

The use and benefit of management accounting practices in Libyan oil companies

Management
accounting
practice in
Libyan context

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Abstract

Purpose – The purpose of this study is to describe the use and benefit of TMAPs and CMAPs in Libyan oil companies.

Design/methodology/approach – The data were collected by distributing 210 mailed questionnaires to senior financial staff, such as financial managers, heads of cost department, financial accountants, department of management accounting employees, managerial accountants and Auditors. IFAC-based model was used in analyzing evolution stages in Libyan management accounting practices.

Findings – This study finds that Libyan oil companies use CMAPs more than TMAPs, the latter being commonly used in Libyan manufacturing companies. This study also finds that CMAPs are more beneficial than TMAPs.

Practical implications – This study provides more understanding of the use and the benefit of TMAPs and CMAPs and fills research gap regarding the matter, as well as provides new findings that can be used for further research regarding the use and benefit of TMAPs and CMAPs for Libyan oil companies.

Originality/value – The results contribute to a better understanding concerning the use and benefit of TMAPs and CMAPs in Libyan oil companies.

Keywords Traditional MAPs, Contemporary MAPs, Libyan oil companies

Paper type Research paper

1. Introduction

Current management accounting practices (MAPs) have incorporated financial and nonfinancial techniques to provide information at both operational and organizational level, including factors such as competition, perceived environmental uncertainty, production environment technology and business society. Significant challenges and pressures faced by managers require them to change management accounting (Ahmad and Leftesi, 2014).

Companies use management accounting (MA) with different methods and tools (traditional and contemporary) to assess their operations. Those methods help them to plan, direct and control operating costs and to achieve their targets. It is recognized that MAPs are important for the success of companies (Ahmad, 2014; Ahmad and Leftesi, 2014; Alleyne and marshall, 2011).

The benefit of TAMPs and CMAPs in foreign oil companies operating or licensed in Libya, i.e. Chevron, China National Petroleum Corporation (CNPC), Eni, Marathon, Occidental, Repsol, Shell, Statoil, Total and Wintershall is examined in this study with the hope that the identified theoretical framework and empirical evidence regarding the matter being studied



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contributes to the knowledge because the subject only receives little attention in management accounting literature.

2. Literature review

MA is defined in general as accounting information, such as profit and cost, that is used for management planning and control (Nishimura, 2005). Management accounting research (MAR) provides financial and nonfinancial information to decision makers. Moreover, MA provides reports including cost analyses and financial predictions for organization managers. This information is usually very detailed (Chapman *et al.*, 2007). Furthermore, MA features the construction of accounting information systems and management information systems. It is considered as not only giving information to decision makers but also giving models and techniques to produce complex decisions. The role of MA expands into first providing relevant information for planning, control and decision-making and second, it plays majorly in the process of decision- and strategy- making, working closely with executive managers (Mohamed *et al.*, 2015).

According to Rufino (2014), MAPs are MA tools or techniques used in coining business decisions in each business activities of any organization, profit or non-profit. Every business organization must adopt MAPs regardless of the size, market and operation. Among these types of business operations, service, merchandising and manufacturing, and manufacturing business maximize the most advantages of management accounting because of their complex business activities and operations. Furthermore, MAPs are different across the countries, affected by each country's environment and organization.

Furthermore, MAPs are defined as various methods, procedures, processes or rules used in a particular field or profession, especially considered in manufacturing businesses, to support the organization's infrastructure and management accounting processes. Budgeting, performance evaluation, information for decision-making and strategic analyses are some of the methods used, among many others, in MAPs. In addition, MAPs help organizations stay in the competition and keep up with the changing world because they give an important competitive advantage for organizations to guide managerial action, motivate behaviors and support and create necessary cultural values to achieve their strategic objectives. MAPs are divided into traditional management accounting practices (TMAPs) and contemporary management accounting practices (CMAPs). TMAPs cover budgets, standard costing and variance analysis, cost volume profit analysis and performance measurement while CMAPs cover total quality management (TQM), value-based management (VBM), activity-based costing (ABC), nonfinancial performance measurement systems, activity-based management (ABM), balanced scorecard (BSC) and strategic management accounting (SMA) (Ahmad, 2012; Ittner and Larcker, 2002; Preda and Watts, 2004; Scapens, 2006; Sulaiman *et al.*, 2004).

Business environment and technological advancement complexity intensify the urge for management accounting information that meets global competition. Therefore, contemporary management accounting practices emerged to level modern business developments. Previous studies found that conclusions about the use of MAPs in different countries are difficult to draw, given the range of industries and variations in companies' complexity across the studies. The main findings are that companies continue to rely more on TMAPs rather than on CMAPs (Armitage *et al.*, 2015; Hutaibat and Alhatabat, 2019; Mcllellan, 2014; Shahzadi *et al.*, 2018).

Hussein (2018) found that TMAPs are higher than CMAPs in Egyptian companies, regardless of the significant progress of CMAPs and the realization of Egyptian companies regarding its importance CMAPs. In addition, he also found that key barriers for CMAPs' implementation were the length of time it took to change the societal values and practices, the high degree of uncertainty avoidance and the high implementation cost.

3. The evolution of management accounting practices

In 1989, IFAC reported in its statement the scope and purposes of management accounting and the concepts which underpinned it (Table I). The statement was later revised into International Management Accounting Practice Statements, identifying MAPs' evolution.

First, IFAC considered MA before 1950 as "a technical activity necessary for pursuing organizational objectives". In this stage, the focus was on cost determination and financial control.

Second, IFAC identified MA by 1965 as "a management activity, but in a staff role". In this stage the focus was to provide the information for management planning and control.

Third, IFAC identified MA in 1985 as management and production techniques, as well as cost control, frequently done through "reduction of waste resources and usage in business processes". In this stage, mathematical formulas, e.g. TQM, EOQ, LIFO and FIFO, MRP and multiple regression were used.

Fourth, IFAC identified MA in 1995 as focusing on the effective use of resources through technological practices which examine the drivers of customer value, shareholders value and organizational innovation for value creation. Here ABC, JIT, target costing, balanced scorecard, value chain analysis and strategic management accounting were used.

This study uses those stages to discover the use and benefit of MAPs in Libyan oil companies. The following table shows the items of MAPs used in this study.

No	Variables of MAPs use
<i>The first stage of MAPs 1950</i>	
MAPs.1	Full (absorption) costing
MAPs.2	Budgeting systems for planning financial position and cash flows
MAPs.3	Product profitability analysis
MAPs.4	Budgeting systems for day-to-day operations
MAPs.5	Variable costing
MAPs.6	Budgeting systems for co-ordinating activities across the business units
<i>The second stage of MAPs 1965</i>	
MAPs.7	Cost-volume-profit/breakeven analysis
MAPs.8	Cash flow return on investment
MAPs.9	Return on investment (ROI)
MAPs.10	Controllable profit
MAPs.11	Capital budgeting techniques
MAPs.12	Divisional profit
MAPs.13	Standard costs and variance analysis
MAPs.14	Residual income
<i>The third stage of MAPs 1985</i>	
MAPs.15	Long-range forecasting
MAPs.16	Customer satisfaction surveys
MAPs.17	Total quality management
MAPs.18	Quality cost reporting
<i>The fourth stage of MAPs 1995</i>	
MAPs.19	Target costing
MAPs.20	Life-cycle costing
MAPs.21	Activity-based costing (ABC)
MAPs.22	Activity-based management (ABM)
MAPs.23	Just-in-time (JIT)
MAPs.24	Balanced scorecard (BSC)

Source(s): Ahmad and Leftesi (2014)

Table I.
Evolution of
management
accounting practices

4. Libyan context

The National Oil Corporation (NOC) is the national oil company of Libya. It dominates Libya's oil industry. Along with a number of subsidiaries, it produces around 70 percent of the country's oil. Libya is a member of the Organization of Petroleum Exporting Countries (OPEC), having the largest proven oil reserves in Africa. Libyan government dominates the economy by controlling oil resources, which contribute around 95 percent of export earnings, 75 percent of government income and over 50 percent of gross domestic product (GDP), i.e. USD 50.98 billion in 2017 (National Oil Corporation, 2017).

Oil and gas production is carried out by oil companies listed under NOC and licensed by IOCs through special participation and PSAs in both onshore and offshore areas. Thus, Libyan oil companies (fully owned and joint ventures) under NOC (Table II) are targeted as the sample of this research.

5. Empirical studies

Many studies found that the use of MA is similar, and at the same time it is different between the countries. Take Japanese and US companies as examples. They use direct (variable) costing and full (absorption) costing, but Japanese firms use process costing more to accumulate product costs. The use of capital budgeting decision models was one of the biggest reported differences between them. US firms commonly use net present value and internal rate of return – the discounted cash flow models. In contrast, Japanese firms use pay back more as the primary model (Chow *et al.*, 1992; Chow *et al.*, 1988).

Joshi (2001) found that Indian manufacturing and service sector use more budgeting and performance evaluation as traditional MAPs compared to contemporary techniques. In addition, El-Ebaishi *et al.* (2003) found that Saudi manufacturing firms perceive that traditional management accounting techniques are important, and they heavily use them. However, ABC and JIT were only used by several firms, as found in modern states.

Nimtrakoon (2009) found similarity between the results of studies conducted in Thailand, Singapore and India that budgeting, planning and performance evaluation practices in

Fully owned

1	Sirte oil company
2	Arabian gulf oil company
3	Ras Lanuf oil and gas processing company
4	Zawia oil refining company
5	Brega petroleum marketing company
6	National oil wells drilling and work over company
7	Jowfe oil technology company
8	National oil fields and terminals catering company
9	North Africa geophysical exploration company
10	Taknia Libya engineering company
11	Petro air company

Joint ventures

1	Zueitina oil company
2	Mellita oil and gas company
3	WAHA oil company
4	Mabruk oil operation company
5	Harouge oil operation company
6	Akakus oil operation company
7	Nafusah oil operation company

Table II.
National oil
corporation

Source(s): National Oil Corporation of Libya (2019)

manufacturing and service companies were high and that target costing, product life cycle analysis and zero-based budgeting (ZBB) were rarely used. Furthermore, [Ahmad \(2012\)](#); [Ahmad and Zabri \(2012\)](#); [Leftesi \(2008\)](#) agreed that traditional management accounting techniques in China, Singapore, India and Malaysia are more popular than the contemporary ones, probably due to unfamiliarity with the new techniques, low human resource or more importantly, poor top management support.

[Waweru et al. \(2004\)](#) found that considerable changes in management accounting systems occur in four African retail companies, where the use of contemporary MAPs, particularly activity-based cost and balanced scorecard (BSC), to measure performance is increasing.

[Hyvonen \(2007\)](#) found, in Finnish manufacturing company context, the future development intention regarding MAPs. [Islam and Kantor \(2005\)](#) found that the application of national culture and values by Chinese companies affects the outcome information dissemination and MAPs' development efforts and that Western MAPs' misunderstanding decelerates Chinese MAPs development. [Hutaibat \(2005\)](#) investigated MAPs in Jordan industrial companies and found that firms still focus more on traditional MAPs rather than on modern and new MAPs.

[Abdel-kader and Luther \(2006\)](#), through a survey on MAPs in the UK food and drinks industry, found that traditional management accounting, including cost of quality-related information, employee-related nonfinancial strategy and competitors' strengths and weaknesses analyses is still used in UK food and drinks industry. Nevertheless, gaps between textbook practices and actual practices were found.

[Wu, Boateng, and Drury \(2007\)](#) stated that ownership types, i.e. joint ventures and state-owned, influences MAPs' adoption, that target budgeting and costing works better for state-owned enterprise than joint ventures and that responsibility accounting and decision-making accounting are better for joint ventures than for state-owned enterprises.

[Frezatti \(2007\)](#), who conducted a survey on MAPs in Brazilian medium and large manufacturing and nonmanufacturing companies, found that the adoption is lower for recent MAPs (e.g. ABC, BSC in full and EVA). [Leftesi \(2008\)](#) found that traditional MAPs are used more in Libyan firms due to the low support for Libyan firm development and the absence of new technology system adoption. However, misunderstanding and limited knowledge make Libyan firms focus on traditional MAPs. However, the results are consistent with the findings of previous studies.

[Nimtrakoon and Tayles \(2010\)](#) confirmed the popularity and the benefit of traditional MAPs in Thailand, revealing the low adoption and benefit of the counterpart.

[Ahmad and Mohamed Zabri \(2015\)](#) identified four variables associated with the use of MAPs. The contingency factors were measured using firm size, market competition intensity, firm owners'/directors' commitment and manufacturing technology advancement. Furthermore, strategic management accounting (SMA), decision support system, budgeting system, performance evaluation system and costing system as the five types of MAPs were used as the dependent variables.

6. Research methodology

This exploratory study is based on the fact that the evolution stage and the practice of management accounting are not much studied, particularly in Libyan context (e.g. [Ahmad and Leftesi, 2014](#); [Alkizza and Akbar, 2007](#)). A number of 224 identical questionnaires were distributed to Libyan oil companies under the National Oil Corporation (NOC), from which 93.75 percent is useable. Based on [Saunders et al. \(2007\)](#), the response rate of this study is very satisfactory.

The 24 MAPs items in the questionnaire were developed based on [Ahmad and Leftesi \(2014\)](#); [Chenhall and Langfield-Smith \(1998\)](#); [Joshi \(2001\)](#) and [Luther and Longden \(2001\)](#).

The MAPs are arranged according to IFAC-Based Model. The respondents were asked to indicate two areas. The first area is the use of MAPs; 1 for not considered and 5 for currently used. The second is MAPs benefit, 1 for not beneficial and 5 for very beneficial.

7. Survey results and discussion

7.1 *The interpretation of validity and reliability test*

The accuracy of the hypothesis testing on the relationship between research variables depends on the quality of the data used in the test. Therefore, before testing the hypothesis, the validity and the reliability of the research instrument must be tested. Research instruments are said to be valid if the coefficient correlation has the significance value (p) of smaller than alpha 0.05 (Sugiyono, 2003), and they are said to be reliable if their reliability coefficient is 0.6 or higher (Arikunto, 2002).

The number of items for MAPs usage and the number of items for MAPs benefit, developed by the researcher, are the same. For MAPs usage, items 1, 2, 4, 6 and 12 are invalid because their significance values are greater than alpha 0.05, while other items are valid. Regarding MAPs benefit, the significance value of all items is smaller than alpha 0.05, so the items are valid. Thus, the said valid items can be used in further testing.

Coefficient of reliability is calculated using formula and then interpreted by referring to the reliability criteria proposed by Arikunto (2002), in which the reliability criteria for group performance is considered adequate if the coefficient of Alpha is between 0.60 and 0.70.

7.2 *Profile of respondents*

Respondents' profiles were collected to gain an overall information about the respondents. Most of the respondents are men, and the considerably smaller number consists of women. This ratio is consistent with Libyan – Arabic in general – culture regarding managerial and decision-making positions, where males dominate managerial positions and professional jobs such as accounting. This finding is consistent with the studies of [Abugalia, 2011](#); [Alkisher, 2013](#) and [Leftesi, 2008](#). In addition, Libyan oil companies are greater in number than nonLibyan oil companies. This information is helpful for understanding the background of the respondents and for providing data for further statistical analysis.

The data show that most employees of Libyan oil companies are youths of 30–40 years of age. The companies targeted youths in order to train them based on their need. The respondents hold different functions, so they provide many and different findings about the company, which are needed for the research. Furthermore, the data show that most respondents have more than six years of experience in their positions, suggesting that they are quite familiar with the content of the questionnaire. Most of them are employees in companies that have been operating for more than 15 years. As mentioned before, this information is very important for the fulfillment of the research objectives.

7.3 *Use of MAPs*

To identify the current use of MAPs in Libyan oil companies, the respondents were asked to indicate whether each of the 19 MAPs listed in the questionnaire was currently used. As shown in [Table III](#), all of the listed MAPs are used by the oil companies.

[Table III](#) indicates that Libyan oil companies have a relatively similar rate of MAPs usage. This finding is different from the result of previous studies that discussed MAPs in Libyan manufacturing companies. For instance, [Ahmad and Leftesi \(2014\)](#) found that Libyan manufacturing companies rely heavily on traditional management accounting techniques, while the adoption rates of recently developed or advanced tools were rather low and slow, similar to those in other developing countries.

Items	Not considered		Considered then rejected		Never hear of it		Under consideration		Currently used		TR	
	R	%	R	%	R	%	R	%	R	%	R	%
MAPs.3	54	25.7	0	0	35	16.7	30	14.3	89	42.4	208	99
MAPs.5	39	18.6	6	2.9	23	11	18	8.6	124	59	210	100
Stage 1	93	11.7	6	16.7	58	7.3	48	6	213	14.1		
MAPs.7	41	19.5	6	2.9	40	19	30	14.3	91	43.3	208	99
MAPs.8	58	27.6	0	0	42	20	24	11.4	86	41	210	100
MAPs.9	70	33.3	0	0	48	22.9	30	14.3	61	29	209	99.5
MAPs.10	49	23.3	0	0	47	22.4	54	25.7	58	27.6	208	99
MAPs.11	55	26.2	0	0	35	16.7	31	14.8	86	41	207	98.6
MAPs.13	40	19	7	3.3	43	20.4	39	18.6	74	35.2	203	96.7
MAPs.14	63	30	0	0	29	13.8	18	8.6	99	47.1	209	99.5
Stage 2	376	47.2	7	19.4	284	36	226	27.5	555	36.7		
MAPs.15	23	11	0	0	60	28.6	34	16.2	93	44.3	210	100
MAPs.16	101	48	23	11	47	22.4	6	2.9	33	15.7	210	100
MAPs.17	12	5.7	0	0	25	12	46	22	127	60.5	210	100
MAPs.18	12	5.7	0	0	29	13.8	47	22.4	120	57.1	208	99
Stage 3	148	18.6	23	63.9	161	20.3	133	16.2	373	24.7		
MAPs.19	17	8	0	0	43	20.4	41	19.5	108	51.4	209	99.5
MAPs.20	17	8	0	0	44	21	72	34.3	74	35.2	207	98.6
MAPs.21	42	20	0	0	35	16.7	76	36.2	56	26.7	209	99.5
MAPs.22	35	16.7	0	0	41	19.5	89	42.4	45	21.4	210	100
MAPs.23	43	20.4	0	0	57	27.1	65	31	44	21	209	99.5
MAPs.24	25	12	0	0	68	32.3	71	33.8	44	21	208	99
Stage 4	179	22.5	0	0	288	36.4	414	50.4	371	24.5		
Total	796	20	36	1	791	20	821	20.8	1,512	38.2	3,956	

Table III.
Total
respondents
(TR) = 210

Table III shows that higher use of MAPs is located in the third stage; it includes advanced practices such as TQM (60.5 percent). Third stage means the reduction of resource waste in business processes. Customer satisfaction surveys have the lowest rate in the third stage, by 15.7 percent. Furthermore, the following use of MAPs is located in the first stage; it is variable costing (59 percent). First stage means cost determination and financial control. The second stage, information for management planning and control, has the highest rate (36.7 percent) compared to all other total stages.

The adoption rate of traditional management accounting practices in Indian large- and medium-size manufacturing companies was higher than that of recently developed techniques, and the adoption rate for the newly developed techniques was rather slow. Most of the adopted practices are related to traditional budgeting and performance evaluation systems (Joshi, 2001). Abdel Al and McLellan (2011) found that Egyptian manufacturing organizations still retain and believe in the benefits of using traditional management accounting practices as they fit well with managing in an unstable economy. Their results also show that Egyptian managers have started recognizing the benefits of some of the more advanced management accounting practices.

Concerning the use of MAPs, the finding of this study finds is different from that of (Ahmad and Leftesi, 2014) because this study focuses on Libyan oil companies, while the study of Ahmad and Leftesi focuses on local companies (i.e. Libyan manufacturing companies). This

Items	No benefit		Little benefit		Medium benefit		Great benefit		Very great benefit		TR	
	R	%	R	%	R	%	R	%	R	%	R	%
MAPs.1	24	11.4	12	5.7	59	28	88	42	27	12.9	210	100
MAPs.2	12	5.7	48	22.9	71	33.9	68	32.4	11	5.2	210	100
MAPs.3	36	17.1	46	22	59	28	59	28	8	3.8	208	99
MAPs.4	18	8.6	44	21	40	19	89	42.4	12	5.7	203	96.7
MAPs.5	44	21	53	25.2	59	28	31	14.8	21	10	208	99
MAPs.6	17	8	59	28	76	36.2	52	24.8	5	2.4	209	99.5
Stage 1	151	15	262	30	364	31	387	33.8	84	10.8		
MAPs.7	34	16.2	35	16.7	48	22.9	64	30.5	22	10.5	203	96.7
MAPs.8	58	27.6	30	14.3	49	23.3	53	25.2	17	8	207	98.5
MAPs.9	58	27.6	24	11.4	87	41.4	12	5.7	28	13.3	209	99.5
MAPs.10	70	33.3	44	21	44	21	29	13.8	17	8	204	97.1
MAPs.11	59	28	17	8	42	20	66	31.4	23	11	207	98.5
MAPs.12	59	28	52	24.8	69	32.9	6	2.9	17	8	203	96.7
MAPs.13	47	22.4	53	25.2	58	27.6	40	19	11	5.2	209	99.5
MAPs.14	64	30.5	61	29	42	20	33	15.7	6	2.9	206	98
Stage 2	449	44.9	316	36.2	439	37.5	303	26.4	141	18.1		
MAPs.15	29	13.8	34	16.2	40	19	41	19.5	64	30.5	208	99
MAPs.16	53	25.2	65	31	51	24.3	18	8.6	23	11	210	100
MAPs.17	6	2.9	35	16.7	40	19	53	25.2	74	35.2	208	99
MAPs.18	36	17.2	21	10	17	8	53	25.2	80	38	207	98.5
Stage 3	124	12.4	155	17.8	148	12.6	165	14.4	241	31		
MAPs.19	30	14.3	32	15.2	43	20.5	54	25.7	45	21.4	204	97.1
MAPs.20	40	19	25	12	41	19.5	51	24.3	52	24.8	209	99.5
MAPs.21	35	16.7	38	18	46	22	35	16.7	50	23.8	204	97.1
MAPs.22	53	25.2	17	8	35	16.7	47	22.4	57	27.1	209	99.5
MAPs.23	65	31	16	7.6	24	11.4	39	18.5	64	30.5	208	99
MAPs.24	54	25.7	12	5.7	32	15.2	65	31	45	21.4	208	99
Stage 4	277	27.7	140	16	221	18.9	291	25.4	313	40.1		
Total	1,001		873		1,172		1,146		779			

Table IV.

study also found that even though most of their employees are Libyan, Libyan oil companies as foreign companies use their own MAPs (developed or advanced tools).

7.4 Benefit of MAPs

To identify the current benefit of MAPs in Libyan oil companies, the respondents were asked to indicate whether each of the 24 MAPs listed in the questionnaire was currently beneficial, as shown in [Table IV](#) that oil companies are benefited by all MAPs.

[Table IV](#) indicates that the respondents have different knowledge about the benefit of MAPs. This study found that the benefit of traditional MAPs is lower than the benefit of CMAPs. According to the researcher's knowledge, there is no previous study focusing on the benefit of MAPs in either Libyan manufacturing companies or Libyan oil companies.

[Table IV](#) shows that the very great benefit of MAPs is located in the third stage; it is quality cost reporting (38 percent). Third stage means reduction of resource waste in business processes. Budgeting systems for planning financial position and cash flows have the lowest rate in the first stage, by 5.2 percent. The first stage means cost determination and financial control.

The highest total rate of very great benefit of MAPs is found in the fourth stage, by 40.1 percent. Fourth stage means creation of value through effective resources usage. The lowest total rate of very great benefit of MAPs is in the first stage, by 10.8 percent.

Most of the respondents are Libyans, and they do not have enough knowledge about CMAPs. According to [Kalifa et al. \(2016\)](#), Libyan accounting education still focuses on traditional accounting and does not have modern resources such as textbooks and courses. [Table IV](#) shows the highest rate of unknown respondents about CMAPs, with the total rate of 36.4 percent in the fourth stage and of 36 percent in the second stage. The highest total rates of great and very great benefit of MAPs are 25.4 percent and 40.1 percent, sequentially CMAPs in the fourth stage.

8. Conclusion

The primary focus of this research is examining MAPs in Libyan oil companies, both fully owned and joint ventures, that were listed under the National Oil Corporation of Libya. Questionnaires were distributed to financial managers, heads of cost department, financial accountants, department of management accounting employees, managerial accountants and auditors in those companies. A total 224 of questionnaires were returned, and 210 of them were used in this research.

The research found that Libyan oil companies use more TMAPs than CMAPs. This study concluded that different MAPs are used by Libyan companies. While previous study shows that Libyan manufacturing companies use TMAPs, Libyan oil companies use CMAPs even though their employees are mostly Libyans. Furthermore, the results indicate a significant progress to consider the implementation and the use of CMAPs. In addition, this study found that CMAPs are more beneficial than traditional MAPs although the respondents do not have enough knowledge about CMAPs.

Finally, no research is perfect. Applying survey method poses some limitations. [Scapens \(2006\)](#) pointed out that the personalities and backgrounds of key individuals can affect the choice of management accounting practices. Future research can apply interviews and cross-country comparisons to provide rich information. Furthermore, a study on the impact of the usage and benefit of MAPs on companies can enrich future research.

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