Factors Affecting the Use and Consequences of Management Accounting Practices in A Transitional Economy: The Case of Vietnam

Doan Ngoc Phi Anh

University of Economics, The University of Danang, Vietnam
Email: phianhdn@due.edu.vn

Abstract

This study seeks to help fill an important gap in the literature by investigating factors that have facilitated the use of management accounting practices (MAPs) in Vietnam - a transitional economy. Data were collected from 220 medium-to-large enterprises. Follow-up interviews were conducted with 20 accounting heads/vice heads to obtain further information and clarification. The quantitative data collected was analyzed using both descriptive and inferential statistics (including t-tests and structural equation modeling), while the qualitative data was used to shed further light on the various relationships described by the quantitative analysis. This paper reveals that both decentralization and competition have a positive, significant influence on the use of new MAPs except for the old ones. Consequently, the use of MAPs has a positive, significant influence on enterprise performance.

Keywords: Management accounting practices; competition; decentralization; performance; Vietnam.

1. Introduction

In the late 1980s, Vietnam commenced a program of economic reform. Since then, the country has been in the process of transforming from a centrally planned economy to a market-oriented one. As a result the local business environment has become more competitive and transparent. The government has undertaken state owned enterprise (SOE) reform in many aspects such as planning processes, cost accounting methods, and systems of profit distribution, identification of accountability and responsibility of the managers of SOEs (Yuen et al., 1996). The SOE equitization process has also been accelerated. In order to enhance domestic production capacity, the government has offered tax incentives, import privileges and permission to establish wholly foreign-owned enterprises or joint-ventures with Vietnamese partners in either SOEs or private companies. All of these have induced changes in Vietnam's accounting system. The orientation of the accounting system has changed from one that served only the needs of state tax authorities to one that could also serve the needs of management (Adams and Do Thuy Linh, 2003). In turn, these changes have created a need for management accounting in Vietnam's enterprises.

Following such far-reaching changes, there is a lack of systematic knowledge about the current state of management accounting practices (MAPs) as well as factors affecting the use of MAPs in Vietnam. This situation is consistent with the more general lack of detailed information and understanding of MAPs in developing countries (Rezaee et al., 1995; Joshi, 2001; El-Ebaishi et al., 2003; Waweru et al., 2004)

and transitional economies (Haldma and Lääts, 2002). This general gap in knowledge has remained, despite a number of contributions in recent years such as those of Firth (1996), Joshi (2001), Szychta (2002), Haldma and Lääts (2002), O'Connor et al. (2004), Waweru et al. (2005) and Wu et al. (2007).

In line with contingency theory of management accounting, previous studies have documented the cross-national differences in MAPs and argued that MAPs which are effective in one country may be not effective or may even be dysfunctional in other countries because people of different cultural groups may have different reactions or attitudes to the same MAPs (Birnberg and Snodgrass, 1988; Macarthur, 2006). Furthermore, the findings from one country with regards to MAPs may not generalize perfectly to other countries, even to countries situated in the same region (Phadoongsitthi, 2003).

Vietnam's economic, political and social environments are different from other Asian countries (Yuen et al., 1996). Not surprisingly, therefore, there has been little systematic documentation and analysis of recent efforts to the use of MAPs in Vietnamese enterprises. Do the factors (such as competition, decentralization) affecting the use of MAPs in other countries also apply in Vietnam? Does the use of MAPs affect the enterprise performance in the case of Vietnamese enterprises? These have been important questions for the policy makers and managers in different positions in Vietnam's enterprises. Understanding these issues can enhance the use of MAPs and in turn, may enhance enterprise performance.

The remainder of the paper is organized as

follows. The following section reviews the literature and development of our research hypotheses. The next section describes the research method. In subsequent sections, the results and discussion are presented, then the conclusion.

2. Literature review and hypothesis development

As highlighted in the introduction, this study focuses on empirically investigating the impact of competition, and decentralization on the use of MAPs which in turn, impacts enterprise performance in the context of a transitional economy, particularly that of Vietnam. This section presents the review of the extant literature and hypotheses to test.

Competition and the use of management accounting practices (MAPs)

Competition refers to the extent to which an organization faces rivalry with competitors for raw materials, technical personnel, product quality, product variety, product price, and distribution channels. The relationship between competition and use of MAPs has been investigated in both developed and developing countries. Studies in developed countries report that intensive competition leads to more use of MAPs (see Libby and Waterhouse, 1996; Granlund and Lukka, 1998; Mia and Clarke, 1999). However, Williams and Seaman (2001) report that the effects of competition on the use of MAPs are negative. In other words, as competition increases, managers may opt for information from sources other than MAPs. More recently, Al-Omiri and Drury (2007) report that as the intensity of competition increases, the sophistication level of the cost system increases. An interpretation of the results is that

as competition increases, MAPs also change in terms of sophistication to meet managers' need for the information.

In developing countries, Firth (1996) found that the use of MAPs by Chinese partners was positively correlated with the level of competition. Similarly, Waweru et al. (2004) found that the increase in global competition was one of the key factors affecting the need for MAPs in South African firms. On the other hand, O'Connor et al. (2004) found that market competition had no significant influence on the use of MAPs in China. The above discussion of the previous research indicates that the relationship between competition and the use of MAPs is equivocal. Some researchers report a positive relationship while others report no relationship or a negative relationship.

Since Vietnam adopted an open-door policy, the level of competition in the economy has been increasing significantly for most Vietnamese enterprises, as many private, JV and wholly foreign-owned enterprises have been established in Vietnam during the last two decades. Also, import duties have been reduced considerably following the commitment of the Vietnamese government to the ASEAN Free Trade Area (AFTA) and the WTO, and the Vietnamese market has become more attractive to foreign suppliers and investors leading to increasing competition.

Enterprises operating in intensive competition may need to increase product ranges, introduce new distribution channels, and increase their focus on product quality, customer services, pricing policy and niche markets. To achieve these targets, Vietnamese enterprises need more management information, which in

turn increases the use of MAPs. In line with previous findings by authors such as Firth (1996), Mia and Clarke (1999) and Waweru et al. (2004), the first hypothesis is:

H1: The use of MAPs is positively correlated with the level of competition.

Decentralization of decision-making and the use of MAPs

Decentralization of decision-making (from now on, decentralization) refers to the level of autonomy delegated to managers. Decentralization provides managers with greater responsibility over authority planning and control of activities and a greater need for information (Chenhall and Morris, 1986).

The relationship between decentralization and the use of MAPs has been previously investigated. However, the results are not consistent. Williams and Seaman (2001), for instance, found that there was a significant and negative relationship between centralization and the use of MAPs. Other researchers report that managers in enterprises with a high level of decentralization use more sophisticated MAPs than those in enterprises with a low-level of decentralization (Abdel-Kader and Luther, 2008). Soobaroyen and Poorundersing (2008) also report a significant positive relationship between decentralization and the use of MAPs. By contrast, Libby and Waterhouse (1996) and Chenhall and Morris (1986) found that decentralization had no statistically significant effect on managers' use of management accounting information.

Managers in decentralized enterprises have more responsibility for planning and control of activities. Therefore, they are likely to use MAPs, which can help them obtain more useful information for improving their decision-making. On the other hand, managers in centralized enterprises are required to implement decisions made by superiors, and therefore may not have authority to select management tools. Management tools that are suggested by the managers in such firms may need to be accepted by higher level managers and other functional managers. In other words, selection and the use of MAPs are decided by the higher level managers rather than the functional managers in centralized enterprises. Thus, decentralization, more than centralization, will facilitate the use of the MAPs. This argument is supported by findings of Williams and Seaman (2001). Hypothesis two below summarizes the discussion.

H2: The use of MAPs is positively related to the level of decentralization.

Decentralization and competition

Enterprises in intensively competitive environments may require more flexibility to deal with the complexities of the environment. As a result, the organizational structure of these enterprises is more likely to be decentralized to satisfy the requirement for flexibility. Previous studies indicate that decentralized enterprises provide their managers with greater responsibility and control over their activities (Gul, 1991; Tsui, 2001). Consequently, a decentralized organizational structure is more appropriate for operation in competitive environments. Following this rationale, we posit that competition and decentralization are positively associated. Hypothesis 3 below summarizes the discussion:

H3: There is a positive relationship between competition and decentralization.

The use of MAPs and organizational per-

formance

Some empirical studies find a positive association between the use of MAPs and performance (see Abernethy and Guthrie, 1994; Chong and Chong, 1997; Mia and Clare, 1999; Soobaroyen and Poorundersing, 2008). Some researchers also report that the use of individual MAP is positively associated with performance (see Hoque and James, 2000; Cagwin and Bouwman, 2002; Davila and Foster, 2005). However, these studies report no association, or even a negative one, between the use of MAPs and performance. For example, Banker et al. (2008) found that use of ABC by itself does not improve performance. In another study, Agbejule (2005) found that there was a negative association between the use of sophisticated MAPs and performance.

The above discussion reveals that empirical studies on the relationship between the use of MAPs and performance are universally inconsistent or inconclusive. However, prior research on usefulness of management accounting information suggests that the information supports managers in their decision-making and control (Anthony and Govindarajan, 2001; Chenhall, 2003; Abernethy and Bouwens, 2005; Cadez and Guiding, 2008). With better information, managers may make more effective decisions, which, in turn, improves the organizational performance (Chenhall, 2003; Baines and Langfield -Smith, 2003; Cadez and Guiding, 2008). Following the literature, the following hypothesis is proposed:

H4: The use of MAPs is positively associated with performance.

Decentralization and organizational performance

The extant literature appears to indicate that decentralization does not have a direct effect on enterprise performance (Moores and Duncan, 1989). Rather, the relationship between decentralization and performance is indirect via the use of MAPs (see Soobaroyen and Poorundersing, 2008). Mukhi et al. (1988), for instance, proposed that decentralization lets managers handle events effectively, operate without delay and enhance the quality of decisions, leading to better performance. As decentralization allows managers to have decision-making authority and take responsibility they make appropriate decisions leading to better performance. Decentralization means that senior managers can rely on the ability of middle managers in decision-making, thus increasing the positive effects of trusting relationships for organizational performance (Andrews, 2010). In another study, Hill (1988) suggested that decentralization leads to improve performance. Based on the above discussion, the next hypothesis is:

H5: Increased decentralization is associated with improved enterprise performance.

Competition and enterprise performance

The review of the literature reveals very few empirical studies on the direct relationship between competition and performance (Patiar and Mia, 2008). Khandwalla (1977) found a negative, but statistically insignificant, relationship among price, product and marketing competition and enterprise profitability.

However, competition forces managers to concentrate on high performance, because not doing so would finally result in bankruptcy and closure of the enterprise (Pant and Pattanayak, 2010). On the other hand, if an enterprise fails to adopt and conduct appropriate strategies to

handle such competition, its performance is likely to worsen (Mia and Clare, 1999). The relevant literature appears to be unclear about the existence and direction of the relationship between competition and enterprise performance. Therefore, we propose a null hypothesis.

H6: Increased competition is associated with improved performance.

Old MAPs and new MAPs

Under a centrally planned economy, there are some Western MAPs that support decision making under routine tasks and activities which are highly familiar among Vietnamese accountants. In this study, these practices are called old MAPs. If the use of old MAPs is high, it means that managers understand how to apply MAPs and how to evaluate the usefulness of the information provided by such MAPs. The literature indicates that the high level of managers' knowledge of these MAPs may lessen resistance to change and facilitate the need for change (Wu and Boateng, 2010), while resistance to change has been recognized as a substantial barrier to the adoption of new management accounting techniques (Scapens and Roberts, 1993; Walley et al., 1994). Thus, the high use of old MAPs is likely to facilitate the use of new MAPs. Following the argument, we propose hypothesis seven.

H7: The use of new MAPs is positively associated with the use of old MAPs.

3. Research methods

3.1. Data collection

The study was conducted in medium to large enterprises, as small enterprises in Vietnam tend to use rather simple accounting and management information systems. Two hundred and sixteen (out of 343) listed enterprises in both the Ho Chi Minh and Hanoi Stock Exchanges were selected, exclusive of banks, financial and security institutions or enterprises that had operated for less than 5 years. A questionnaire packet, including an information sheet, a questionnaire and a postage-paid return envelope, was sent to the heads of the Accounting Departments of selected companies. After two weeks, a second letter was sent to selected enterprises to thank them for their responses or to remind them that their assistance was requested in the information sheet. As a result, 47 returned questionnaires were received: 6 of them were returned with a note "Address has changed"; 2 of them were unusable responses due to a large number of missing answers, and 39 of them were usable responses, representing an unusable response rate of 18.06%.

For the rest of the population, due to the large number of enterprises, the study was conducted in three selected cities, namely Ho Chi Minh City, Hanoi and Danang, which are the respective economic hubs of the country's three main regions. Thus, stratified sampling is the most appropriate method to select a representative sample in this case. Accordingly, the sample frame was taken from the Company Registration of the Department of Ministry of Planning and Investment, which is divided into three groups in accordance with the three cities. A sample from each of these groups was selected using a "snowballing" approach, in which some associates of the author were first approached to participate; they were then asked to recommend other senior accountants who might be willing to participate, and so on. The final sample consisted of 181 enterprises rep-

resenting a response rate of nearly 91% of the 199 companies contacted.

To test the response differences between the first and second response groups, a two sample t-test was conducted. The results showed no differences between the two response groups at a 5% significance level. Therefore, the 220 responses (39 responses from the mail survey and 181 responses from the personal interview based questionnaire) were validly incorporated and used for the study. Follow-up interviews were conducted with 20 accounting department heads/vice-heads to gain a deep understanding of the MAP adoption and its context and, in turn, to review the findings from quantitative data.

3.2. Variable measurement

The use of MAPs

The use of MAPs was measured using the same approach as Chenhall and Lang-field-Smith (1998), Luther and Longden (2001), El-Ebaishi et al. (2003) and Wu et al. (2007). It was recognized, however, that many of these practices were very uncommon in a developing/transitional country such as Vietnam. A criterion for excluding unfamiliar practices was developed for this study: MAPs that had not been taught by Vietnamese academic researchers and had not been used by many Vietnamese accountants were considered inappropriate for the main part of the research. Focus groups and in-depth interviews were conducted to identify which MAPs to include and which to exclude. An abbreviated list of 32 MAPs was produced at the end of this process. These practices were classified into 2 groups: Old MAPs and New MAPs. Old MAPs are Western MAPs that closely resemble tasks and activi-

ties routinely carried out under Vietnam's previous central planning system and, therefore, are considered highly familiar to Vietnamese accountants. New MAPs are Western MAPs that were not carried out under Vietnam's previous central planning system. In each group, the practices were classified by function into 4 categories: Costing and Budgeting, Decision support, Performance evaluation and Strategic analysis. Respondents were asked to indicate, using a five-point Likert scale (1= negligible to 5 = very high), to what extent their enterprises used each of the 32 MAPs.

Intensity of competition

The measurement developed by Khandwalla (1977) for perceived intensity of competition facing organizations is one of the most popular instruments in MA literature for evaluating the intensity of competition (see Libby and Waterhouse, 1996; Williams and Seaman, 2001). Therefore, it was used in this study. The instrument uses seven items to assess the extent to which an organization faces competition for: raw materials, personnel, selling and distribution channels, quality of products, variety of products, price, and other aspects. Participants were asked to respond to each item on a five-point Likert scale ranging from 1 (negligible) to 5 (extremely high competition).

Decentralization

The level of decentralization in this study was assessed using Gordon and Narayanan's (1984) instrument. It includes five questions rating the authority for appropriate managers: development of new products and services; hiring and firing of personnel; purchase of capital equipment; pricing; and distribution of products/services. A five-point scale ranging from

1 (negligible delegation) to 5 (complete delegation) was used to measure the level of decentralization.

Enterprise performance

Enterprise performance should be evaluated using both financial and non-financial measures, in order to assess the construct from different perspectives (Kaplan and Norton, 1992; Lynch and Cross, 1995; Chenhall, 2005). For the financial indicators, respondents were asked to compare their enterprise's financial performance (operational income, sales growth, return on investment) with their competitors, using a five-point Likert scale following the procedure used in previous studies (Hoque and James, 2000; Hoque et al., 2001). For the non-financial indicators, respondents were asked to rate on a five-point Likert scale their enterprise's overall perceived performance including customer satisfaction, product/service quality, employee training and development (Kaplan and Norton, 1992; Hoque and James, 2000).

3.3. Data analysis

Structural equation modeling (SEM) was used to analyze data using a two-step approach suggested by Anderson and Gerbing (1988), Schumacker and Lomax (1996), and Hair et al. (2010). In the first step, the measurement model was tested by conducting a confirmatory factor analysis (CFA). Each latent variable constructed from related observed items was tested to provide an assessment of convergent and discriminant validity (Jöreskog and Sörbom, 1993). The structural equation model was then examined for hypotheses testing. Both the measurement model and the structure model were evaluated by the maximum likelihood method using AMOS 18.0. The measurement model fit was evaluated using a number of fit indices including the ratio of Chi-square (χ^2) to degrees-of-freedom, the Root Mean-Square Error of Approximation (RMSEA), the Goodness-of-Fit Index (GFI), the Normed Fit Index (NFI), the Tucker-Lewis Index (TLI), the Comparative Fit Index (CFI), and the Incremental Fit Index (IFI) based on recommendations in Schumacker and Lomax (1996), Hu and Bentler (1999), Byrne (2010), and Marsh et al. (2004). Basically, a model is considered as good fit if Chi-square (χ^2) to degrees of freedom is less than 2, RMSEA is smaller than 0.05 and GFI, NFI, TLI, and CFI are each larger than 0.90.

4. Results

4.1. Measurement models

Each of the constructs under consideration – Competition, Decentralization, MAPs, Old MAPs and New MAPs – is independently tested in a separate measurement model to assess the unidimentionality. In this process, some items may become redundant and they should be removed to respecify the measurement model (Jöreskog and Sörbom, 1993; Kline, 2005; Schumacker and Lomax, 2004; Holmes-Smith, 2009). Following this process, unidimensionality of constructs is achieved (Anderson and Gerbing, 1988). If the measurement model does not fit, it should be re-specified and re-analyzed (Kline, 2005). This process includes removing redundant items with relatively low-standardized loadings (Holmes-Smith, 2009).

For example, seven items were used to measure Competition; although the standardized parameter estimates were all significant (p<0.001), the results of CFA (Chi-square = 53.045, df = 14, p = 0.001, Chi-square/df =

Table 1: Fit indices for measurement models

Construct	χ2	Df	χ2/df	GFI	TLI	CFI	NFI	RMSEA
MAP	.324	2	.162	0.999	1	1	1	0.000
Old MAPs	2.733	2	1.367	0.994	0.992	0.997	0.990	0.041
New MAPs	0.205	2	0.103	1	1	1	1	0.000
Competition	10.672	7	1.525	0.984	0.982	0.993	0.981	0.049
Decentralization	4.076	2	2.038	0.91	0.986	0.995	0.991	0.069
Whole measurement model 1*	155.207	98	1.584	0.919	0.955	0.963	0.907	0.052
Whole measurement model 2**	266.672	158	1.688	0.893	0.933	0.944	0.875	0.056

*Notes: *Whole measurement model with MAPs as a construct;*
**Whole measurement with MAP as two constructs: Old MAPs and New MAPs.

3.789) indicated that the initial measurement model should be respecified. After removing one item, a good-fit model was achieved (Chi-square = 10.672, df = 7, p = 0.154, Chi-square/df = 1.525). A similar process was conducted for Decentralization.

For the use of MAPs, three constructs were developed: MAPs, Old MAPs and New MAPs. These constructs in the model specification process seem to be multi-dimensional when compared to the alternative factor structure models suggested by Doll et al. (1994). The best model fit is obtained when these constructs are specified as a four factor construct: Costing and budgeting, Decision support, Performance evaluation, and Strategic analysis. For each dimension, the mean of the original indicators was calculated using an approach similar to that of Cadez and Guilding (2008). Then, the same processes above were applied to the MAP, the Old MAP and the New MAPs constructs.

Details of fit indices for each construct after re-specification (see Table 1) satisfied the model fit requirements discussed above. Table

1 also shows that GFI values of all constructs are larger than 0.9, suggesting that there is no evidence of a lack of unidimensionality (Jöreskog and Sorbom, 1993).

Reliability and validity of the constructs

Construct reliability was assessed by using Cronbach's alpha, composite reliability (CR) and average variance extracted (AVE); construct validity was evaluated by using convergent and discriminant validity.

Table 2 shows that Cronbach's alpha values for all constructs are larger than the benchmark of 0.7 proposed by Nunnally (1978). Additionally, CR and AVE are respectively higher than the benchmarks of 0.6 and 0.5 suggested by Bagozzi and Yi (1988). Therefore, the reliability of constructs is considered satisfactory.

Convergent validity analysis was used as a "measure of the magnitude of the direct relationship between an observed variable and a latent construct" (Holmes-Smith, 2009). "Convergent validity is achieved when items load significantly on their corresponding construct" (Sila, 2010). Table 2 shows that all factor load-

Table 2: Construct reliabilities

Construct	Item	Factor loading	Composite Reliability (CR)	Average variance extracted (AVE)	Cronbach's alpha
Competition	Com1	0.573	0.861	0.512	0.858
	Com3	0.706			
	Com4	0.772			
	Com5	0.819			
	Com6	0.695			
	Com7	0.640			
Decentralization	Dec1	0.642	0.870	0.629	0.866
	Dec3	0.865			
	Dec4	0.810			
	Dec5	0.836			
MAPs	Map1	0.623	0.84	0.571	0.837
	Map2	0.854			
	Map3	0.743			
	Map4	0.784			
New MAPs	N-Map1	0.648	0.841	0.57	0.834
	N-Map2	0.740			
	N-Map3	0.751			
	N-Map4	0.869			
Old MAPs	O-Map1	0.654	0.810	0.519	0.796
	O-Map2	0.821			
	O-Map3	0.650			
	O-Map4	0.742			
Performance	Per1	0.630	0.729	0.580	0.706
	Per2	0.874			

ings were greater than 0.50 and significant at p< 0.001, which supports convergent validity.

Discriminant validity analysis was conducted to test whether a construct in the study differed from another construct. According to Fornell and Laker (1981), the requirement of discriminant validity is satisfied when the AVE of the construct is larger than all paired square correlations between the construct and other constructs in the model. As shown in Table 3a and 3b, the root square of AVE on the diagonal of each construct was larger than correlations between paired constructs, indicating that discriminant validity was achieved.

The correlation coefficients among constructs are provided to evaluate the multicollinearity (see Table 3a and 3b). According to Hair et al. (2010), variables highly correlated with each other (i.e. 0.70 and above) indicate the problem of multicollinearity. None of the constructs in this study are too highly correlated with each other in each model, as the high-

Table 3: Discriminant validity analysis

a. First model

Construct	(1)	(2)	(3)	(4)	
Competition (1)	0.72				
Decentralization (2)	0.33**	0.79			
MAPs (3)	0.37**	0.44**	0.76		
Performance (4)	0.24*	0.30**	0.54**	0.76	
b. Alternative model					
Construct	(1)	(2)	(3)	(4)	(5)
Competition (1)	0.72				
Decentralization (2)	0.33**	0.79			
Old MAPs (3)	0.03	0.14	0.72		
New MAPs (4)	0.41**	0.48**	0.51**	0.76	
Performance (5)	0.24*	0.30**	0.35**	0.51**	0.76

Notes: Diagonal data is square root of average variance extracted;
   * Coefficient is statistically significant at p< 0.005 level (two-tailed);
   ** Coefficient is statistically significant at p< 0.001 level (two-tailed).

est correlation was 0.54 between MAPs and Performance. Therefore, the level of multicollinearity was considered to be acceptably low.

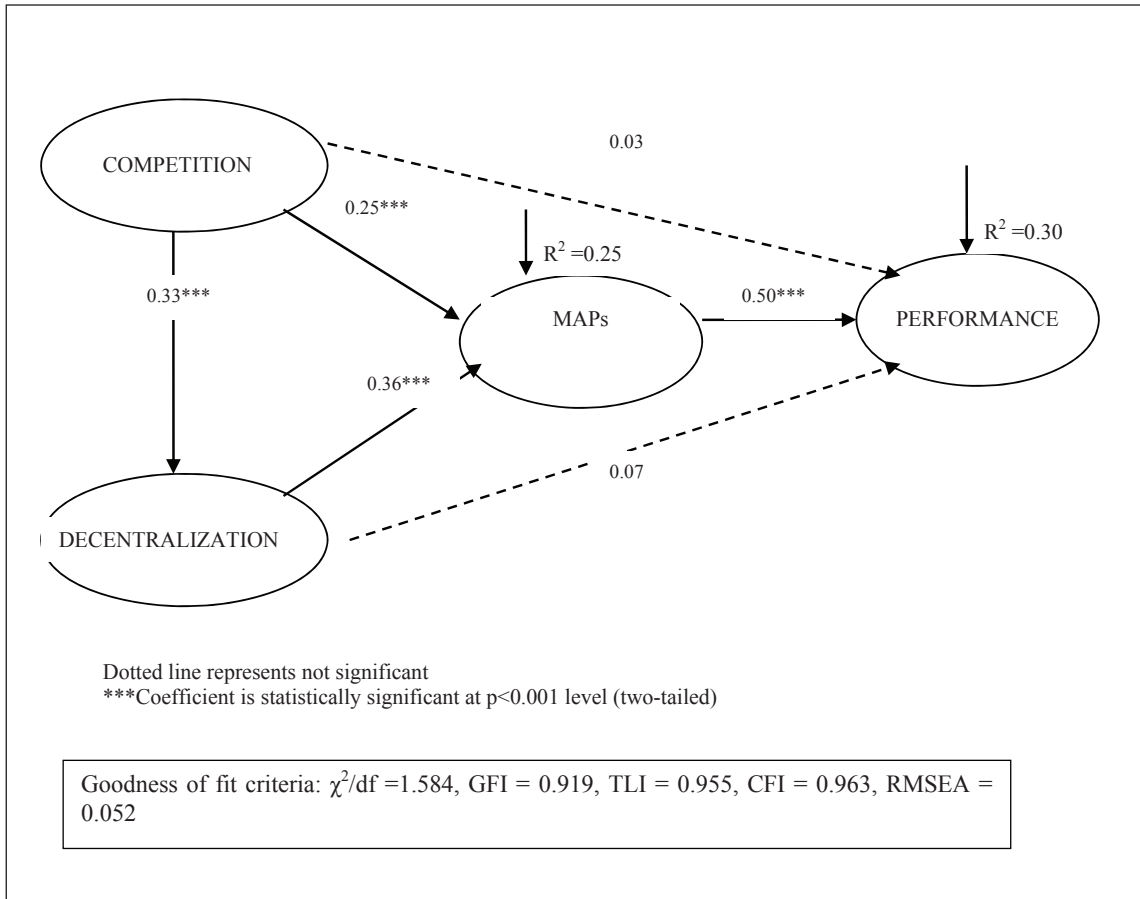### 4.2. Structural model

MAPs as a single group

The first model specifies the relationship among decentralization, competition, the use of MAPs and performance, where MAPs were treated as a single group as presented in Figure 1.

In this figure, all the path coefficients are standardized with their respective significant levels. The results reveal that this structural model has a good fit (χ^2/df =1.584, GFI = 0.919, TLI = 0.955, CFI = 0.963, RMSEA = 0.052). The results of the structural model show that the relationship between competition and the use of MAPs (standardized regression weight = 0.25) was positive and significant (at p<0.001),

thereby supporting H1. The possible explanation of this result is that enterprises in intensive competition request more information related to product ranges, distribution channels, customer services, prices and quality of products in order to compete with their competitors. Enterprise managers could get this information through different sources; MAPs are important sources of this information. The results from follow-up interviews also support this argument. The comments provided by interviewee H (who is working for a gas company), and interviewee B (who is working for a pharmacy company) were especially insightful:

"Our company specializes in the petrol and gas sector, considered as a monopoly market under the control of the government. The levels of competition in terms of price, quality of product, distribution channel etc. seem to be very low. Thus, some MAPs that you have listed

Figure 1: Results of structural analysis: primary model

Dotted line represents not significant
***Coefficient is statistically significant at p<0.001 level (two-tailed)

Goodness of fit criteria: χ^2/df =1.584, GFI = 0.919, TLI = 0.955, CFI = 0.963, RMSEA = 0.052

here were currently not used in our company, but they may be used in other companies who have to deal with high levels of competition."

"I think competition is the main reason for adopting new MAPs. In our company, the level of competition related to price and quality of products, the distribution channels, packing of products... has increased significantly when the government allowed many companies operating in the pharmacy area instead of the three monopoly companies that operated under the centrally planned economy. To compete with our competitors, we need a lot of relevant information, including MA information. Thus, some MAPs that have not been applied in the past such as activity based costing, responsibility accounting ...have been adopted to provide information for the managers".

The results that competition was positively and significantly related to the use of MAPs are consistent with the findings of previous studies (Firth, 1996; Mia and Clarke, 1999).

Similarly, the relationship between decentralization and the use of MAPs was positive

(standardized regression weight = 0.36) and significant (at p<0.001), providing support for H2. It is noted that managers in decentralized enterprises are allowed to have more authority for planning and control activities under their own responsibility. Therefore, they are willing to use new management tools, including MAPs, to improve relevant information that they need to use for planning, controlling, organizing, evaluating and decision making that they bear the full responsibility for. The results from follow-up interviews supported this argument. For example, the interviewee T noted:

"...as an independent subsidiary, we have to take responsibility for our outcomes. Therefore, we are motivated to process as much management information as possible, including MA information, in order to enhance the quality of information and, in turn, improve our performance through making timely, accurate decisions".

In addition, the results also indicate that a higher level of competition is related to a higher level of Decentralization (standardized regression weight = 0.33, p<0.001), supporting H3. The results presented in Figure 1 reveal that the effect of the use of MAPs on performance was positive and significant (standardized regression weight = 0.50, p<0.001), providing support for H4.

As shown in Figure 1, decentralization is not directly related to performance (standardized regression weight = 0.07, t = 0.929). Thus, H5 is not supported. However, as the relationship between decentralization and the use of MAPs, and that between the use of MAPs and performance are significant, the use of MAPs plays a mediating role in the relationship between
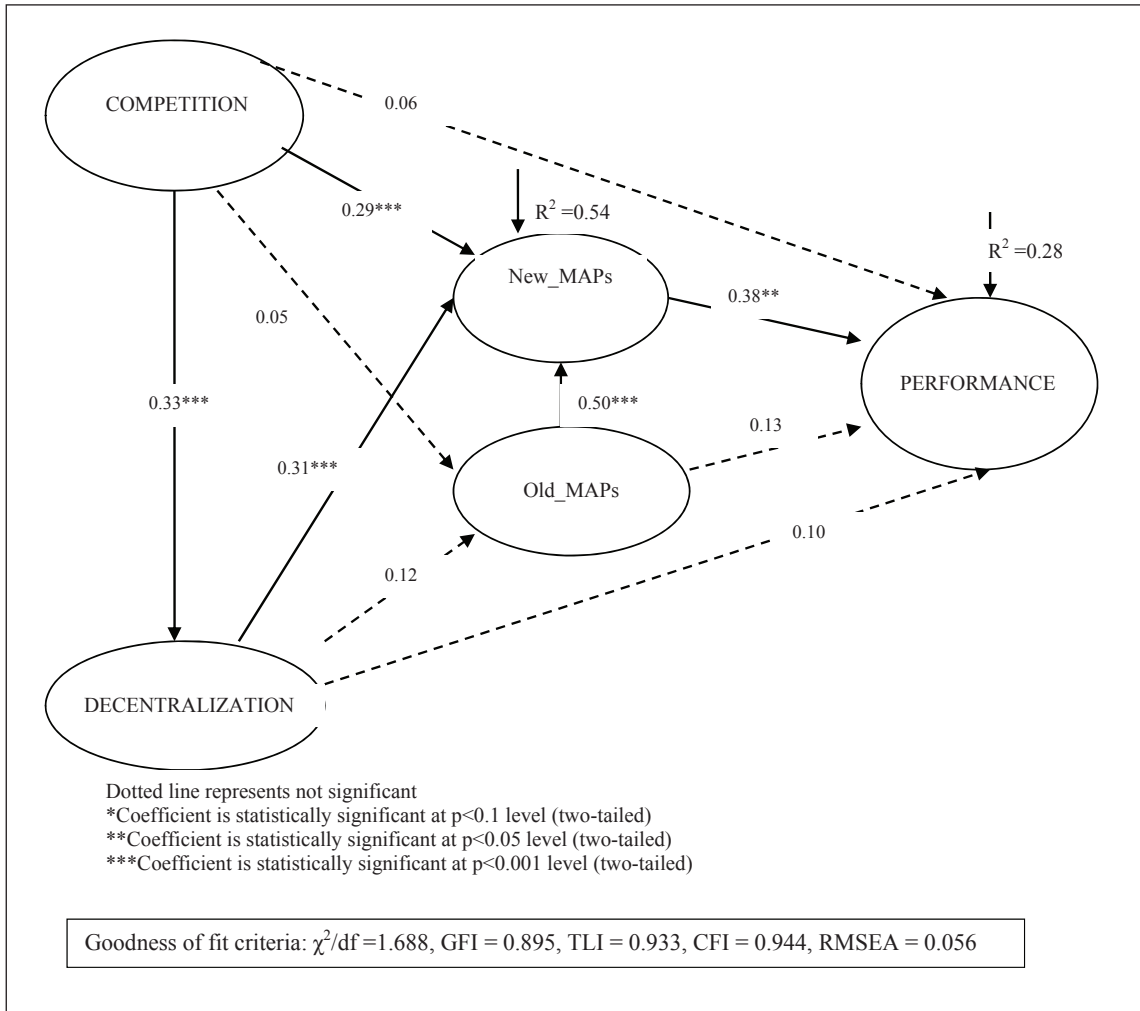
decentralization and performance. The positive and significant correlation (r = 0.30, p<0.001) between decentralization and performance (see Table 3a) is explained by their direct relationship (standardize regression weight = 0.07), and by the indirect relationship between decentralization and performance which exists via the use of MAPs (see Figure 1). In other words, the use of MAPs plays an important mediating role in enterprises, facilitating the effect of decentralization on performance.

Similarly, the results presented in Figure 1 reveal that competition has no significant influence on performance (standardized regression weight = 0.03, p<0.412). Thus, H6 is not supported. This finding is consistent with those of Khandwalla (1977), and of Mia and Clarke (1999). Nevertheless, the results indicated that the use of MAPs plays an important mediating role in the relationship between competition and performance. As reported in Table 3a, the correlation between competition and performance was positive and significant (r = 0.54, p<0.001). This relationship is explained by the direct relationship (standardize regression weight = 0.03) and the indirect relationship between competition and performance that exists through the mediation of the use of MAPs and decentralization, as shown in Figure 1. In other words, the use of MAPs and decentralization played an important mediating role between competition and performance in enterprises.

MAPs as two groups: old MAPs and new MAPs

The second structural model stipulates the relationship among decentralization, competition, the use of old MAPs, the use of new MAPs and performance (where MAPs were separated

Figure 2: Results of structural analysis - Alternative model

Dotted line represents not significant
*Coefficient is statistically significant at p<0.1 level (two-tailed)
**Coefficient is statistically significant at p<0.05 level (two-tailed)
***Coefficient is statistically significant at p<0.001 level (two-tailed)

Goodness of fit criteria: χ^2/df =1.688, GFI = 0.895, TLI = 0.933, CFI = 0.944, RMSEA = 0.056

into two groups: Old MAPs and New MAPs). The fit indices for this model (χ^2/df =1.688, GFI = 0.895, TLI = 0.933, CFI = 0.944, RMSEA = 0.056) suggest that this model achieved a good fit.

The results from Figure 2 show that competition and decentralization have no significant influence on the use of old MAPs (standardized regression weight = 0.05, p<0.810 and = 0.15,

p<0.079 respectively). In an attempt to explain the insignificant effects of decentralization and competition on the use of old MAPs, it is noted that Vietnamese managers and accountants were far more familiar with old MAPs, which had been used in the centrally planned economy as required by the government, independent of competition or decentralization. In the transitional economy, where the level of competi-

tion has been increasing and the level of decentralization depends on the enterprise owner's decision, the old MAPs have been continuously adopted widely and intensively. Accordingly, the influence of competition and decentralization on the use of old MAPs is not significant.

However, competition and decentralization have a positive and significant influence on the use of new MAPs (standardized regression weight = 0.29, p<0.001 and = 0.31, p< 0.001 respectively). This result is consistent with the findings by Chia (1995), and by Abdel-Kader and Luther (2008), that there is a positive association between decentralization and the use of new MAPs.

The findings shown in Figure 2 indicate that the use of old MAPs strongly impacts on the use of new MAPs (standardized regression weight = 0.50, p<0.001), providing strong evidence to support H7. As a result, the use of new MAPs is positively associated with the use of old MAPs, competition and decentralization, and these constructs explain 54% of the variation in the use of new MAPs. This key finding sheds light on the question by Chenhall and Langfield-Smith (1998) that called for investigation about the nature of the dependence between traditional and recently developed MAPs. It can be seen that the high level of managers' knowledge may minimize resistance to change and motivate the need for change (Wu and Boateng, 2010), while resistance to change has been recognized as a substantial barrier to the use of "new" MAPs (Scapens and Roberts, 1993; Walley et al., 1994). Therefore, when managers have used the old MAPs at a high level, they have gained knowledge about how to use a MAP in their enterprise and how

these MAPs bring benefit for them. As a result, they are more willing to apply new MAPs.

The results in Figure 2 also show that the use of old MAPs did not affect performance directly (standardized regression weight = 0.13, p<0.198), while the use of new MAPs has a positive, significant influence on performance (standardized regression weight = 0.38, p<0.002). This finding is consistent with Baines and Langfield-Smith (2003) and Cadez and Guiding (2008) who found that the use of advanced MAPs is positively associated with performance.

It is noted that the use of old MAPs does not directly influence enterprise performance. The positive and significant correlation (r = 0.35, p < 0.001 as reported in Table 3b) between the use of old MAPs and performance is explained by the direct relationship (standardize regression weight = 0.13) and the indirect relationship between the use of old MAPs and performance existing through the mediation of the use of new MAPs (see Table 3). Accordingly, the use of new MAPs explains 26% of variation in the performance (standardized regression weight = 0.51, p<0.001) shown in Figure 2.

5. Conclusion

This study provides a number of practical implications for both enterprise managers and policy makers in Vietnam. First, the findings indicate that both competition and decentralization are positively and significantly related to the use of MAPs. However, they have no direct influence on enterprise performance, but they have an indirect effect on enterprise performance through an important mediating role played by the use of MAPs. Therefore, Vietnamese enterprises operating in high level of

competition need to use MAPs intensively to enhance their performance. Besides, it is noted that managers in decentralized enterprises are allowed to have more authority for planning and controlling activities under their own responsibility. As a result, they are willing to use new management tools, including MAPs, to improve relevant information that they need to use for the planning, controlling, organizing, evaluating and decision making that they bear the full responsibility for. Therefore, to facilitate the use of MAPs, decentralization should be carried out in Vietnamese enterprises.

Second, the findings of this study indicate that the use of MAPs is positively associated with enterprise performance (including both financial performance and non-financial performance). Therefore, to improve the enterprise performance, Vietnamese enterprises should be motivated to make greater use of MAPs, especially the new MAPs. This is the responsibility not only of enterprise managers but also of policy makers. The policy makers should, through accounting associations, organize on-job training courses about how to adopt MAPs in practice and help enterprises know how to adopt MAPs, especially new MAPs. On the other hand, enterprise managers acknowledge that the increasing use of MAPs can provide Vietnamese enterprises with better information; so in turn, managers can make better decisions. This leads to improved enterprise performance.

As with other empirical studies, this study is subject to several limitations that encourage consideration for further studies. First, this study examined a wide range of items. Although the majority of respondents were guided to answer the questionnaire, it is possible that the respondents misunderstood some items (Chenhall and Langfield-Smith, 1998). Second, the data were collected from medium and large Vietnamese enterprises; it is possible that the results may not generalize to all Vietnamese enterprises, especially for small Vietnamese enterprises. Thus, further studies should be conducted for small Vietnamese enterprises to ascertain whether the above findings generalize to all Vietnamese enterprises. Finally, the analysis has not covered some factors that may influence the use of MAPs, but that have been considered in other studies, such as technology and organizational culture (Anderson and Lanen, 1999; Chenhall, 2003). Thus, future studies could investigate the effect of these other factors to extend the coverage of the current study.

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