

VARIATIONS IN MANAGEMENT ACCOUNTING PRACTICES: EXPLANATORY FACTORS

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ABSTRACT

Variations in the management accounting practices (MAPs) of firms are evident. Many studies have observed various levels of MAP adoption and implementation, especially in developing countries. Surveys on MAP in developing countries have reported wide variations in such practices, with traditional MAP being more popular than advanced MAP despite the advantages of the latter, as suggested by academicians and practitioners. This study investigates several factors that may explain the variations in the MAPs of firms in Yemen and highlights the role of firm owners and personnel in deciding and selecting the MAPs in their respective firms. Firms that operate in the various economic sectors of Yemen are included in the sample. The International Federation of Accountants (IFAC) framework on management accounting evolution is used to classify the MAP level of advancement. The ownership of firms, industry type, and educational level of Chief Financial Officers (CFOs) significantly explain the variations in the MAPs of firms in Yemen. Foreign ownership and highly educated CFOs can drive firms to adopt a more sophisticated MAP. Industry type also has a significant role in determining the level of MAP advancement. Interestingly, the MAP advancement level in the financial and banking sector is higher than that in other economic sectors, with natural resources-extracting firms demonstrating the second-highest MAP advancement level. These results improve our understanding of why some firms invest in upgrading their management accounting systems and targeting the best practices, while others tend to maintain their use of traditional MAPs.

Keywords: management accounting practice, influential factors, the Republic of Yemen

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INTRODUCTION

Management accounting has evolved in the last quarter of the 20th century to conform to the rapid changes in the environment, the introduction of advanced manufacturing technologies, and the intense competition in the market. Researchers have examined the role of new management accounting techniques, such as Activity-Based Costing (ABC), Balanced Scorecard (BSC), and Target Costing (TC), in shifting the focus of management accounting from basic cost determination and control functions to value creation. Scholars have also shown that the new management accounting techniques have changed the role of management accountants from providing information to their management for planning and controlling purposes to participating in strategic decision making and improving organizational performance (Davis & Albright, 2004; Duh, Lin, Wang, & Huang, 2009; Kaplan & Atkinson, 1998; Maiga & Jacobs, 2008).

However, surveys on management accounting practices (MAPs) in many countries have reported that the traditional MAP dominates the newly developed advanced MAP (e.g., in UK by Abdel-Ka der and Luther (2006b), in Australia by Chenhall and Langfield-Smith (1998a), in Japan by Wijewardena and De Zoysa (1999), in Finland by Hyvonen (2005), in Malaysia by Said, Hui, Osman and Taylor (2010)). The gap between the theoretical assumptions about the relevance of new management accounting techniques and the practical implementation level as indicated by the low adoption rate emphasize the need for additional studies on MAP and the potential factors that may determine the level of its advancement. The next two sections review the MAP literature, develop the hypotheses, and present the study framework. Section 4 discusses the research methodology, and sections 5 and 6 present the descriptive statistics and hypotheses tests results, respectively. Sections 7 and 8 present the results and conclude the paper, respectively.

LITERATURE REVIEW

A considerable amount of research has investigated MAP over the last two decades. The majority of these studies have addressed either the management accounting techniques used by a specific industry or the factors associated

with certain MAPs. The first research stream investigates the implementation of traditional and advanced management accounting techniques, their importance, usefulness or perceived benefits, and success, and it also emphasizes the importance of adopting certain management accounting techniques in the future (e.g., Abdul Rahman, Omar, & Abidin, 2003; Anh, Nguyen, & Mia, 2011; Chanegrih, 2008; Clarke, 1997; Hyvonen, 2005; Mahfar & Omar, 2004; Pavlatos & Paggios, 2008; Sulaiman, Ahmad, & Alwi, 2004; Uyar, 2010; Wu, Boateng, & Drury, 2007).

The other research stream highlights the factors that influence MAP and the drivers of its change. These studies explain why some companies move to new MAPs, while others refrain from following these changes. These studies have investigated the determinants of the adoption of a specific management accounting technique or the changes in the whole management accounting system and the process of such a change (e.g., Abdel-Kader & Luther, 2008; Abdel-Maksoud, Cerbioni, Ricceri, & Velayutham, 2010; Allahyari & Ramazani, 2011; Auzair, 2011; Briers & Chua, 2001; Wu & Drury, 2007).

MAP studies have reported the simultaneous adoption of traditional and new management accounting techniques (Abdel-Kader & Luther, 2006a; Abdul Rahman, Omar, Sulaiman, & Zainal Abidin, 2005; Chenhall & Langfield-Smith, 1998b; Joshi, Bremser, Deshmukh, & Kumar, 2011; McLellan & Moustafa, 2011; Omar, Abd Rahman, & Sulaiman, 2004; Sulaiman, Ahmad, & Alwi, 2004; Szendi & Elmore, 1993; Tuanmat, Smith, & Djajadikerta, 2010; Tuanmat & Smith, 2011). The combination of these techniques is also evident in the International Federation of Accountants (IFAC) framework for management accounting evolution, in which each stage of development simultaneously introduces new management accounting techniques and uses techniques from the previous stages.

Firms in developing countries still adopt traditional MAPs to a large extent compared with those in developed countries. Sulaiman, Ahmad, and Alwi (2004) reviewed the literature on traditional and contemporary MAP use in Singapore, India, Malaysia, and China and found that these four countries used contemporary MAPs to a limited extent yet used traditional MAPs to a great extent. Companies in Malaysia also utilize traditional MAP to a large extent with a minimal adoption of new tools (Omar, Abd Rahman, & Sulaiman, 2004). Moreover, when adopting new management

accounting tools, these firms simultaneously use their new and old systems instead of replacing the latter (Abdul Rahman, Morshidi, & Omar, 2002). Smith, Abdullah, and Razak (2008) confirmed the dominance of financial accounting in Malaysia and reported a low adoption rate of advanced management accounting techniques in the country, even for large companies.

This study focuses on the Republic of Yemen, a Middle Eastern country that is located south of the Arabian Peninsula and has an estimated population of 24 million as of 2011. To the best of our knowledge, the MAP of firms in Yemen has never been investigated in the literature. However, several studies have investigated the MAP of firms in other Middle Eastern countries (i.e., in Gulf Cooperation Council countries by McLellan & Moustafa (2011) and Joshi, Bremser, Deshmukh, & Kumar, (2011), in Saudi Arabia by El-Ebaishi, Karbhari, & Naser (2003), and in Jordan by Nassar, Al-Khadash, Al-Okdah, & Sangster (2011)) and found the prevalence of traditional MAP and minimal utilization of advanced MAP in these countries.

FRAMEWORK AND HYPOTHESIS DEVELOPMENT

Contingency theory suggests that MAP is a product of various external and internal contingent variables. Based on this theory, MAP is driven by factors that differ across countries according to their respective environmental and organizational characteristics.

The majority of the MAP literature has focused on manufacturing firms, which are expected to adopt advanced MAP because of their complicated activities that require timely, accurate, complete, and relevant information about product costing, cost management, planning, performance evaluation, and other critical information for decision making. These companies are also concerned with cost reduction and allocation because of the high level of overhead in their technological processes and operations. Manufacturing firms implement certain management accounting techniques, such as ABC, Activity Based Management (ABM), BSC, and TC, more than non-manufacturing firms (Chongruksut, 2009). Service industries, such as the hospitality industry, have a lower adoption rate of advanced MAP (Pavlatos & Paggios, 2008). Other studies reveal a lower use of MAP in the trading sector compared with that in manufacturing and service sectors

(Anh, Nguyen, & Mia, 2011). However, the CIMA global survey (Chartered Institute of Management Accountants (CIMA), 2009a) shows that financial industries implement more management accounting techniques than other industries. Therefore, this study hypothesizes the following:

***H1** : A significant difference exists in the MAP of firms operating in various types of industries.*

Firm size is a controversial factor because of its influence on the adoption of management accounting innovations. Many studies on firm size have yielded mixed findings on the influence of this factor on innovation diffusion (Askarany & Smith, 2003). Some studies have found no association between the size and the management accounting innovations of a firm (Smith, Abdullah, & Razak, 2008), whereas other studies have found that firm size affects the type and advancement of MAP (Askarany & Smith, 2003). Large companies have the highest tendency to use advanced MAP because of their wide availability of resources and their large number of employees who need to be controlled and evaluated. Some studies on the role of firm size in innovation adoption have suggested that large firms show advantages over small firms in terms of their adoption of advanced management accounting techniques. For instance, the amount of financial resources and specialists in large companies is higher than that in smaller companies (Abdel-Kader & Luther, 2008; Clarke, 1997; Firth, 1996). By contrast, other studies have advocated that small firms have more advantages to adopt new innovations because of their lower bureaucracy, tendency to innovate, and need to compete with large firms for survival (Julien, 1993; Nootboom, 1994). Given the inconsistent findings on the role of firm size, the following hypothesis is tested:

***H2** : Firm size is related to the level of MAP advancement.*

Ownership type is a contingent factor that is expected to influence the level of MAP and the speed of management accounting change. The variances in the MAP of local and foreign firms may be attributed to the differences in the background, culture, level of advancement, and structure of these firms. Wu, Boateng, and Drury (2007) investigated the adoption of management accounting techniques by Chinese firms with different ownership types, namely, joint ventures (JVs) and state-owned enterprises (SOEs), and found

a significant difference in the adoption rate of management accounting techniques between these firms. Specifically, JVs (companies with foreign partners) tend to adopt more advanced MAP than SOEs (companies without foreign partners). Moustafa and McLellan (2010) performed a similar comparison in Gulf Cooperation Council countries. In their study, ownership type was operationalized as a contingent variable for MAP by comparing incorporated firms with family-owned firms. They found that the former tended to adopt more advanced MAP than the latter, which preferred cheaper MAP because they had fewer agency problems. Given that advanced management accounting has been initially established in developed countries and that the financial capabilities of foreign firms with substantial investments in Yemen also possess advanced technologies, the following hypothesis is examined:

H3 : Foreign firms that operate in Yemen utilize advanced MAP to a greater extent than local firms.

Financial managers should be aware of the role of management accounting and the usefulness of management accounting information in planning and controlling their processes, supporting their strategies, and creating value to their firms. They should also be knowledgeable about the recent developments in MAP, especially the newly developed management accounting innovations. Therefore, these managers are expected to convince the top management to adopt more sophisticated MAP and dedicate sufficient resources for MAP change. By contrast, managers who are unaware of these developments hinder the adoption of best MAPs in their respective firms. Argyris and Kaplan (1994) suggested that managers who resist such changes should attend educational programs to develop their awareness about the advantages and outcomes of these changes. Narayanan and Sarkar (2002) stated that in many cases of ABC implementation, the information produced by the ABC system did not affect the managerial decisions because of organizational resistance. Reservation about the usefulness of management accounting techniques (e.g., ABC) has been reported not only by employees but also by managers (Cohen, Venieris, & Kaimenaki, 2005), who believe that they will lose some of their power to other departments or that they will lose their jobs if the ABC system is implemented (Drennan & Kelly, 2002). Therefore, the more the financial managers and top management appreciate the information produced by advanced management accounting

tools, the more likely they will support the adoption and implementation of these tools. Accordingly, the following hypothesis is developed:

H4 : *Firms with financial managers who have higher qualifications in accounting or have received additional professional education adopt more advanced MAP than firms with financial managers who lack higher qualifications or professional education.*

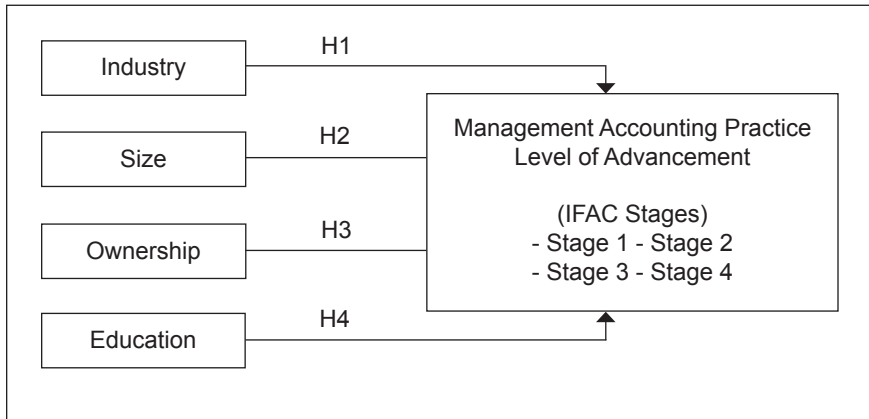


Figure 1: Research Framework

RESEARCH METHODOLOGY

A questionnaire survey was conducted to collect empirical data. This survey asked the respondents to present facts instead of personal opinions as in the case of interviews. Surveys are preferred for this study because they give respondents enough time to respond to questions, and they secure the anonymity of the respondents, thus motivating them to provide more realistic responses (Gosselin, 1997). The questionnaire was initially distributed to several respondents in Yemen who then personally stated their understanding of each item and commented on the overall quality of the instrument. This procedure aims to ensure the understandability of the questions and the appropriateness of the English-to-Arabic translation of the items. After receiving the comments of these respondents, the questionnaire items were rephrased in Arabic language as necessary. The measurements were adopted from previous literature to enhance the reliability and validity

of the questionnaire. Some measurements were also modified to suit the Yemen context. The sample included large companies that operate in various economic sectors and could be reached through email or in person. A random number of medium and small companies was also included to obtain a sufficient sample size. By surveying companies from different industries, a large number of respondents were obtained, and an adequate amount of data was used for the statistical analysis. Out of the 430 distributed questionnaires, only 174 were returned, thus yielding a 40% response rate. Among the returned questionnaires, 16 were excluded because of missing data and the very small size of the respondent firm. Accordingly, 158 valid responses were obtained, representing a response rate of 37%.

DESCRIPTIVE FINDINGS

Profile of the Responding Firms

Table 1 presents the profile of the responding companies. Companies from the manufacturing and trade sectors have the highest number of responses (36 and 39), and they are followed by the service and financial industries (27 and 19). The size of the responding companies varies from small (10 to 50 employees) to very large (over 500 employees). Small companies comprise 30% of the total responding firms, of which 2% have less than 10 employees. Medium (27) and large companies (80) comprise 17% and 51% of the total responding firms, respectively. Among all responding companies, 136 (86%) are local companies, and 22 (14%) are foreign companies operating in Yemen.

Table 1: Profile of the Responding Companies

	Frequency	Percent	Cumulative Percent
Industry Type			
Manufacturing	36	22.8	22.8
Natural resources extraction	9	5.7	28.5
Financial/Banking	19	12.0	40.5
Tourism	2	1.3	41.8
Healthcare	6	3.8	45.6

	Frequency	Percent	Cumulative Percent
Trade	39	24.7	70.3
Service	27	17.1	87.3
Construction	13	8.2	95.6
Other	7	4.4	100.0
TOTAL	158	100.0	
Company Size (Number of Employees)			
Very Small (<i>Less than 10</i>)	4	2.5	2.5
Small (<i>10 to 50</i>)	47	29.7	32.3
Medium (<i>51 to 150</i>)	27	17.1	49.4
Large (<i>151 to 500</i>)	46	29.1	78.5
Very Large (<i>Over 500</i>)	34	21.5	100.0
TOTAL	158	100.0	
Company Ownership			
Local	136	86.1	86.1
Foreign	22	13.9	100.0
TOTAL	158	100.0	

Management Accounting Practice in Yemen

Table 2 presents the stage of MAPs in the sample firms. As explained earlier, the stages of MAP reflect the level of MAP advancement according to the classification of the IFAC framework for management accounting evolution. Stages one and two represent the traditional MAP, which was developed from the early 20th century to the mid-1980s. Stages three and four represent the advanced MAP, which was developed from the late 1980s onward. Stage one is obviously the oldest and most traditional practice, and stage four is the most recently developed and advanced practice.

Among the 158 responding companies, the MAPs of 54 (34%) companies were at stage one, 48 (30%) were at stage two, 36 (23%) were at stage three, and 20 (13%) were at stage four. Consequently, 102 (64%) of the

responding companies still used the traditional MAP (stages one and two), and 56 (36%) shifted to the advanced MAP (stages three and four).

By comparing the findings of studies conducted in developing countries with those of studies conducted in developed countries, a clear gap between the MAPs of these countries could be observed. For example, Abdel-Kader and Luther (2006b) explored the MAP in the UK food industry and found that 19% of the surveyed firms were at stage one, 41% were at stage two, 27% were at stage three, and 13% were at stage four. However, their sample only included firms from the manufacturing industry, whereas the sample of this study included firms from various economic sectors in Yemen.

Table 2: MAP Stages

	Frequency	Percent	Cumulative Percent
MAP Stage			
Stage One	54	34.2	34.2
Stage Two	48	30.4	64.6
Stage Three	36	22.8	87.3
Stage Four	20	12.7	100.0
TOTAL	158	100.0	
Traditional versus Advanced MAP			
Traditional MAP	102	64.6	64.6
Advanced MAP	56	35.4	100.0
TOTAL	158	100.0	

HYPOTHESIS TESTING RESULTS

Firm and MAP Characteristics (*H1* and *H2*)

To analyze the effect of industry type on MAP level of advancement, the responding firms were classified according to their economic sector. Industries or sectors with a small number of responding firms were excluded

to maintain the validity of the analysis. Therefore, five industries were included in the analysis, namely, manufacturing, natural resources extraction, financial/banking, service, and trading. One-way ANOVA was performed to identify the differences among firms operating in different industries in terms of their MAP advancement level. MAP level of advancement was categorized into four stages according to the IFAC Framework. Therefore, the scale of analysis for the dependent variable (MAP Stage) ranged from 1 to 4. As shown in Table 3, the homogeneity assumption was satisfied. Levene's test for homogeneity of variance was not significant ($0.343, p > 0.05$), and this result indicated that the population variance for each group was approximately equal. The one-way ANOVA results showed a significant difference at the level of MAP among firms from various industries ($F = 2.78, p < 0.05$). Therefore, H1 is supported.

Surprisingly, the highest mean for MAP level of advancement was obtained by the financial and banking industry (2.67, as shown in Table 3), followed by the natural resources extracting industry (2.67), the manufacturing industry (2.17), and the trading industry (1.87). A post hoc analysis of the one-way ANOVA test was performed to compare the individual pairings of industries and to reveal the differences between each industry. Table 4 shows a significant difference ($p < 0.05$) between the financial/banking and trading industries (0.812), between the financial/banking and service industries (0.721), and between the natural resources extraction and trading industries (0.795). At the $p < 0.10$ significance level, a significant difference was observed between the financial/banking and manufacturing industries (0.518) and between the natural resources extraction and service industries (0.704).

Table 3 shows the one-way ANOVA analysis results on the influence of firm size on the level of MAP advancement. The homogeneity assumption was satisfied for all groups. Levene's statistic was not significant ($0.977, p > 0.05$). The F-ratio of the one-way ANOVA analysis (Table 3) indicated no significant difference among firms of various sizes with regard to their level of MAP advancement ($F = 1.14, p > 0.05$). Therefore, H2 is not supported.

Table 3: Industry Type, Firm Size, and MAP Advancement Level

Variables	Mean	SD	Test of Homogeneity of Variances		ANOVA	
			Levene's Statistic	p-value	F-value	p-value
Type of Firm			0.343	0.85	2.78	0.030
Manufacturing	2.17	1.06				
Natural Resources Extraction	2.67	.87				
Financial/Banking	2.68	1.06				
Trade	1.87	1.06				
Service	1.96	0.98				
TOTAL	2.15	1.06				
Firm Size			0.977	0.40	1.14	0.337
Small	2.00	0.93				
Medium	2.07	1.07				
Large	2.15	1.05				
Very Large	2.41	1.05				
TOTAL	2.15	1.02				

However, at the $p < 0.10$ significance level, a significant difference was observed between small and very large firms, as indicated by the post hoc analysis results in Table 5.

Table 4: Firm Type and MAP Advancement Level: Multiple Comparisons

(I) Firm Type	(J) Firm Type	Mean Difference (I-J)	Std. Error	Sig.
Manufacturing	Natural Resources Extraction	-0.500	0.384	0.195
	Financial/Banking	-0.518 [*]	0.292	0.079
	Trading	0.295	0.238	0.217
	Service	0.204	0.262	0.438
Natural Resources Extraction	Manufacturing	0.500	0.384	0.195
	Financial/ Banking	-0.018	0.416	0.966
	Trading	0.795 ^{**}	0.381	0.039
	Service	0.704 [*]	0.396	0.078
Financial/ Banking	Manufacturing	0.518 [*]	0.292	0.079
	Natural Resources Extraction	0.018	0.416	0.966
	Trading	0.812 ^{**}	0.288	0.006
	Service	0.721 ^{**}	0.308	0.021
Trading	Manufacturing	-0.295	0.238	0.217
	Natural Resources Extraction	-0.795 ^{**}	0.381	0.039
	Financial/Banking	-0.812 ^{**}	0.288	0.006
	Service	-0.091	0.258	0.724
Service	Manufacturing	-0.204	0.262	0.438
	Natural Resources Extraction	-0.704 [*]	0.396	0.078
	Financial/ Banking	-0.721 ^{**}	0.308	0.021
	Trading	0.091	0.258	0.724

^{**} Significant at the 0.05 level.

^{*} Significant at the 0.10 level.

Table 5: Firm Size and MAP Advancement Level: Multiple Comparisons

(I) Firm Size	(J) Firm Size	Mean Difference (I-J)	Std. Error	Sig.
Small	Medium	-0.074	0.246	0.764
	Large	-0.152	0.212	0.473
	Very Large	-0.412*	0.230	0.075
Medium	Small	0.074	0.246	0.764
	Large	-0.078	0.247	0.753
	Very Large	-0.338	0.263	0.201
Large	Small	0.152	0.212	0.473
	Medium	0.078	0.247	0.753
	Very Large	-0.260	0.231	0.262
Very Large	Small	0.412*	0.230	0.075
	Medium	0.338	0.263	0.201
	Large	0.260	0.231	0.262

* Significant at the 0.10 level.

Ownership of Firm, CFO Education, and MAP (H3 and H4)

Table 6 summarizes the t-test results of the independent group analysis for firm ownership and CFO education. Firm ownership was operationalized using the local ownership instead of the international ownership of a firm. The MAP use of local and foreign firms was compared. As the probability of Levene’s test is greater than 0.05, the equality of variance assumption was satisfied, that is, the population variances were relatively equal. The t-test results showed a significant difference between local and foreign firms in terms of their MAP advancement level ($t = 2.48, p < 0.05$). Foreign firms had a higher mean of MAP use (2.64) that was significantly different from that of local firms (2.06). Therefore, H3 is supported.

H4 states that firms with financial managers who have higher qualifications in accounting or have received an additional professional education adopt more advanced MAP than firms with financial managers who have no higher or professional education. To test this hypothesis, the responding companies were classified into two categories. The first category included companies with CFOs holding a bachelor’s degree in accounting but having no other

qualifications or professional training. The second category included companies with CFOs who have higher education (i.e., master’s degree in accounting) or professional education (i.e., CIMA, ACCA, or CPA). Table 6 shows that the equality of variance assumption was satisfied (Levene’s significance is > 0.05). Table 6 also shows that the t-test analysis results for CFO education ($t = 2.12, p < 0.05$) indicate a significant difference between the two categories. Companies in the second category showed higher levels of MAP advancement (mean = 2.52) than those in the first category (mean = 2.06). Therefore, H4 is supported.

Table 6: Firm Ownership, CFO Education, and MAP Advancement Level

Variables	Mean	SD	Levene’s Test for Equality of Variances		t-test for Equality of Means	
			F -value	p -value	t-value	p -value
Ownership:			0.027	0.87	-2.48	0.014
Local	2.06	1.02				
Foreign	2.64	1.00				
CFO Education:			0.000	0.99	-2.12	0.035
Bachelor’s Degree in Accounting	2.06	1.03				
Additional Higher or Professional Education	2.52	0.98				

DISCUSSION

Overall, industry type has a significant role in explaining the variations in the MAPs of firms. The financial/banking sector uses more advanced MAP, thus reflecting the sensitive and risk-exposure nature of financial/banking firms. Therefore, these firms should make greater investments in management accounting systems, as an excellent management accounting system provides the top management of these firms with timely and relevant information that enables them to mitigate the inherent risks in their financial activities and to respond effectively to the changes in volatile markets. These results are consistent with the CIMA survey results (2009b) on global

MAP: similar to the manufacturing industry, the financial service industry also adopts a higher MAP. The medium use of MAP by the manufacturing companies in Yemen may be attributed to their less-advanced technologies and simple production processes. The use of highly advanced manufacturing technologies can reduce the dependence of production processes on the human factor and increase the portion of overhead in the production costs, thus requiring highly sophisticated tools for costing and management accounting. The literature review of Soim and Scheytt (2008) highlighted the higher level of MAP in the financial sector and argued that financial service firms are highly concerned about risk management tools as a response to the nature of their activities.

Natural resources extraction firms, such as oil extraction or mining firms, are characterized by their long-term and complicated processes, high starting costs, and large investments. Therefore, these firms should make huge investments in information and management accounting systems. The advanced level of MAP in these firms reflects the desire of their management to control, monitor, and evaluate the huge investments that they have allocated to obtain the expected revenues. Moreover, during a successful production phase, the volume of revenue of these firms drastically increases, thus allowing them to make significant investments in management accounting systems and employ highly paid and qualified professionals as their major sources of information for cost management, performance evaluation, and strategic planning.

As expected, trading companies have the lowest level of MAP use. Given their direct and simple activities, trading companies do not require much information about costing or performance evaluation. The performance measurements in these companies are straightforward and mainly depend on sales volume and growth. The limited number of activities in these companies attributed to the absence of necessary processes, such as production in the manufacturing or natural resources extraction firms, can be planned and controlled easily by their management using simple or traditional management accounting tools.

Firm size has no significant effect on the level of MAP advancement. The small, medium, and large firms in Yemen show an almost similar adoption level of MAP, with minor, statistically insignificant differences. However,

at a lower significance level, large firms adopt more advanced MAP than small firms. All in all, firm size cannot explain why some firms implement advanced MAP while others do not. Instead, the influence of other external (e.g., competition) and internal factors (e.g., structure, type, and ownership) explains such variations in MAP. Similar results were reported by Tuanmat and Smith (2011), who found no difference among small, medium, and large firms in Malaysia in terms of their management accounting change. They found that small and medium firms change their MAPs at the same level as that of large firms.

As expected, the foreign firms that operate in Yemen show higher levels of MAP advancement than the local firms because these foreign firms are either subsidiaries or branches of large multinational firms that operate overseas. Therefore, the advanced MAPs commonly employed by these multinational firms are also followed by their respective subsidiaries or branches in Yemen. The innovations of management accounting originated from the Western context and, to some extent, from other developed countries such as Japan. Similarly, studies in China have reported a higher use of MAP by Chinese firms with foreign partners (Firth, 1996; O'Connor, Chow, & Wu, 2004).

The education and qualification of CFOs also have an important role in the MAP advancement level of their respective firms. Previous studies show that the CFO is primarily responsible for deciding whether to adopt and implement a new MAP (Naranjo-Gil, Maas, & Hartmann, 2009). Clearly, highly educated CFOs effectively improve the accounting practices in their firms and adopt a more advanced MAP. CFOs that have received higher education or professional training are highly exposed to the latest updates in the management accounting domain and are highly aware of the best practices. Accordingly, these CFOs promote such new practices and their importance in their respective firms. Moreover, the implementation and the efficient use of new management accounting techniques are facilitated when the CFO is highly familiar with such methods. A highly educated CFO is also expected to be highly ambitious, contribute new ideas, and adopt the best financial and managerial management strategies.

CONCLUSION

This study reveals the reasons why some firms have moved to the advanced stages of MAP while others do not. The findings explain the variations in the MAPs of companies in Yemen and enrich contingency theory by contributing knowledge to the factors that can explain such variations, especially in developing countries.

Four contingent factors have been examined in terms of their influence on the level of MAP advancement. Three of these factors influence the sophistication level of MAP and enhance our understanding of how firms decide on whether to adopt or reject new management accounting tools. Several factors can explain the rationale behind the decisions of firms to adopt MAP. These factors are related to the owners (i.e., ownership), personnel (i.e., CFO education), and industry (i.e., industry type) of these firms. Firm size does not influence the level of MAP, as small, medium, and large firms in Yemen adopt traditional and advanced MAPs without clear distinctions in their MAP advancement levels.

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