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## Article

# How does cross-functional cooperation influence organizational performance? The mediating role of management accounting systems

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## BANKING & FINANCE | RESEARCH ARTICLE

# How does cross-functional cooperation influence organizational performance? The mediating role of management accounting systems

Tu Thanh Hoai<sup>1</sup> and Nguyen Phong Nguyen<sup>1\*</sup>

**Abstract:** Interfirm cooperation and its linkage to management accounting information are vital for organizational performance. However, the literature lacks insight into how competitive advantage emerges in the context of intrafirm cooperation via the use of management accounting systems (MAS). This study evaluates whether management accounting practices translate cooperation among different organizational functions into enhanced organizational performance. Findings from survey data from 186 large firms in Vietnam show that the use of MAS fully mediates the effects of cross-functional cooperation on organizational performance. Our study adds to the limited research examining the interface between cross-functional cooperation and MAS.

**Subjects:** Business, Management and Accounting; Management Accounting; Information / Knowledge Management

**Keywords:** Management accounting systems use; cross-functional cooperation; organizational performance; emerging market; Vietnam



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### PUBLIC INTEREST STATEMENT

Cross-functional cooperation refers to the process in which different departments can collaborate and coordinate with one another to improve the quality of their performance and outcomes. Our study develops and examines the mechanism through which cross-functional cooperation can establish a high-performing culture via the mediation role of management accounting systems. Specifically, our study demonstrates that the cooperative ability and intensity between departments can be important drivers for proper implementation and usage of management accounting information. Additionally, business organizations with high levels of cross-functional cooperative capabilities and magnitude tend to use more accounting information in all of the following aspects: broad scope, timeliness, integration, and aggregation. The enhanced use of that information can facilitate planning, controlling, and decision-making, which in turn, will reinforce organizational performance.

## 1. Introduction

In the context of interfirm relationships, management accounting information, which is generally defined as financial and non-financial information used in an organization for decision making, has the potential to stimulate interfirm cooperation (Caglio & Ditillo, 2012). The relationship between interfirm cooperation and sharing management accounting information across partner firms is a traditional area of research in the accounting literature (e.g. Meira et al., 2010; Möller et al., 2011; Windolph & Moeller, 2012), and reflects the great research interest in the role of management accounting information in managing interfirm cooperative relationships (Dekker & Ad R Van, 2000).

Previous studies have claimed that management accounting information can promote interfirm cooperation by resolving conflicts arising between partners, and by supporting integrative behaviors during joint problem solving and cooperation (Essa et al., 2018). Management accounting information can help to provide timely and accurate information to plan and control cooperative activities between firms (Miguel, 2004). For example, in the supply-chain context, relevant cost-accounting information supports various analysis and negotiation activities between buyers and sellers, and thus promotes interfirm collaboration (Essa et al., 2018). Moreover, interfirm cost-management practices (e.g. chained target costing, quality-function-price trade-offs) in the supply chain can enhance the level of trust and resource commitment between exchange partners (Agndal & Nilsson, 2009; Miguel, 2004). Shared interorganizational cost data (e.g. activity-based costs) are also generated to support supply-chain management decisions (Dekker & Ad R Van, 2000). These interfirm accounting practices facilitated by shared accounting information may positively influence the supplier's relationship satisfaction (Caglio & Ditillo, 2012; Windolph & Moeller, 2012), and thus stimulate seller-buyer cooperation.

In the intrafirm context, research investigating the relationship between management accounting practices and cross-functional cooperation remains limited. Several studies in the area of activity-based-cost systems and enterprise resource planning (ERP) systems (e.g. Granlund & Malmi, 2002) find that to implement such systems, firms need to develop cross-functional communication, and team-work skills because implementing management accounting practices requires a great deal of cross-functional cooperation. It can be argued that the connection between the extent of cooperation between departments is necessary to stimulate the use of management accounting systems (MAS) (Wouters & Roijmans, 2011). Indeed, a lack of cooperation between different departments can result in poor information transparency, information distortion, and poor decisions. These negative consequences, in turn, can impair the efficiency and effectiveness of MAS (Min, 2003).

Cooperation between organizational functions has been examined in the areas of marketing (Luo et al., 2006; Nguyen et al., 2018) and new-product development more than it has been in the area of accounting. Thus, despite the pervasiveness of cross-functional collaboration in organizations, this is an underexplored area of accounting research (Rowe, 2004). Although the influence of MAS on organizational performance in the context of transitional economies has been investigated in previous studies (e.g. Nguyen, 2018), research has not examined how different organizational departments can exploit management accounting information during their cooperative interactions to generate positive organizational outcomes. Building on social capital theory (Nahapiet & Ghoshal, 1998) and the resource-based view of the firm (Wernerfelt, 1984), this study developed and tested a mediation model to examine whether the use of MAS mediates the path between cross-functional cooperation and organizational performance. Hence, this study does not only reexamine the MAS-performance linkage found in Nguyen (2018) to provide greater validity of the competitive benefits of MAS, but also extends the MAS antecedents concerning cross-functional collaborations. In doing so, this study aims to contribute to the unexplored field of cross-functional cooperation in management accounting research.

The remainder of this paper is organized as follows. In the next section, we propose a research model and corresponding hypotheses. The methods used for data collection, design sampling and data analysis are then explained. The research results are then deliberated, followed by the papers' theoretical and managerial implications and conclusion.

## 2. Theoretical framework and hypotheses development

### 2.1. Cross-functional cooperation and MAS

The relationship between cross-functional cooperation and MAS can be explained by considering the role of cross-functional knowledge integration in developing management accounting practices. Wouters and Roijmans (2011) argue that cross-functional knowledge integration is crucial in enabling firms' performance-measurement systems because these systems must represent knowledge from many different people, including financial specialists, accountants, and information-technology specialists, as well as staff members and managers who will use the system. Such cross-functional knowledge integration is essential for developing MAS that are tailored to the management practices of specific situations (Wouters & Roijmans, 2011). Therefore, we can argue that cross-functional cooperation in relation to knowledge integration across functional boundaries is the condition for enhancing and using MAS.

The relationship between cross-functional cooperation and MAS can be explained through the social capital theory. Social capital refers to the ability of actors to extract benefits from their social structures, networks, and memberships (Davidsson & Honig, 2003). Social capital has three dimensions: structural, relational, and cognitive (Tsai & Ghoshal, 1998). The structural dimension is related to networking and social interactions that influence information transfer, organizational learning, and the execution of organizational activities (Bolino et al., 2002). The relational dimension is related to attributes such as trust and norms that can enhance connections between employees from different functions and integrate knowledge across functional boundaries (Teoh, Say & Pan, 2008). The cognitive dimension is related to shared understanding and shared language (Teoh, Say & Pan, 2008).

This study argues that cross-functional cooperation represents all three of these dimensions of social capital. Specifically, cross-functional cooperation clearly reflects the structural and relational dimensions of social capital because the cross-functional cooperation indicators include frequent communication, good social relationships, informal interactions, and strong ties between departments (Bendig et al., 2018). Moreover, cross-functional cooperation involves frequent discussions of a common problem, and mutually gratifying and highly cohesive relationships between departments, thus also representing the cognitive dimension.

These above lines of reasoning suggest the relevance of cross-functional cooperation to the four following dimensions of MAS: scope, timeliness, integration, and aggregation (Chenhall & Morris, 1986). Specifically, in the context of MAS, the attributes of the structural and relational dimensions of MAS (e.g. social networking and interactions, trust and norms) are useful for expanding the scope of accounting information shared across departments, and for enhancing the timeliness of this information sharing. Moreover, these attributes of the cognitive dimension of MAS (i.e. shared understanding, shared language) can also be fruitful in establishing integrated and aggregated information provided by MAS.

This study claims that MAS should install knowledge integration mechanisms to integrate knowledge across different functions. Knowledge integration across functions is necessary because knowledge about operational processes, cost-management practices, and information systems is eliminated across different departments (Wouters & Roijmans, 2011). Cross-functional dissemination of knowledge requires a high level of cross-functional cooperation ability and intensity. Nguyen et al. (2018) found that cross-functional cooperation can foster cross-functional knowledge sharing, which is fruitful for using MAS across functional boundaries. According to these arguments, this study proposes the following two hypotheses:

Hypothesis 1: Cross-functional cooperative ability has a positive effect on MAS use.

Hypothesis 2: Cross-functional cooperative intensity has a positive effect on MAS use.

### **2.2. MAS and organizational performance**

MAS can also play a decision-influencing role because managerial accounting information can be used to motivate employees. This role of MAS can be considered the use of information to relieve decision uncertainty (Sprinkle, 2003). Given the dynamic nature of the competitive business environment, the information provided by MAS can also inform various managerial decisions. Further, the use of MAS for decision-influencing purposes is intended to influence employee behaviors via the effects that monitoring, measuring, evaluating, and rewarding actions and performance have on motivation (Sprinkle, 2003). Moreover, MAS can enhance managerial decision-making effectiveness via better resource allocation (Abernethy and Bouwens 2005; Baines & Langfield-Smith, 2003), which can contribute to organizational performance.

The hypothesized relationship between MAS and organizational performance can also be explained through the resource-based view. The resource-based view refers to the theoretical framework describing the strategic resources an organization processes toward developing and sustaining competitive advantage (Eisenhardt & Martin, 2000; Wernerfelt, 1984). These resources should satisfy the valuable, rare, imperfectly imitable, and non-substitutable (VRIN) criteria (Wernerfelt, 1984). According to the contingency theory, there is no way to configure a typical MAS that fits all firms (Cadez & Guilding, 2008). Given that the configurations of MAS vary according to various contingent factors (e.g. structure, environmental uncertainty, competitive intensity, technology, competitive strategy, and firm size) (Nguyen, 2018), the designs of MAS are firm-specific (Abdel-Kader & Luther, 2008) and thus are considered inimitable.

Moreover, with MAS, market information and product/service information can be disseminated across departments before being further processed and converted into knowledge via learning (Nguyen, 2018). Given that this knowledge, which is provided by MAS, can be a unique strategic resource for obtaining competitive advantage (Smith et al., 1996), MAS can also satisfy the rare criterion of VRIN. Thus, management accounting information plays a critical role in generating new knowledge through enhanced organizational learning. According to the resource-based view, unique knowledge obtained from enhanced organizational learning can positively affect organizational performance (Choe, 2004). Therefore, we expected a positive relationship between the use of MAS and organizational performance. Accordingly, this study proposes the following hypothesis:

Hypothesis 3: MAS use has a positive effect on organizational performance.

### **2.3. The mediating role of MAS**

Cross-functional cooperation can generate various competitive benefits such as success in new-product development (Ernst et al., 2010; Gemser & Leenders, 2011; Song et al., 1997), supply-chain effectiveness (Eng, 2006) and overall firm performance (Nguyen et al., 2018). However, whether the use of MAS plays a mediating role in the path between cross-functional cooperation and organizational performance is yet to be explored in the literature. As stated, this study suggests a mediating effect of the use of MAS on the relationship between cross-functional cooperation and organizational performance. Accordingly, this study proposes the following two hypotheses:

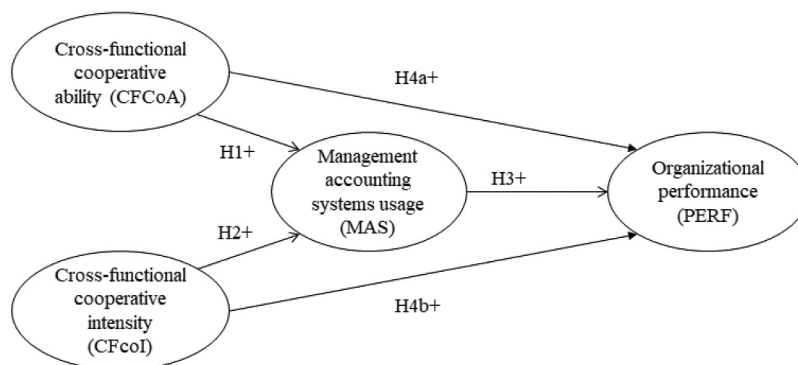
Hypothesis 4a: MAS use positively mediates the relationship between cross-functional cooperative ability and organizational performance.

Hypothesis 4b: MAS use positively mediates the relationship between cross-functional cooperative intensity and organizational performance.

The proposed model and its hypotheses are presented in [Figure 1](#).



Figure 1. Proposed model.



### 3. Methodology

#### 3.1. Sampling

This study was conducted in Vietnam, an emerging economy, with a dataset of 186 large firms located in Vietnam. Informant selection criteria are as follows: (1) mid-level and top-level managers; (2) working in large business organizations in Vietnam<sup>1</sup>; (2) at least two years of experience working in their organization. The sampling frame includes a list of LinkedIn email addresses of managers in Vietnamese business organizations obtained from our professional networks. Following the procedure suggested by Brislin (1970), we first developed the questionnaire in English and then translated it into Vietnamese using the forward-translation and back-translation approach. The survey questionnaire was then pilot tested before sending it to the potential informants' email addresses using SurveyMonkey. Of the 5,211 emails sent, 495 responses were received after two two-week interval follow-ups. We then rejected 225 incomplete responses and further eliminated 45 responses from respondents working for small firms, and 39 responses from respondents with fewer than two years of experience working in their firm. Therefore, the final sample included 186 firms, giving an overall response rate of 3.6%. As the response rate was quite low, non-response bias was examined based on all the main variables in the proposed model, using the procedure suggested by Armstrong and Overton (1977). The procedure did not reveal any sample bias.

Table 1 presents the demographic information of the final sample. Of the respondents, 15.6% are top managers, and the rest are mid-level managers. For firm size, 74.3% of the firms had total assets of more than VND200 billion, and 66.7% had more than 200 full-time-equivalent employees. For industry type, 43.0% of firms were operate in the service industry, 34.9% operate in trading, and 22.0% operate in the manufacturing sector. The sample reflects the industrial structure of Vietnam, in which the services industry contributed to approximately 41.3% of gross domestic product (GDP) of Vietnam in 2018 (PwC, 2018).

#### 3.2. Scales

The scales used in this study were adopted from previous studies. Specifically, we measured cross-functional cooperation via its elements—cross-functional cooperative ability and cross-functional cooperative intensity—following the scale adopted by Bendig et al. (2018) and Luo et al. (2006). MAS use was measured using 15 Likert-scale items, which were categorized into four dimensions: scope, timeliness, aggregation, and integration. This scale was first developed by Chenhall and Morris (1986), and has subsequently been used in various accounting studies (e.g. Gul, 1991; Ismail & King, 2006; Nguyen, 2018). Following Calantone et al. (2002), we measured firm performance using six seven-point Likert-scale items. Informants were required to compare their company's performance, in relation to these six indicators, with major competitors within the past three years. We also followed previous studies (e.g. Baker & Sinkula, 2002) in using ownership structure (1 = "with foreign capital"; 2 = "without foreign capital"), firm size in terms of total assets and

**Table 1. Profiles of sample firms and respondents (n = 186)**

Demographic information	Categories	Frequency	(%)
Industry type	Manufacturing	41	22.0
	Trading	65	34.9
	Service	80	43.0
Ownership	With foreign capital	120	64.5
	Without foreign capital	66	35.5
Firm size in terms of total assets (in VND billion)	Less than 100	27	14.5
	101-200	21	11.3
	201-500	28	15.1
	501-1,000	31	16.7
	More than 1,000	79	42.5
Firm size in terms of full-time employees)	Less than 200	62	33.3
	200-500	42	22.6
	501-1,000	29	15.6
	1,001-5,000	27	14.5
	5,001-10,000	15	8.1
	More than 10,000	11	5.9
Management level	Top-level manager	29	15.6
	Mid-level manager	157	84.4
Work area	Marketing	28	15.1
	Finance/accounting	20	10.8
	R&D	17	9.1
	Sales	45	24.2
	Production	28	15.1
	Others	48	25.8

full-time-equivalent employees, and firm age as the common control variables for organizational performance. Table 2 presents the scales of the main constructs.

### 3.3. Evaluation of measurement models

Table 2 presents the scale items and the latent-variable evaluation. The outer loadings of the scale items of the latent variables ranged between 0.69 and 0.92, which were well above the threshold of 0.50 (Hulland, 1999). The corresponding *t*-tests were from 13.39 to 71.33, which were higher than the 1.96 threshold for statistical significance. Moreover, the composite reliabilities of the latent variables were above 0.70 (ranging between 0.88 and 0.96). Finally, the average variance extracted (AVE) values were acceptable because they were above 0.50 (ranging between 0.65 and 0.82). These results indicate a high level of reliability of the measurement scales used in the model.

We then further utilized the procedure proposed by Fornell and Larcker (1981) to evaluate the discriminant validity of the measurements. Table 3 shows that the correlations between the latent variables (ranging between 0.81 and 0.90) were higher than all the correlations between the constructs (ranging between 0.31 and 0.78). This result indicates that discriminant validity of the measurements was achieved. In addition, we examined the corresponding variance inflation factor (VIF) values of the independent variables to detect potential multicollinearity issues (O'Brien, 2007). We found that the inner VIF values for each relationship between the independent variables in the proposed model ranged between 1.00 and 1.51, which were smaller than the threshold



**Table 2. Scale items and latent variable evaluation**

<b>Construct and items</b>	<b>Loading</b>	<b>t-test</b>
<i>Cross-functional cooperation</i>		
Cross-functional cooperative ability (CR = 0.93; AVE = 0.70), during the interdepartmental interactions, our departments have strong abilities to		
Identify new and useful market knowledge transferred from other departments	0.76	20.87
Understand new and useful market knowledge transferred from other departments	0.83	31.09
Value new and useful market knowledge transferred from other departments	0.84	23.53
Assimilate new and useful market knowledge transferred from other departments	0.87	30.09
Apply new and useful market knowledge transferred from other departments	0.87	42.72
Exploit new and useful market knowledge transferred from other departments	0.82	27.27
Cross-functional cooperative intensity (CR = 0.92; AVE = 0.66)		
Departments here share communications frequently in our business	0.77	19.93
All departments frequently discuss common problems in our business	0.82	29.58
Market personnel share close ties with people in other departments	0.82	27.18
Our relationship with other departments is mutually gratifying and highly cohesive	0.83	26.31
We expect that our strong interdepartmental social relationship will exist far into the future	0.81	21.09
There is strong informal interaction among people from different departments	0.81	24.89
<i>MAS usage</i>		
Scope (CR = 0.92; AVE = 0.75)		
Information that relates to possible future events (if historical information is most useful for your needs, mark the lower end of the scale)	0.84	28.95
Non-financial information that relates to production and market information such as growth-share etc. (If you find that a financial is most useful for needs, please mark the lower end of the scale.)	0.90	49.96

(Continued)

**Table 2. (Continued)**

<b>Construct and items</b>	<b>Loading</b>	<b>t-test</b>
Non-economic information, such as customer references, relations, attitudes of government and consumer bodies, competitive threat	0.91	51.46
Information on broad factors external to your organisation, such as economic conditions, population growth, technological developments, etc.	0.88	44.09
Timeliness (CR = 0.93; AVE = 0.77)		
Requested information arrives immediately upon request	0.89	60.52
Information supplied to you automatically upon its receipt into information systems or as soon as processing is completed	0.90	56.40
There is no delay between an event occurring and the relevant information being reported to you	0.85	22.98
Reports are provided frequently on a systematic, regular basis, e.g. daily reports, weekly reports	0.81	25.45
Aggregation (CR = 0.93; AVE = 0.82)		
Information in forms, which enable you to conduct what-if analysis	0.89	45.21
Information on the effects of events on particular periods (e.g. monthly/quarterly/annual summaries, trends, comparisons, etc.	0.91	63.27
Information in formats suitable for input into decision models (such as discounted cash flow analysis or incremental marginal analysis)	0.88	32.76
Integration (CR = 0.88; AVE = 0.65)		
Cost and price information of departments of your business unit	0.69	13.39
Presence of precise targets for each activity performed in all sections within your department	0.82	24.53
Information that relates to the impact that your decisions have on the performance of other departments	0.83	26.45
Information on the impact of your decisions throughout your business unit, and the influence of other individual's decision on your area of responsibility	0.80	19.02
Organizational performance (CR = 0.96; AVE = 0.79)		
Market share	0.81	16.58
Customer satisfaction	0.90	57.33
Customer retention	0.89	49.61
Sales growth	0.92	71.33
Sales revenue	0.92	55.45
Overall profitability	0.87	33.79

**Table 3. Measurement model validity**

	1	2	3	4	5	6	7
<i>Panel A: discriminant analysis</i>							
1. Cross-functional cooperative ability	0.84						
2. Cross-functional cooperative intensity	0.74**	0.81					
3. Scope (MAS)	0.31**	0.36**	0.87				
4. Timeliness (MAS)	0.48**	0.49**	0.68**	0.88			
5. Aggregation (MAS)	0.40**	0.41**	0.59**	0.75**	0.90		
6. Integration (MAS)	0.39**	0.43**	0.61**	0.72**	0.78**	0.81	
7. Organizational performance	0.33**	0.35**	0.46**	0.54**	0.49**	0.60**	0.89
<i>Panel B: statistics</i>							
Mean	3.49	3.56	3.63	4.09	4.16	4.00	4.91
Minimum	1.33	1.17	0.00	1.00	0.00	0.00	1.00
Maximum	5.00	5.00	6.00	6.00	6.00	6.00	7.00
Standard deviation	0.77	0.82	1.43	1.24	1.18	1.23	1.17

*Panel A: MAS, Management accounting systems usage; Square root of AVE (italic diagonal); Correlations between variables (off-diagonal). \* , \*\* Correlation is significant at the 5 and 1 per cent levels respectively (two-tailed t-test).*

criterion of 10 (Hair et al., 2010), thus confirming that there was no multicollinearity issue in our study.

### 3.4. Choice of analysis method

To test the proposed model and hypotheses, we employed the partial least squares structural equation model (PLS-SEM) using SmartPLS3. We selected PLS-SEM rather than the traditional covariance-based structural equation model (CB-SEM) because PLS-SEM tends to achieve higher levels of statistical power under the same conditions as CB-SEM, and is designed to maximize explained variance (Hair et al., 2017). Moreover, PLS-SEM does not require a large sample, and it estimates with a good deal of precision the parameters in the context of a small sample size (Hair et al., 2017). A sample size of 186 was larger than the required minimum sample size for robust PLS-SEM estimations, which is suggested to be ten times the number of path relationships in the testing model. Moreover, PLS-SEM is a well-adopted method of analysis in recent research in management accounting (Bedford & Speklé, 2018; Nitzl et al., 2016).

## 4. Results and discussion

Before testing the hypotheses, the standardized root mean square residual (SRMR) value of the composite model was used to examine the model fit (Henseler et al., 2014). The SRMR is acceptable at the recommended value of 0.08 (Henseler et al., 2016). To test the proposed hypotheses, we ran three models: Model 1 is the full model with MAS as the mediating model, Models 2 and 3 show the paths between cross-functional cooperative ability and cross-functional cooperative intensity, respectively, and organizational performance, without MAS as the mediating variable. The adjusted  $R^2$  values ranged between 0.12 to 0.37, which are above the recommended level of 0.1, thus indicating adequate explanatory power of the three models.

The PLS-SEM analysis presented in Table 4 reveals that both cross-functional cooperative ability and cross-functional cooperative intensity positively and significantly influence MAS use given that the corresponding  $t$ -values were both significant at 2.22 and 4.05, respectively (see Model 1), thus, Hypothesis 1 and Hypothesis 2 are supported. The result further confirms findings of studies at the inter-firm level on the role of cooperation in promoting accounting information usage (e.g. Ruggeri & Rizza, 2017). Hypothesis 3 posits that MAS use has a positive effect on organizational performance (PERF). This hypothesis is also supported because the path between MAS and PERF is positive and significant ( $t$ -value = 7.52; see Model 1). This result validates the findings of previous studies (e.g. Nguyen, 2018; Tsui, 2001) regarding the effect of the MAS (with four dimensions: broad scope, timeliness, aggregation, and integration) on organizational performance.

Following the procedure suggested by Baron and Kenny (1986) and Zhao et al. (2010), we then tested the two mediating hypotheses (i.e. 4a and 4b), which posit that MAS use fully mediates the relationships between cross-functional cooperative ability (CFCoA) and cross-functional cooperative intensity (CFCoI) and PERF. The results in Models 2 and 3 demonstrate that without MAS as the mediating variable, both CFCoA and CFCoI have a significant positive effect on PERF as the corresponding  $\beta$ -values for the paths between these variables and PERF were 0.36 and 0.40, respectively ( $t$ -values were 5.85 and 6.19, respectively). However, after including MAS as the mediating variable (see Model 1), the relationships between CFCoA and CFCoI both become insignificant ( $\beta$ -values were 0.38 and 0.84, respectively), suggesting a full mediation role of MAS use on the relationship between cross-functional cooperation and organizational performance. The result helps explain how the cooperative interactions at the cross-functional interfaces can enhance organizational outcomes by discovering MAS as the pathway in the high-performing cooperative relationship.

The study also employed the bootstrapping procedure in Statistical Package for the Social Sciences (SPSS) Process Macro following the suggestion of Preacher and Hayes (2008) to further test the significance of the mediating effects. The test was based on 5,000 bootstrap samples at a 95% confidence interval. The results indicate that the direct effect of CFCoA on PERF is insignificant

**Table 4. Findings of PLS-SEM analysis for the proposed model**

Hypothesis	Dependent variable	Model 1 (with MAS as mediating variable)				Model 2		Model 3	
		MAS		PERF		PERF		PERF	
		$\beta$	t-value	$\beta$	t-value	$\beta$	t-value	$\beta$	t-value
H1, H4a	CFCoA	0.21	2.16**	0.04	0.38	0.36	5.85***		
H2, H4b	CFCoI	0.33	3.71***	0.09	0.84			0.40	6.19***
H3	MAS			0.54	7.52***				
	Control variables								
	Ownership			(0.05)	0.77	(0.05)	0.63	(0.06)	0.85
	Firm size (assets)			0.02	0.22	0.01	0.14	0.01	0.06
	Firm size (employees)			0.14	1.94*	0.17	1.99**	0.18	2.14**
	Firm age			(0.02)	0.35	(0.03)	0.44	(0.05)	0.78
Adjusted R <sup>2</sup>		0.25		0.37		0.12		0.15	

CFCoA, cross-functional cooperative ability; CFCoI, cross-functional cooperative intensity; MAS, management accounting systems usage; PERF: organizational performance. \*, \*\*, \*\*\* Denote a significant at 10, 5 and 1 percent, respectively (two-tailed t-test)

( $p = 0.40$ ), while correlation of the indirect effect of CFCoA on PERF is significant at 0.41 ( $p < 0.05$ ; CI ranging between 0.26 and 0.60), and Sobel statistics at 5.49 ( $p < 0.01$ ). This result indicates that the MAS use fully mediates the influence of CFCoA on PERF, thus supporting Hypothesis 4a. Similarly, the direct effect of CFCoI on PERF is insignificant ( $p = 0.28$ ), and the correlation of the indirect effect of CFCoI on PERF is 0.39 ( $p < 0.05$ ; CI ranging between 0.26 and 0.57), and Sobel statistics at 5.60 ( $p < 0.01$ ). Therefore, Hypothesis 4b is also supported.

Given that we collected and analyzed cross-sectional data using a single-informant approach, this study might suffer from common method bias (Podsakoff et al., 2003). Following Lindell and Whitney (2001), we adopt the marker-variable technique to test common method bias. In particular, we select the item “Are you confident in using computer?” as a marker variable to control for common method bias. The mean change in correlations of the key constructs ( $rU - rA$ ) when partialing out the effect of rM is 0.13 ( $p = 0.24$ ), suggesting that common method bias is insignificant in this study.

### 5. Implications and conclusions

This study adds to the limited literature on the performance implications of using management accounting information in the context of transitional economies (Nguyen, 2018). The results of the study agree with extant management accounting research that cross-functional cooperation promotes the development and use of accounting information in organizations (e.g. Granlund & Malmi, 2002; Wouters & Roijmans, 2011), and in turn, enhances organizational performance (e.g. Mia & Clarke, 1999; Simons, 1990). However, this study suggests that instead of directly affecting organizational performance, cross-functional cooperation generates competitive advantage via increasing levels of the use of MAS in relation to broad scope, timeliness, aggregation, and integration. Moreover, this study generally supports social capital theory (Nahapiet & Ghoshal, 1998) and the resource-based view of the firms (Wernerfelt, 1984) in assuming that using accounting information mediates the influence of cooperative behaviors among organizational functions (i.e. knowledge dissemination and sharing, communication, social interaction) on outcomes for organizational performance.

In relation to practical contributions, our findings suggest that business organizations should increase investment in promoting cross-functional connections through leveraging the strategic advantages of accounting information (Mia & Chenhall, 1994; Widener, 2006). This study demonstrates that in the context of an emerging market such as the market of Vietnam, cross-functional cooperation does not directly enhance organizational performance but indirectly enhances it via the mediating role of MAS use. In addition, the finding that MAS use directly influences organizational performance suggests that MAS use should be enabled and promoted to boost organizational performance through means other than promoting cross-functional cooperation. For example, MAS use can also be influenced by various contingent factors such as organizational structure (Otley, 2016), strategic choice (Jermias & Gani, 2005), and competitive intensity (Nguyen, 2018). Hence, this replication study about the effect of MAS on organizational performance can be expanded by further research investigating the potential influencers of MAS usage.

Our study has important limitations that must be acknowledged. First, given that we employed a cross-sectional design with data collection via self-report questionnaires at one point in time, our study is not entirely free from common method bias, making it challenging to conclude causality. Hence, a longitudinal research design in future research could help identify the cause-effect relationships between our research variables. If an experimental design were adopted, the relationships, particularly between cross-functional cooperation and the use of management accounting information, at least, at the individual level, could be further concretely established. Second, with our cross-sectional study, we could only rely on self-reported measures of our focal constructs, which were inadequate to be validated using objective data. Ideally, objective measures of organizational performance, leastwise, should have been employed to check for the robustness of our research results using self-reported data. Thus, future research could deal with these limitations by using objective firm-performance data obtained from secondary sources such as financial statements.



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### Notes

- 1 According to the Vietnamese government's Decree 56 ND-CP, a manufacturing company must have a total capital of more than VND100 billion or more than 300 full-time-equivalent employees to be considered large. For the service industry, large firms are those that have a total capital of more than VND50 billion or more than 100 full-time-equivalent employees.

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