Exploring the Interrelationship Among Management Accounting Systems, Decentralization, and Organizational Performance

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Abstract The purpose of this chapter is to explore the moderating effect of decentralization on the relationship between management accounting systems and organizational performance. An online survey was used to inquire CFOs of Portuguese SMEs', and data were analyzed through SmartPLS. The results indicate that decentralization moderates the relationship between MAS and organizational performance. This chapter contributes to a better knowledge of the factors that can enhance MAS effectiveness and its influence on the performance of SMEs.

Keywords Management accounting systems, Decentralization, Organizational performance, PLS-SEM, Moderation.

1 Introduction

Organizations competing in the global market face major challenges. These challenges relate to several factors, including the efficient use of resources and an uncertain external environment. This uncertainty becomes much more challenging for small and medium enterprises (SMEs). Companies sometimes decentralize decision-making power to address this uncertainty and seek more market information. These approaches aim to bring relevant information to managers at all organizational levels so they can respond quickly and effectively to changes in the external environment. They can thus increase their departments' performance and consequently improve organizational performance. In this process, management accounting systems (MAS) play a key role in managing and sharing this information

throughout the organization. As such, decentralization of decision-making may influence the relationship between the use of information provided by MAS and the organizational performance of SMEs.

2 Background

The results presented by literature relating the relationship between MAS and organizational performance are not consistent (Cadez and Guilding 2008; Krumwiede et al. 2008; Harrison 2009; Tontiset and Ussahawanitchakit 2010; Hoque 2011; Tuanmat and Smith 2011; Ismail et al. 2018; Jariya and Velnampy 2022). These results could suggest the introduction of a variable that moderates this relationship (Baron and Kenny 1986).

In a highly competitive market, it is necessary to respond quickly to changes that are taking place dynamically. These responses are mainly operational. Therefore, information from the market is required for decisions made at all hierarchical levels. Thus, increasing decentralization will allow a faster response to the market.

Decentralization of the decision process can influence the relationship between MAS and organizational performance, improving access to information for managers at intermediate levels that will lead to a more effective response from these managers and thus increase organizational performance.

In this context, this chapter aims to study the relationship between the use of MAS information and the organizational performance of SMEs. In addition, we also analyze the influence of the decentralization of decision-making on this relationship. The conceptual model is presented in Figure 1.

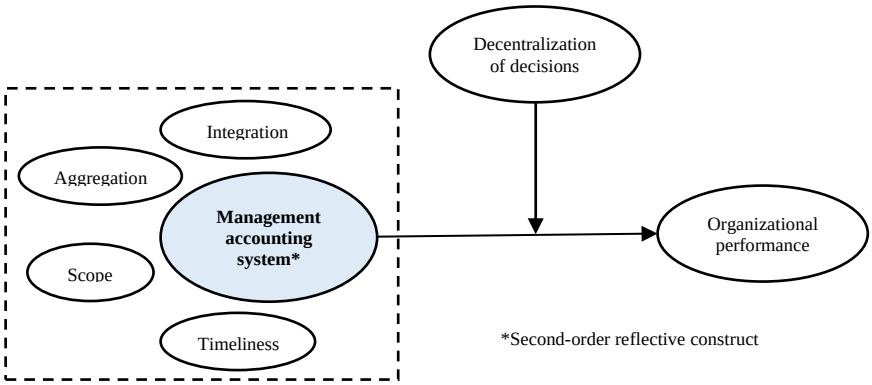

Fig. 1 Conceptual model

3 Methodology

The data was collected through an online survey of Portuguese SMEs for this research. The names and addresses of 1,500 SMEs were obtained from Informa DB, which belongs to the Dun and Bradstreet Worldwide Network. All these enterprises were contacted by phone to explain the objective of the research study. Twelve enterprises, despite several attempts, never answered our calls. Ninety-three enterprises declined to collaborate in this research study for several reasons, such as no longer operating and a lack of autonomy to respond to the questionnaire. Therefore, an email explaining the purpose of the research and containing the link to the online survey was sent to 1,407 Portuguese SMEs. A total of 255 usable responses were obtained from Chief Financial Officers (CFOs), representing a response rate of 18.12 percent. This response rate cannot be considered high but is in line with other studies in the same research area.

The research instrument used in this chapter was designed based on an extensive literature review. During the first phase of the questionnaire design, it was translated and adapted to the Portuguese business environment. In the second phase, the instrument was submitted to a panel of experts from several organizations. During this phase, particular attention was given to the use of terminology consistent with the background of the survey participants.

The final version of the constructs used in this research included twenty-six items representing the observed variables. All these observed variables were measured on a Likert scale with a range of 1 to 7 (Table 1).

Table 1 Operationalization of the constructs

Constructs	Scale	Sources
Management accounting systems	The extent of use of MAS information on a 7-point scale could range from "never" (1) to "always" (7).	Pedroso & Gomes (2020)
Organizational performance	Evaluation of organizational performance for each of the performance measures included in the construct on a 7-point scale, which could range from "unacceptable" (1) to "excellent" (7).	Govindarajan (1984), Cadez and Guilding (2008), Hoque and James (2000), Harrison (2009), Hoque (2011).
Decentralization of decisions	Rate the extent of the company's decentralization on a 7-point scale that could range from "very low" (1) to "very high"(7).	Gordon and Narayanan (1984), Abdel-Kader and Luther (2008), Soobaroyen and Poorundersing (2008).

Partial least squares–structural equation modeling (PLS-SEM) was used to analyze the data.

All the analyzes were performed using the IBM-SPSS Statistics version 25 and SmartPLS 3.3.9 (Ringle et al. 2015) and followed procedures suggested in the literature (Hair et al. 2013; Hair et al. 2019).

4 Results and Discussion

4.1 Measurement Model

The first step was assessing the constructs' reliability. Almost all outer loadings were above 0.708, the threshold recommended by the literature (Hair et al. 2019). Only two measurement items were slightly lower than this threshold (Table 2).

Additionally, the Cronbach's alpha values and the Composite Reliability (CR) values obtained for each construct exceeding 0.7 indicated sufficient construct reliability. All the average variance extracted (AVE) values were higher than the recommended threshold of 0.5. Based on these results, the items with outer loadings slightly below 0.708 were maintained, as their exclusion did not improve the AVE and CR values (Hair et al. 2013).

Regarding discriminant validity, the heterotrait-monotrait (HTMT) ratio of correlations was used (Hair et al. 2017; Usakli and Kucukergin 2018). All values for HTMT are less than 0.90 (Table 3), which means that the discriminant validity of the constructs is assured. Regarding the MAS construct, all the loadings of the first-order constructs on the second-order constructs are significant ($p<0.001$) and above 0.765. They indicate that MAS can be measured as the second-order construct proposed by Pedroso & Gomes (2020), reflecting the four dimensions of information characteristics: scope, timeless, aggregation, and integration.

Table 2 Validity and reliability constructs

Construct Items	Loading	CR	AVE	Alpha
Scope		0.905	0.657	0.870
SCO01	0.838			
SCO02	0.816			
SCO03	0.805			
SCO04	0.796			
SCO05	0.797			
Timeliness		0.914	0.727	0.875
TIM01	0.833			
TIM02	0.866			
TIM03	0.859			
TIM04	0.853			

Construct Items	Loading	CR	AVE	Alpha
Aggregation		0.916	0.608	0.892
AGG01	0.794			
AGG02	0.772			
AGG03	0.770			
AGG04	0.822			
AGG05	0.787			
AGG06	0.744			
AGG07	0.767			
Integration		0.936	0.829	0.897
INT01	0.891			
INT02	0.929			
INT03	0.911			
Organizational performance		0.894	0.548	0.862
ORP01	0.789			
ORP02	0.746			
ORP03	0.766			
ORP04	0.793			
ORP05	0.742			
ORP06	0.656			
ORP07	0.679			
Decentralization of decisions		0.912	0.674	0.880
DEC01	0.781			
DEC02	0.835			
DEC03	0.859			
DEC04	0.843			
DEC05	0.783			

Table 2 (cont.)

Table 3 Discriminant validity

	Agg	Dec	Int	OP	Sco	Tim
Aggregation	----					
Decentralization	0.436					
Integration	0.879	0.444				
Organizational Performance	0.372	0.325	0.286			
Scope	0.771	0.413	0.628	0.302		
Timeliness	0.727	0.243	0.677	0.312	0.637	----

Note: None of the correspondent bootstrap confidence intervals includes the value 1.

The common method variance was verified with Harman's single-factor test by conducting an exploratory factor analysis (Podsakoff et al. 2003). The results of this

test show that the first factor only accounts for 26.28% of the total variance, which means that the data has no common method variance issues.

4.2 Structural Model

The results of the structural model using a bootstrapping procedure with a resampling of 5000 are presented in Table 4. All the paths of relationships are positive and significant. The values of f2 are also positive and follow a similar rank order of the path coefficients, which means that large significant path values correspond to large effect sizes. In addition, Q2 is positive, which means that the model has predictive relevance (Hair et al. 2013).

Table 4 Structural model results

Path relationship:	Path coefficient	95% confidence interval	f^2
Decentralization -> Organizational Performance	0.180**	[0.061; 0.325]	0.032
MAS -> Organizational Performance	0.256***	[0.144; 0.385]	0.065
Moderating effect of decentralization	0.121**	[0.008; 0.226]	0.019
	R^2		Q^2
Organizational Performance	0.160		0.079

***p<0.001, **p<0.05, *p< 0.10

After analyzing the graphs regarding PLS_SEM prediction errors, we found that their distribution does not deviate much from symmetry. For this reason, we based our assessment of the predictive power of our model on the RMSE. The results of PLSpredict, based on ten samples and ten repetitions, are presented in table 5.

Table 5 PLSpredict results

	PLS-SEM		LM	PLS-SEM - LM
Item	RMSE	$Q^2_{predict}$	RMSE	RMSE
ORP01	0.947	0.103	0.994	-0.047
ORP02	0.979	0.071	1.021	-0.043
ORP03	0.912	0.081	0.952	-0.040
ORP04	0.823	0.083	0.857	-0.034
ORP05	0.816	0.064	0.854	-0.037
ORP06	1.088	0.081	1.139	-0.051
ORP07	1.030	0.031	1.089	-0.060

Comparing the RMSE values from the PLS-SEM with the linear regression (LM) benchmark, we found that the PLS-SEM produces lower prediction errors for all

the indicators, which means that our model has high predictive power for organizational performance (Shmueli et al. 2019).

The results of this chapter validate a multidimensional approach to measuring the effectiveness of MAS. They also confirm the four dimensions of MAS and show that these dimensions are distinct and interrelated.

According to the results, using information with the characteristics represented by the multidimensional approach to MAS positively influences the organizational performance of SMEs. In addition, the moderation effect of decentralizing decision-making on this relationship was significant. This means that increasing the level of decentralization will increase the influence of the MAS on organizational performance.

5 Conclusions and Implications

This chapter analyzes the moderating effect of decentralization on the relationship between management accounting systems and organizational performance.

Based on the results, it seems that decentralizing decision processes can enhance the impact of MAS effectiveness on organizational performance. We highlight the innovative nature of the multidimensional MAS and the synergies resulting from its four dimensions of information, which can be created through their balanced development. This multidimensional approach should enrich management accounting knowledge and provide researchers with a valuable tool for measuring the effectiveness of MAS and its influence on organizational performance. In addition, it should facilitate the comparison between different studies in the field of management accounting.

Overall, it appears that executives of Portuguese SMEs are effectively using accounting management information to anticipate market threats. As such, regardless of company size and industry to which they belong, executives use management accounting information to predict threats and maintain the competitiveness of their companies in the global market.

This chapter contributes to a better knowledge of the factors that can enhance MAS effectiveness and its influence on the performance of SMEs. It also contributes to executive decision support by providing an instrument for assessing the quality of information they use to improve their company's competitiveness.

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