGENCY**

In the late 1950s, technology was increasingly perceived as a determining factor in explaining the functioning of organizational structures. In this regard, from 1953 to 1957, Woodward led a research group that carried out a major study on the structures of industrial companies.

Woodward has distinguished three types of technology: unit or small batch production, mass production and continuous production. It turned out that neither size nor history nor did the sector explain these differences. However, technology seemed to play a major role. It became apparent that similar production systems tended to have similar organizational structures.

In the same vein, there is the idea that the environment can be a contingency factor in understanding the links between technical innovation and structure. For their part, Burns and Stalker (1961) have tried to understand why traditional companies find it difficult to introduce new technologies to meet the market evolution.

### **2.2. THE STRUCTURAL CONTINGENCY**

It is the adaptation of the organization to its environment that forms the central idea of the structural theory of contingency. Lawrence and Lorsch (1967) were interested in ten American companies which environments vary in their level of uncertainty and technical diversity. They concluded that organizations that best adapt to uncertainty in their environment are the ones that perform best. In the end, organizations that are most successful in aligning their organizational structure with the contingencies of their environment are the ones that perform best (Lawrence and al., 1967).

Furthermore, Lawrence and Lorsch observed that organizations adapt to their environment through a dual mechanism of differentiation and integration of their structures. It is, in fact, by dividing themselves into different functions towards specialization that organizations adapt to their environment. Thus, they proposed the following organizational rules: first, to group activities that have the same orientation towards the environment, then choose the best means to integrate the organizational structure: hierarchy, direct contacts between managers, committees, liaison services, inter-departmental rules, etc.

### **2.3. THE STRATEGIC CONTINGENCY**

For strategic contingency theorists, managers have some flexibility to control, in part, their environment (Rouleau, 2007).

The evolution from the theory of contingency into the consideration of organizations' strategic decisions has led to the emergence of a systemic model with three components (Ginsberg and Venkatraman, 1985):

- Inputs
- Processes
- Outputs

In the input category, Ginsberg and al. (1985) classify environmental dimensions such as market structure, product life cycle and environmental uncertainty. Processes refer to structures and systems. Organizational performance, measured by return on investment or created value, refers to the output category.

Research that is based on the contingency theory and that includes the strategic management of organizations within its theoretical framework takes into account the influence of environmental variables on the formulation of strategy in order to explain the interactions between structure, systems and the level of performance achieved.

## **3. IMPLICATIONS OF THE CONTINGENCY THEORY ON MANAGEMENT CONTROL**

Being applied to the system of management control since the 1970s, the theory of contingency is the most widely used theoretical framework for explaining management control practices (Chenhall, 2003). In fact, Anthony (1988) shows that contingency factors can explain variations in management control practices. He argues that there is no universal control system but that control practices depend on the contextual factors that may change them. According to Chenhall (2003), the contingent approach enables the study of management control systems according to context variables, assuming that organizations aim to adapt to changes in their contingency factors to improve their performance. For their part, Cavalluzzo and Ittner (2004), in addition to Van Dooren (2005), concluded that to explain management control practices, it is necessary to consider the characteristics of the organization and its organizational context, therefore, the different contingencies within the organization.

Accordingly, the contingent approach provides an appropriate framework to explain the contextual factors, internal and external, that influence the use and choice of performance measurements. Among the latter's main factors studied in recent years are internal factors such as size (Germain and Gates, 2010), age

(O'Connor and al. 2004; Dávila, 2005), structure (Chenhall, 2003; Germain and Gates, 2010), and strategy (Hoque, 2004; Chenhall, 2005), and external factors such as the environment and its complexity (Fisher, 1998; Davila, 2005).

In addition, the necessary adjustments of the structure in relation to its environment to move towards greater performance have led the theorists of contingency to highlight the notion of «fit» or congruence, among some characteristics of context and some attributes of structure in order for the organization to achieve its goal. The objective is to move from structure inadequacy (misfit) to adaptation (fit) for a better performance. The concept of adequacy « to fit » is therefore central in the theory of contingency (Van de Ven and Drazin, 1985).

The main hypothesis of the contingency theory is that « organizational performance depends on the fit between the structure and its context » (Drazin and Van de Ven, 1985). While it is true that for some authors (D. Katz and R.L. Khan 1966) the environment forms a constraint to which the company chooses adequate means to adapt, the implicit vision of the company/environment interaction in these theories is that of strategic choice: facing a more or less turbulent environment, the company reacts by choosing a strategy that, if adapted to the circumstances, its success is assured (J. Child 1972).

#### **4. CONCEPTUAL POSITIONING AND RESEARCH HYPOTHESES**

Based on the above, in the framework of the theory of contingency's predictions, the adoption of the company's performance measurement systems depends on contingency factors, including environmental, behavioral and organizational factors, essentially size, strategy, organizational decentralization, external environment, etc (Elhamma, 2011). Our conceptual model, thus, seeks to analyze the relationship between behavioral, organizational and environmental variables (explanatory variables) and the adoption of a balanced performance measurement system (explained variable). The company's performance would be determined by their influence. With regards to environmental variables, several studies have shown the link between the characteristics of performance measurement systems and environmental uncertainty (Chapman, 1997; Hartmann, 2000).

With respect to the second set of variables, the literature has identified organizational variables as antecedents of implementing a performance measurement system. These are the following variables: company culture, age and size of structure, strategy, level of centralization and capital structure. We complement this set of variables by also including the education, the shareholding and the experience of the manager (behavioral variables) as potentially explanatory factors of the adoption of a performance measurement system (Julien, 2000; Hall, 1995; Westhead, 1995; Storey and al. 1989; Dunkelberg and Cooper, 1982). We therefore specify the statement of all our hypotheses of the relationships between the explanatory variables and our dependent variable (adoption of a performance measurement system), thus, the performance of the company as a final result.

**H1:** There is a positive link between the adoption of a balanced performance measurement system and environmental uncertainty.

**H2a:** There is a positive link between the adoption of a balanced performance measurement system and corporate culture.

**H2b:** There is a positive link between the adoption of a balanced performance measurement system and the company's pursuit of a prospector-type strategy.

**H2c:** There is a negative link between the adoption of a balanced performance measurement system and the level of centralization of organizational structure.

**H2d:** There is a positive link between the adoption of a balanced performance measurement system and the size of the company.

**H2e:** There is a positive link between the adoption of a balanced performance measurement system and the age of the company.

**H2f:** There is a positive link between the adoption of a balanced performance measurement system and the ownership structure.

**H3a:** There is a positive link between the adoption of a balanced performance measurement system and the educational level of the manager.

**H3b:** There is a positive link between the adoption of a balanced performance measurement system and the shareholding of the manager.

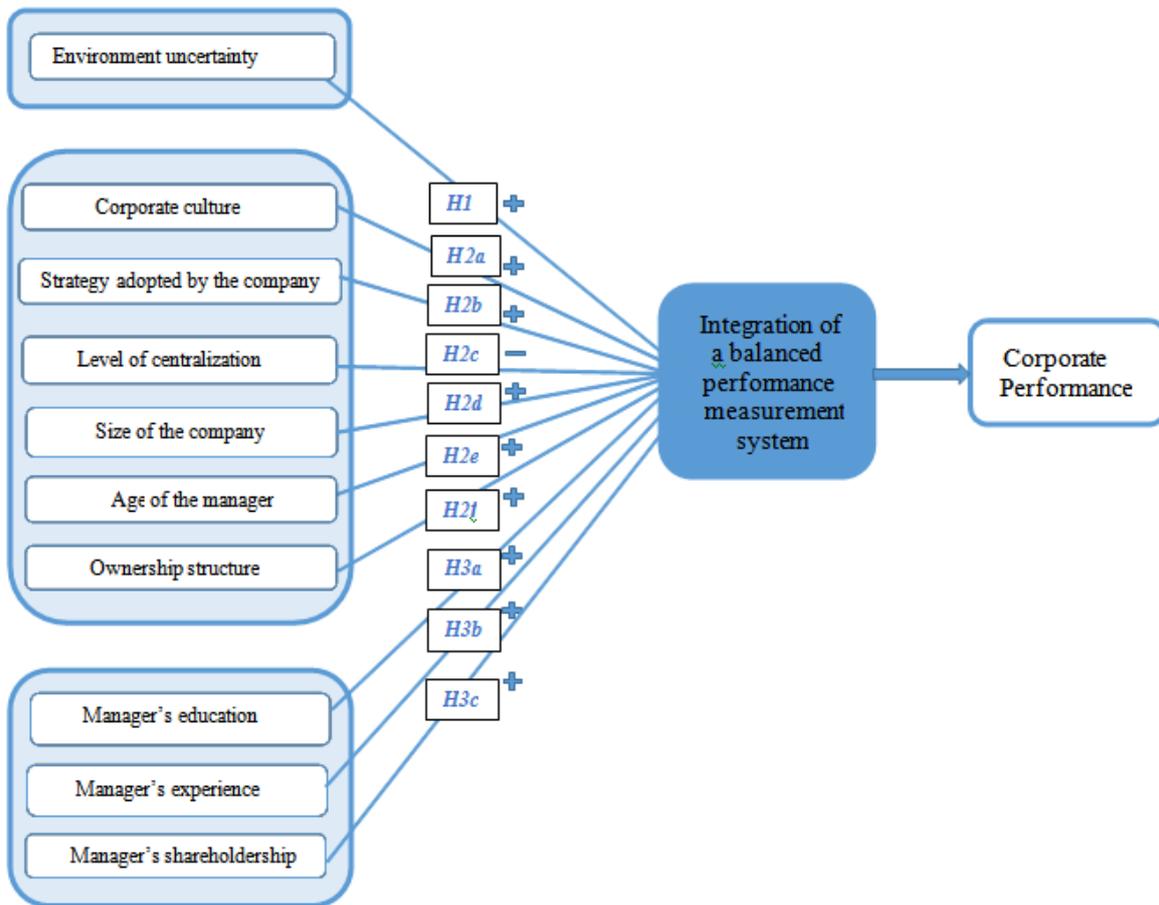
**H3c:** There is a positive link between the adoption of a balanced performance measurement system and the manager's experience.

**H4:** There is a positive link between the adoption of a balanced performance measurement system and corporate performance.

The literature review allowed us to formulate our hypotheses and group them into the following conceptual model:

**Figure 1 : Research conceptual model**

The analysis of the literature allowed us to formulate the hypotheses which articulation is outlined through the following model of research:



### III. METHODOLOGY

#### 3.1 SAMPLING AND CONDUCT OF THE RESEARCH

The survey focuses on companies that are adopting a performance measurement system, which we were able to study using an online survey over an eight-month period from February to September 2019. The subjects were initially selected on the basis of our social networks. We have opted for the mixed administration method, which consists in calling companies first and identifying the key person who is likely to answer the survey; in some cases two or three people can complete a single survey since the information sought is not held by a single person at the target structure level. Secondly, the Google Drive link is sent by Email, SMS or via electronic telephone messaging (Whatsapp) which invites the respondent to respond according to their own schedule and convenience. This solution was mainly relevant for geographically distant companies or targets that are not available. For some other cases, we printed the survey in paper format and we performed a face-to-face administration, in places that suited the targets, since we had to retain them to complete the survey administration. We started with more than 180 receptive companies, yet, given the sensitivity of the data and the problem, and despite their displayed goodwill, we were only able to collect 122 exploitable responses.

#### 3.2 INDEPENDENT VARIABLES

For the measurement of explanatory variables, all measuring instruments have been adopted from the literature. Appendix 1 provides details of all instruments.

All the variables in our survey have been subjected to several statistical treatments to determine whether the data are adequate for a factor analysis. Also, variables were analyzed to see if the sample follows a normal law. With respect to the results, all items meet all acceptance thresholds (Carricano and Poujol, 2006). Thus, in relation to the asymmetry coefficient and kurtosis, the absolute value of skewness is less than 1 and the absolute value of kurtosis is less than 1.5. It should also be stressed that we used exploratory factor analysis to construct our research variables (ACP, varimax rotation). This analysis allows us to check whether our variables represent only one component. Then, we calculated the Alpha coefficient of Cronbach to measure the reliability

of our measurement scales. For the latent variables, the results of the alpha coefficients of Cronbach were acceptable. The following table presents the reliability results for the measurement scales.

**Table 1 : Reliability of the explanatory variables’ measurement scales**

Variable	Alpha of Cronbach	Number of deleted items
Environment uncertainty	0,741	1
Corporate culture	0,931	1
The strategy adopted by the company	0,558	4
The level of centralization	0,657	6
The integration of a balanced performance measurement system	0,854	0
Performance – Customer perspective	0,917	1
Performance – Process perspective	0,863	0
Performance – Learning perspective	0,889	0

### 3.3 DEPENDENT VARIABLES

The only dependent variable of our study is corporate performance developed by Kaplan and Norton (1992). However, the literature review forced us to divide it into three sub-variables.

Performance – client perspective: Factor analysis allowed us to select 4 items to measure this variable. Cronbach’s Alpha on this scale is 0.741. For statistical regression, we used the average of the different items forming the scale (same procedure for all the other variables in this study).

Performance – process perspective: The results of the factor analysis allowed us to also select 4 items. The alpha coefficient of Cronbach presented a value of 0.863.

Performance – learning perspective: We selected all 4 items since the share of variance is largely sufficient. The reliability test presented a value of 0.889 which is an excellent value.

For the results of independent variables, we summarized all of their items in Appendix 1.

### 3.4 METHOD OF ANALYSIS

In this study, we evaluated the relationships between the variables by four regressions. The first three regression analyses are about the relationships between environmental, organizational and behavioral factors with the implementation of a performance measurement system. After that, we tested, using the general linear model, the causal links between the adoption of a balanced performance measurement system with corporate performance and its sub-dimensions (client, process, and learning). Finally, we analyzed the regression coefficients of the research variables to demonstrate their impacts. The significance of the overall regression model is measured by the coefficient of determination  $R^2$  which measures the percentage of the explained variable that is rendered by the overall model. Accordingly, the higher this coefficient, the more explanatory variables have explanatory power over the endogenous variable (Malhotra and al., 2011, p.466; Jolibert and Jourdan, 2006).

At first, we have checked the conditions of the regression analysis, going through the verification of the co-linearity statistics via the analysis of the research variables’ correlation matrix. Our aim is to identify the values that may affect regression results (Jolibert and Jourdan 2006). Tolerance and variance inflation factor are two other important verification methods. Thus, all obtained values are within acceptable limits (tolerance > 0.2 (Jolibert and Jourdan, 2006); VIF < 10 (Myers (1990)). The study of the auto-correlation of error terms is completed using the Durbin Watson test (Jolibert and Jourdan, 2006, p. 270). If the value of the latter test is between 0 and 4, we can consider that our regressions are consistent.

## IV. RESULTS OF THE RESEARCH

### 4.1 SAMPLE STRUCTURE

Regarding the “demographic” characteristics of our sample, the table below summarizes the main information at our disposal.

**Table 2 : Characteristics of our sample**

Variables	Population characteristics	Variables	Population characteristics
Type of activity	62% : Service 21% : Industrial 17% : Commercial	Manager education	50,8% : Management 32% : Engineering 6,6% : Computer science, Information technology 3,3% : Production, logistics 7,3% : Other educational majors
Legal form	62% : SARL	Number of	35,2% : Inferior to 10

	30% : SA 8% : Other forms		<b>permanent employees</b>	31,1% : 11 to 50 18% : 201 to 250 9,80% : 51 to 100 3,30% : 151 to 200 1,60% : 101 to 150 0,8% : No response
<b>Number of years of existence</b>	25,4% : 6 to 10 years 22,1% : 2 to 5 years 18,9% : 21 to 50 years 17,2% : 11 to 20 years 7,4% : one year or less 7,4% : more than 50 years 1,6% : No response		<b>Number of years in management position</b>	72% : between 1 and 10 years 12% : Between 11 and 20 years 7% : Between 21 and 30 years 4% : more than 31 years 4% : No response
<b>Type of manager</b>	47,5% : Owner 27,0% : neither owner nor shareholder 24,6% : Shareholder 0,8% : No response			

#### 4.2 RESULT OF THE HYPOTHESES TEST

The table below presents the results of the multiple linear regression model and the general linear model that explain our dependent variable “Corporate Performance”.

**Table 3 : Linear regressions concerning corporate stress performance**

		<b>Beta Model (significance)</b>	<b>General linear model Partial Eta squared</b>
<b>Independent variables:</b>	Environment uncertainty Corporate culture Strategy adopted by the company Centralization level Size of the company Age of the company Ownership structure Manager's shareholdership Manager's education Manager's experience Perf. Client. Persp. Perf. Process. Persp Perf. Learning. Persp	,326 (.000) *** ,681 (.000) *** ,117 (.321) -,046 (.759) ,206 (.168) ,023 (.886) ,100 (.364) ,237 (.099) ,093 (.520) -,112 (.379)	,181 (.000) *** ,217 (.000) *** ,208 (.000) ***
Models summary:	<ul style="list-style-type: none"> <li>➤ Environmental uncertainty with the adoption of a balanced performance measurement system:                             <ul style="list-style-type: none"> <li>- R<sup>2</sup></li> <li>- R2 adjusted :</li> <li>- F statistic:</li> <li>- Durbin-Watson Test:</li> </ul> </li> <li>➤ Organizational factors with the adoption of a balanced performance measurement system:                             <ul style="list-style-type: none"> <li>- R<sup>2</sup></li> <li>- R2 adjusted :</li> <li>- F statistic:</li> <li>- Durbin-Watson Test:</li> </ul> </li> <li>➤ Behavioral factors with the adoption of a balanced performance measurement system:                             <ul style="list-style-type: none"> <li>- R<sup>2</sup></li> <li>- R2 adjusted :</li> <li>- F statistic:</li> <li>- Durbin-Watson Test:</li> </ul> </li> </ul>	,106 ,099 ,953 1,933 ,552 ,487 ,771 1,658 ,58 ,12 ,969 1,731	
N = 122 (Only complete surveys were taken into consideration)			

For independent variables, we observe that the regression model coefficient for the environment uncertainty variable is significant (Beta = 0.326; p 0.005), hence, H1 hypothesis is accepted. As to the corporate culture variable, the results also appear to be significant (Beta = 0.681; p 0.005), thus, H2.a hypothesis is accepted. On the other hand, the variables strategy adopted by the company (Beta = 0.117; p > 0.005), level of centralization (Beta = - 0.046; p > 0.005), size of the company (Beta = 0.206; p > 0.005), age of the company (Beta = 0.023; p > 0.005) and ownership structure (Beta = 0.100; p > 0.005) do not represent aspects that are significantly associated with the adoption of a balanced performance measurement system, therefore, the assumptions H2.b, H2.c, H2.d, H2.e, and H2.f are rejected. As to behavioral factors, we note that all

assumptions (H4.1, H4.2 and H4.3) are rejected because the model does not align with the data. Concerning the results of the general linear model, we note that the adoption of a balanced performance measurement system significantly impacts process efficiency based performance (Partial Eta squared = 0.217) and organizational learning based performance (Partial Eta squared = 0.208), with a fairly significant impact on client-based performance (Partial Eta squared = 0.181). Consequently, this data enables us to infer that the three hypotheses H4.1, H4.2, and H4.3 are accepted. These results mean that the integration of a balanced performance measurement system fully contributes to the overall corporate performance in its three dimensions.

The summary of the results of the hypotheses test is outlined in the following table:

**TABLE 4 : SYNTHESIS OF THE RESEARCH RESULTS**

Dimensions	Hypotheses	Beta / Partial Eta Squared	Sig	Decision
Environment uncertainty → adoption of a balanced measurement system	H1	,326	,000	Accepted
<b>Organizational Factors</b>				
Corporate culture → adoption of a balanced measurement system	H2a	,681	,000	Accepted
The pursuit of a prospector-type strategy by the company → adoption of a balanced measurement system	H2b	,117	,321	Rejected
The centralization level of the organizational structure → adoption of a balanced measurement system	H2c	-,046	,759	Rejected
The size of the company → adoption of a balanced measurement system	H2d	,206	,168	Rejected
Age of the company → adoption of a balanced measurement system	H2e	,023	,886	Rejected
Ownership structure → adoption of a balanced measurement system	H2f	,100	,364	Rejected
<b>Behavioral Factors</b>				
The manager's education → adoption of a balanced measurement system	H3a	,237	,099	Rejected
The manager's shareholdership → adoption of a balanced measurement system	H3b	,093	,520	Rejected
The manager's experience → adoption of a balanced measurement system	H3c	-,112	,379	Rejected
<b>Explanatory Variables</b>				
Adoption of a balanced performance measurement system → Performance – client perspective	H4.1	(Partial Eta Squared) 0,181	,000	Accepted
Adoption of a balanced performance measurement system → Performance – internal process perspective	H4.2	(Partial Eta Squared) 0,217	,000	Accepted
Adoption of a balanced performance measurement system → Performance – learning perspective	H4.3	(Partial Eta Squared) 0,208	,000	Accepted

**V. RESULTS' DISCUSSION**

Previous research has identified contingency variables (organizational and external environment-related) influencing the adoption of management control systems and the choice of performance measurement tools and practices in the public and private sectors.

**5.1 ENVIRONMENTAL VARIABLES**

The external environment is an important contingent factor. It includes the degree of unpredictability or environment's uncertainty, the degree of competition or hostility manifested as well as the environmental dynamism or turbulence of the company. Environmental dynamism, which includes tense economic and political climates, regulatory concerns and a rapidly changing technological environment, is often problematic for industrial and service companies, hence affecting performance. Since environmental dynamism is very uncertain, a company faces frequent changes in its regulatory, socio-economic, political and technological environments. According to the literature review, environmental dynamism has been associated with strategic direction, organizational structure, adoption of balanced performance measurement systems and organizational effectiveness (Waweru and Spraakman, 2009; Galli, 2011). A turbulent or dynamic environment is positively associated with formal controls and budgets (Kaplan, 2001; Ferreira and Otley, 2010; Chenhall, 2007).

Our results have generated a significant correlation of 0.321 between environmental uncertainty and the adoption of a balanced performance measurement system. Secondly, the linear regression resulted in a significant impact with a beta coefficient of 0.326.

Our results confirm these theoretical statements, with a significant relationship between environment's uncertainty and the adoption of a balanced performance measurement system

## **5.2 ORGANIZATIONAL VARIABLES**

According to our literature review, organizational variables are contingent factors that have been positively linked to the adoption of balanced performance measurement systems (Ferreira and Otley, 2010; Chenhall, 2007).

Organizational culture refers to beliefs, standards and values that influence the behavior of the people working in SMEs (Poole and al., 2001).

Our results confirm these findings, with a correlation coefficient of 0.534, very significant at the threshold of 0.001 margin of error, and with a beta regression coefficient of 0,681, representing the most powerful impact we've observed in the framework of our research.

As to strategy, the results showed a significant and positive correlation of 0.230 between the pro-active orientation of the SME and the adoption of a balanced performance measurement, however without having a direct impact (hypothesis rejected).

That could be explained, among others, by the commitment of the SME in the search for internal information and the continuous improvement of management processes which is accompanied by the adoption of a system of balanced performance measurement ranging financial and non-financial indicators, without any direct impact.

For the other organizational variables, and despite the literature review revealed a negative relationship between the level of corporate centralization and the integration of a balanced performance measurement system (Zimmerman and Stevens, 2006; Thomson, 2010; Leroux and Wright, 2010; Carman, 2007), our results gave rise to contradictory results with a significant correlation coefficient of +0,242, which means that the more centralized the SME, the more it adopts a system of balanced performance measurement. However, the regression coefficient is not significant (hypothesis rejected).

For the other variables, namely size, age and ownership structure, neither the correlation coefficient nor the regression analysis made it possible to support our hypotheses in the Moroccan context.

## **5.3 BEHAVIORAL VARIABLES**

Our results have not been able to verify the theoretical statements that stipulate that the proportion of managers with a high level of education is higher in companies that have successfully integrated a balanced performance measurement system than their counterparts who could not do likewise. This is because all the directing managers surveyed have a high educational level. This can be explained by the involvement of these managers in the day-to-day management of their companies, the lack of formalization of the company's strategy and the lack of knowledge of balanced performance measurement systems. This unfortunately still needs to be vulgarized even amongst managers in large companies.

Similarly, the manager's experience and shareholding did not generate statistically significant results. The results of the quantitative phase revealed a non-significant correlation between the number of years in the management position and the integration of a balanced performance measurement system, and on the other hand, neither the regression coefficient has shown any significance.

The exposure of the Moroccan economy being too recent to push managers into their steering and performance management practices, is rather more oriented today towards longer-term value creation vectors and de facto calling for the adoption of non-financial indicators as well as balanced performance measurement systems.

The quality of investors in Moroccan SMEs explains the lack of correlation between the capital structure held by the manager and the adoption of balanced performance measurement systems. Effectively, far from international models and in the absence of a dynamic financial market, the Moroccan SME does not yet stimulate the interest of investment professionals, investment funds, venture capitalists, etc., able to discipline the steering and performance management practices of our SMEs' directing managers.

## **5.4 THE INTEGRATION OF A BALANCED PERFORMANCE MEASUREMENT SYSTEM AND ITS RELATIONSHIP TO PERFORMANCE**

During the quantitative phase of the study, SME managers indicated that customer relationships were very important for the company. Descriptive statistics indicated that business owners considered that customer relationships were essential to the integration of a balanced performance measurement system. The results of the quantitative phase corroborate the results of various studies on SMEs' critical success factors in many contexts. These studies found that customer service was considered the most important factor (Benzing and al., 2005; Coy and al., 2007; Hussain and Yaqub, 2010). This is consistent with the results of Temtime and Pansiri (2004). Their study, based on a survey of 203 SMEs from 3 cities in the Republic of Botswana, revealed that the quality of the customer relationship had a significant impact on the integration of a balanced performance measurement system in companies.

Our results partially support the theoretical statements, insofar as the integration of balanced performance measurement system has a significant impact on the customer relationship, yet, we have not noted that this is the most powerful impact (Partial Eta Squared equals 0,181). We have thus concluded that the most powerful impact is that performed on the perspective of the company's internal processes (Partial Eta squared equals 0.217), followed by the perspective of learning (Partial Eta squared equals 0.208).

## VI. CONCLUSION

It is essential for the company to achieve and maintain a level of excellence that allows it to survive and prosper. By focusing on the company's performance, the adoption of performance measurement systems such as the "Balanced scorecard" makes it possible to manage this relationship to excellence, hence the interest in these systems and for their use.

The use of balanced performance measurement systems would help address gaps in traditional performance measurement systems, support the performance management process and articulate and translate the strategy into action plans.

The impacts of such systems on organizational performance are underrated. Studies that have sought to establish them regularly face the difficulty of taking into account the influence of multiple contextual factors on the ability of such performance measurement system to produce favorable impacts on corporate performance. However, there seems to be a consensus on the role these systems can play in theory in improving organizational performance and one might think that the absence of this "steering tool" in today's turbulent environment impairs the company's ability to achieve and maintain the necessary level of excellence.

## RESEARCH LIMITATIONS

Our first limitation is linked to the instrument of measurement. The instrument used is reliable (satisfactory psychometric properties). We have chosen valid measurements previously used for each construct of this work. With all of this in mind, future research that will attempt to prolong this study must have a process of refinement and improvement of the instrument in such a way as to have more objectivity in the answers (turnover, number of years, experience, perceived uncertainty, recorded performance). We must be aware that the results were obtained through an investigation. This is therefore a limitation in our study and also an area to be explored for future research using multi-method data collection strategies in order to improve the validity and reliability of construction measures. Future studies in this area should also use more sophisticated measurement instruments to address these concerns and, where possible, use multiple-source measurements.

The second limitation is the sample size, 122 SMEs, which would not make the results of the research widely available and thus limit the external validity of the research.

Another limitation of our study is that we did not discuss other contingency variables such as organizational leadership, governance style or level of technology.

## RECOMMENDATIONS FOR FUTURE RESEARCH

An important part of the research plan is to understand how the different uses of performance measurement systems can be combined to adapt to the company's particular circumstances. Little work on contingency has been published on issues related to performance measurement systems: target cost establishment, life cycle cost establishment, non-financial performance indicators, including the capabilities of the company. Therefore, it is necessary to broaden the basis of studies linking the contingency framework to performance measurement systems.

Another line of research would be to consider environmental variables as mediating variables with other relationships, different from those proposed by our research model. Therefore, studies with different relationships would be beneficial in increasing the knowledge base.

Finally, there is a need to generate and accumulate knowledge through studies that replicate previous research but improve the results' validity and reliability. This is in order to create a solid basis for further developing models that can be generalized. Studies that have not developed sufficient "critical mass" cannot confirm the results.

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## APPENDICES

### APPENDIX 1: VARIABLES AND ITEMS USED IN OUR SURVEY

Environment uncertainty	Authors / References
<ul style="list-style-type: none"> <li>• Dynamism of the economic environment ;</li> <li>• Dynamism of the technological environment;</li> <li>• Predictability of competitors' activity in the market;</li> <li>• Predictability of customers' tastes and preferences ;</li> <li>• Review of marketing policies.</li> </ul>	Gordon and Narayan (1984)
Corporate culture	Authors / References
<ul style="list-style-type: none"> <li>• It is rare to fail to resolve a problem or to not reach an agreement that satisfies both parties;</li> <li>• In our company, we refer to a code of ethics that guides our behavior and clarifies what everyone has the right to do and not to do ;</li> <li>• During a situation of disagreement, we always try to find a solution that satisfies both parties;</li> <li>• Consensus can always be reached even in the most difficult cases;</li> <li>• The company reacts well to competition and environmental change;</li> <li>• The company is innovative and continuously improves its working methods;</li> <li>• The company adapts easily to change;</li> <li>• The manager follows and respects the rules he has established in the company;</li> <li>• The values that organize the activity within the company are clear and consistent.</li> </ul>	Denison and Mishra (1995) and Fey and Denison (2003)

<b>Corporate strategy</b> <ul style="list-style-type: none"> <li>• The company focuses on product standardization to achieve effects of scale and experience.</li> <li>• Growth is mainly achieved by extending current products to current customers</li> <li>• The company is concerned with protecting a stable product line in clearly defined markets.</li> <li>• In the company, the main concern is to maintain current products or services</li> <li>• There is a strong preference for risk-free investments and moderate returns on investment;</li> <li>• The strategy consists of waiting and proceeding in accordance with the competition.</li> <li>• The company is rarely the first to introduce new production processes.</li> </ul>	Mouline (2000)
<b>Vertical decentralization</b> <ul style="list-style-type: none"> <li>• Recruitment or lay-off</li> <li>• Development or the launch of new products or services</li> <li>• Choice of suppliers</li> <li>• Setting sales prices</li> <li>• Reorganization of operational responsibilities</li> </ul>	Kalika, (1987)
<b>Horizontal decentralization</b> <ul style="list-style-type: none"> <li>• You are involved in all decisions, including minor ones, since you consider that everything must be controlled.</li> <li>• You make important decisions only after consulting with your employees.</li> <li>• Your employees always consult with you before the decisions they make are implemented.</li> <li>• You let your employees make decisions that fall within their area of responsibility.</li> </ul>	Kalika, (1987)
<b>Size</b> <ul style="list-style-type: none"> <li>• The workforce</li> <li>• Company's assets</li> <li>• Turnover</li> </ul>	Van Dooren (2005),
<b>Age</b> <ul style="list-style-type: none"> <li>• Number of years since creation</li> </ul>	O'Connor and al. (2004), Dávila (2005)
<b>Capital structure</b> <ul style="list-style-type: none"> <li>• Debts / Total liabilities</li> </ul>	Kochhar (1996)
<b>Manager's behavior</b>	
<ul style="list-style-type: none"> <li>• Educational level</li> <li>• Type of major</li> </ul>	Driver and Mock (1975); Kalika (1987) and de Germain (2000),
<ul style="list-style-type: none"> <li>• Number of years at the head of a company</li> </ul>	Driver and Mock (1975); Kalika (1987) and de Germain (2000),
<ul style="list-style-type: none"> <li>• The manager is the owner</li> <li>• Percentage of capital detained by the manager</li> </ul>	Driver and Mock (1975); Kalika (1987) and de Germain (2000),
<b>Integration of a balanced measurement</b>	
<ul style="list-style-type: none"> <li>• Financial indicators</li> <li>• Indicators related to clients</li> <li>• Indicators centered on processes' efficiency and effectiveness</li> <li>• Indicators oriented towards the development of innovation</li> </ul>	Kaplan and Norton (1996)
<b>Organizational performance</b>	
<ul style="list-style-type: none"> <li>• Client perspective</li> <li>• Company's internal processes' perspective</li> <li>• Company's learning and growth perspective</li> </ul>	Kaplan and Norton de (1992)

Salaheddine NABIRHA, et. al. "The Contingency and Steering of Performance in the Moroccan SMES: Test of a Conceptuel Model." *International Journal of Business and Management Invention (IJBMI)*, vol. 09(06), 2020, pp 24-35.