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The Relationship between the Levels of Deployment of New Management Accounting Practices and the Levels of Application of Innovative Managerial Practices in Egyptian and Saudi firms

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Abstract

This is a working paper aiming at exploring the relationships among levels of deployment of contemporary management accounting practices (CMAPs) and levels of application of innovative managerial practices (IMPs) in Egyptian and Saudi manufacturing firms. Two main questions are addressed. First, what are the state- of - the art levels of deployment / application of CMAPs and IMPs in Egyptian and Saudi manufacturing firms. Second, whether there are significant correlations between the levels of deployment of CMAPs and the levels of application of IMPs in the surveyed firms.

The paper discusses, briefly, the CMAPs and IMPs relationship. It then presents summary statistics of research responses based on interviewing managers of 240 and 124 Egyptian and Saudi medium / large manufacturing firms, respectively, in mid 2005. Surveyed firms were randomly selected and belong to various industry sectors in both countries. These summary statistics cover levels of deployment / application of nine CMAPs and six IMPs in use in the surveyed firms. The paper also provides salient comparisons on levels of application of the above incorporated variables between the reported results and those reported in previous international studies.

1. Introduction

In order to be successful in today's world wide competitive environment, companies must be capable of manufacturing products of high quality at low cost and providing a first-class customer service (Kaplan, 1983 and Drury, 1990). Many companies have responded to these competitive demands by implementing innovative managerial practices (IMPs), and emphasising quality, delivery, innovation and flexibility to meet customer needs (Banker *et al.*, 1993).

The increasingly widespread deployment of IMPs alongside the growing application of altered work organisation techniques and management approaches are viewed by many as having considerable implications for management accounting (Bromwich and Bhimani, 1994 and LingSim and Killough, 1998). It is argued that management accounting is well placed to provide information to develop performance measures and that many accounting techniques have been prompted to enhance the way in which performance measures assist in the management of change (Nanni *et al.*, 1992; Shields & Young, 1992; Chenhall & Langfield-Smith, 1998a and b; and Abdel-Maksoud *et al.*, 2005). These techniques incorporate the design of the balanced scorecard and performance measurement hierarchies (Kaplan & Norton, 1992; Nanni *et al.*, 1992; and Chenhall & Langfield-Smith, 1998a and b).

Following this view, this study investigates whether the deployment of contemporary management accounting techniques (CMAPs) is associated with the levels of application of IMPs in manufacturing firms in Arab countries, especially Egypt and Kingdom of Saudi

Arabia[1]. This study incorporates two main objectives:

1- To highlight the levels of deployment/application of CMAPs and IMPs in Egyptian and Saudi manufacturing firms.
2- To examine whether the levels of deployment of CMAPs are associated with the levels of application of IMPs in Egyptian and Saudi manufacturing firms.

The paper comprises seven sections. A brief literature on the evolution of CMAPs and IMPs is reviewed in the next section. Section 3 presents the study objectives while Section 4 presents data collection. Section 5 provides some descriptive statistics derived from the raw data and some commentary on them (first objective). Section 6 reports results of analysing associations between the levels of deployment of the CMAPs and levels of application of the IMPs incorporated in the study (second objective). Study summary and conclusions are presented in last section.

2. *Literature Review*

A brief literature review of the innovative managerial practices and contemporary management accounting practices is presented hereafter. A detailed review is beyond the scope of this paper.

2.1 Innovative Managerial Practices (IMPs)

Various studies (e.g. Banker *et al.*, 1993; Drury *et al.*'s, 1993 and CIMA, 1993) have emphasised the use and performance consequences of management accounting practices in organisations adopting IMPs. Nearly all of these studies showed positive association between the emphasis placed on IMPs and management accounting practices in organisations, especially the provision of performance measures (Banker *et al.*, 1993; CIMA, 1993; Abernethy & Lillis, 1995; Perera *et al.*, 1997; and Abdel-Maksoud *et al.*, 2005).

Many commentators have suggested that management accounting practices need to be revised as a consequence of novel manufacturing work methods and advanced forms of technologies[2]. The adoption of IMPs is seen, for instance, to demand new accounting measures as it makes traditional accounting measures redundant. For instance, a company adopting JIT is likely to deploy novel measures of stock levels and delivery performance (CIMA, 1993). Also, the adoption of a TQM philosophy might be matched with an enhanced level of quality tracking (CIMA, 1993). Accordingly, commentators argue that there is a need for new types of management accounting practices, especially performance measures, in an IMPs environment[3].

2.2 Contemporary management accounting practices

It is argued that management accounting aims at assisting managers and influencing their behaviour in a way that results in a goal congruent action (Anthony, 1989). Traditional management accounting approaches have been criticised for their failure to achieve this goal. For instance, the deployment of IMPs is claimed to have considerable implications for management accounting (Campbell and Porcano, 1979; Bromwich and Bhimani,

[1] The choice of these two countries amongst other Arab countries was solely based on the availability of funding and access to information.

[2] Banker *et al.*, 1993; CIMA, 1993; Kaplan, 1993; Bruggeman and Slagmulder, 1995; Drury and Tayles, 1995; Ittner and Larcker, 1995; Otley, 1997; Chenhall and Langfield-Smith, 1998a and b, Jazayeri and Hopper, 1999; and Abdel-Maksoud *et al.*, 2005).

[3] Kaplan and Norton, 1992; Banker *et al.*, 1993; Bromwich and Bhimani, 1994; Bruggeman and Slagmulder, 1995; Ittner and Larcker, 1995; Chenhall, 1997; Otley, 1997; and Kaplan and Atkinson, 1998.

1994 and LingSim and Killough, 1998). It was, however, argued that despite the considerable amount of publicity to the apparent limitations of traditional cost systems and the need for changing management accounting systems, many firms have been reluctant to such change (Drury and Tayles, 1995). Findings reported in surveys in the U.K. (Abdel-Kader and Luther, 2006), USA (Cohen and Paquette, 1991; Emore and Ness, 1991 and Green and Amenkhienan, 1992), and Sweden (Ask and Ax, 1992) augment such view.

For example, Green and Amenkhienan (1992) state that there is still a significant lag between innovations in manufacturing and innovations in management accounting. Green and Amenkhienan (1992) argue that while changes are taking place, firms continue, to a large extent, to rely on 'outmoded accounting methods'. In addition, Ask and Ax (1992) state that there is little evidence that advanced (or contemporary) management accounting practices have been adopted by the surveyed companies. This, however, could be related to the considerable burden placed on the management accounting function arising from meeting the day-to-day operations (Drury *et al.*,1993). But, this constraint could be removed by investing additional resources for designing and operating improved systems (Drury and Tayles, 1995).

The increasing level of global competition intensified the challenges for managers in adapting their management accounting practices to meet changing needs[4]. Accordingly, it is argue that changes in management accounting systems are synchronised with changes in technologies (Murphy and Braund, 1990; Nanni *et al.*, 1992; Bhimani, 1993 and 1994; and Bromwich and Bhimani, 1994).

In response, many of the so called CMAPs now consist of both financial and non-financial information and take an explicitly strategic focus (Chenhall 1997 and Ittner et al., 2003). This can be seen, for instance, in the use of the Balanced Scorecard, activity-based techniques, and benchmarking techniques (Kaplan and Norton, 1992; Bromwich and Bhimani, 1994; Kaplan and Norton, 1996 and Chenhall, 1997) and many international surveys do indicate that there is increasing emphasis on the implementation of significant changes in management accounting systems[5].

In the U.K., for instance, there is evidence showing that management accounting has adapted to some of its challenges (Murphy and Braund, 1990). Bromwich and Bhimani (1994) indicate that there is ample evidence in UK that the availability and uptake of IMPs are associated with a level of change in accounting practices in UK companies. In Australia, Chenhall and Langfield-Smith (1998a) surveyed 140 large Australian companies to find whether they had adopted certain management accounting practices and then, for those who had adopted the practices, to assess the benefits gained over the past three years. The survey shows high adoption of benchmarking of operational processes, strategic priorities and management processes (Chenhall and Langfield-Smith, 1998a). In conclusion, commentators support the view that implementing CMAPs is pervasive.

One objective of this study is to get an insight on possible associations between

[4] Nanni *et al.*, 1992; Bromwich and Bhimani, 1994; and Ittner et al., 2003.

[5] Murphy and Braund, 1989; Cohen and Paquette, 1991; Davis and Sweeting, 1991a and b; Emore and Ness, 1991; Ask and Ax, 1992; Bright *et al.*, 1992; Green and Amenkhienam, 1992; CIMA, 1993 and Chenhall and Langfireld-Smith, 1998a and b.

levels of deployment / application of CMAPs and IMPs in manufacturing firms in Arab countries, especially Egypt and Saudi Arabia.

The study objectives and data collection are presented in the following two sections.

3. Study objectives

This study incorporates two objectives:

1. To highlight the levels of deployment/application of CMAPs and IMPs in Egyptian and Saudi manufacturing firms.
2. To examine whether the levels of deployment of CMAPs are associated with the levels of application of IMPs in Egyptian and Saudi manufacturing firms.

The study incorporates nine CMAPs and six IMs, these are as follows:

The nine CMAPs are:

1. Benchmarking performance (BP) (Y_1)
2. Strategic management accounting (SMA) (Y_2)
3. Customer profitability analysis (CPA) (Y_3)
4. Activity-based costing (ABC) (Y_4)
5. Activity-based management (ABM) (Y_5)
6. Activity-based budgeting (ABB) (Y_6)
7. Balanced scorecard (BSC) (Y_7)
8. Economic value added (EVA) (Y_8)
9. Throughput accounting (TA) (Y_9)

The six IMPs are:

1. MRPI/ II (X_1)
2. Enterprise requirement planning (ERP) (X_2)
3. Total quality management (TQM) (X_3)
4. Total preventive maintenance (TPM) (X_4)
5. Just-in-time production (JIT) (X_5)
6. Optimised production technology (OPT) (X_6)

4. Data collection

This study was funded by University of Sharjah, United Arab Emirates, and King Abdulaziz University, Kingdom of Saudi Arabia. The research population was confined to Egyptian and Saudi medium (employing up to 500 employees) and large (employing more than 500 employees) manufacturing firms belonging to four industry sectors in both countries. These are: manufacturing of chemicals, petroleum, Coal, rubber and plastic products; manufacturing of fabricated metal products; manufacturing of basic metal and non-metallic mineral products; and manufacturing of food products.

In Egypt, data was collected from manufacturing firms operating in the three biggest industrial areas in Egypt: Tenth of Ramadan, Sixth of October, and Burj El-Arab. 240 managers of randomly selected firms were interviewed in April –May 2005. On the other hand, in KSA, data was collected from manufacturing firms operating in three high density industrial regions: Makkah, Riyadh and the Eastern Region. 124 managers of randomly selected firms were interviewed in June-July 2005.

Structured interviews (using structured questionnaire forms) were carried out by trained research assistants. The questionnaire form included questions on the levels of deployment of nine CMAPs and six IMPs in use in the surveyed firms. The distribution of respondents according to the industry sector they belong to is represented in Table (1).

Table (1): Distribution of respondents according to the industry sector that they belong to

Industry code	Egyptian surveyed firms		Saudi surveyed firms	
	No. of firms	% of firms	No. of firms	% of firms
1. Mfg of chemicals, petroleum, Coal, rubber and plastic products	55	22.9	43	34.7
2. Mfg of fabricated metal products	52	21.7	37	29.9
3. Mfg of basic metal and non-metallic mineral products	83	34.6	24	19.3
4. Mfg of food products	50	20.8	20	16.1
Total	**240**	**100**	**124**	**100**

In assessing the reliability of the measurement of questions related to the variables incorporated in this study, Cronbach's alpha was calculated (using SPSS 14) for respondents' answers for questions related to the level of deployment of CMAPs and IMPs. Results are presented in Table (2).

Table (2). Results of reliability test

Variables	No. of items		N		Cronbach's Alfa	
	Egypt	Saudi	Egypt	Saudi	Egypt	Saudi
CMAPs	9	9	240	124	.799	.514
IMPs	6	6	240	124	.794	.777

One can conclude that variables included are reliable. In addition, the validity of the variables under study was reviewed in the piloting stages. Details on variable measurements and descriptive statistics are presented hereafter.

5. Descriptive analysis of responses

The majority of the Egyptian respondents (90.4%) represent medium-size manufacturing firms (i.e. employing up to 500) while only 9.6% represent large manufacturing firms (i.e. more than 500 employees). The majority of the Saudi respondents (96.8%) represent medium-size manufacturing firms, while only 3.2% represent large manufacturing firms. Table 3 represents the distribution of respondents according to their workforce size.

Table (3). Distribution of respondents according to workforce size

No. of employees	Egyptian firms		Saudi firms	
	Frequency	Percentage	Frequency	Percentage
≤ 500 (Medium firms)	217	90.4	120	96.8
> 500 (Large firms)	23	9.6	4	3.2
Total	**240**	**100**	**124**	**100**

The main conclusions of the analysis of the responses are presented hereafter[6]

[6] In presenting the study results in this section, all efforts were made to compare, where possible, the extant study results with other studies in Egypt and KSA. However, no similar studies on Egyptian and/or Saudi firms were reported or known to the researchers.

5.1 The levels of deployment of Contemporary Management Accounting Practices

Respondents were asked to indicate whether nine contemporary management accounting practices, if known to them, were (1) not applied, (2) partially applied or (3) systematically applied in their firms. The extent of some of these practices was examined similarly in previous studies (See, for instant, Murphy and Braund, 1990, Drury *et al.*, 1993, Dean and Snell, 1996, and Otley, 1999).

Tables 4 and 5 represent the distribution of Egyptian and Saudi respondents, respectively, according to the levels of deployment of the nine CMAPs surveyed in their firms.

Table (4). Distribution of responses concerning the level of deployment of contemporary management accounting practices in Egyptian manufacturing firm s

Management accounting practice	Mean (on the 1-3 scale)	Unknown	Percentage of respondents		
			1	2	3
Benchmarking of performance	2.38	18.8	9.2	32.0	40.0
Activity-based costing (ABC)	2.51	4.2	13.3	20.4	62.1
Activity-based management (ABM)	2.52	4.2	10.0	25.8	60.0
Activity-based budgeting (ABB)	2.49	4.6	13.3	22.5	59.6
Economic value added	2.37	9.6	15.8	25.0	49.6
Balanced scorecard	2.49	2.8	6.7	36.7	53.8
Strategic management accounting	2.49	4.1	12.5	23.8	59.6
Throughput accounting	2.64	4.1	8.8	16.7	70.4
Customer profitability analysis	2.41	9.5	16.3	21.3	52.9

(1 = not applied; 2 = partially applied; 3 = systematically applied)
N=240

Table (5). Distribution of responses concerning contemporary management accounting practices in Saudi manufacturing firm s

Management accounting practice	Mean (on the 1-3 scale)	Unknown	Percentage of respondents		
			1	2	3
Benchmarking of performance	٢,٦٢	1.4	3.5	29.9	65.3
Activity-based costing (ABC)	٢,٥٤	4.2	4.2	36.1	55.6
Activity-based management (ABM)	٢,٤٩	4.2	6.3	36.8	52.8
Activity-based budgeting (ABB)	٢,٤٢	0.7	4.9	47.2	47.2
Economic value added	٢,٣٢	1.4	15.3	36.8	46.5
Balanced scorecard	٢,٣٤	0.7	9.0	47.9	42.4
Strategic management accounting	٢,٤٦	0	4.2	45.8	50.0
Throughput accounting	٢,٤٦	2.1	4.9	43.1	50.0
Customer profitability analysis	٢,٣٩	6.3	13.9	29.2	50.7

(1 = not applied; 2 = partially applied; 3 = systematically applied)
N=124

Table (6). Recapitulation of the distribution of responses concerning levels of deployment of contemporary management accounting practices in Saudi manufacturing firm s

	% respondents who partially/systematically deploy CMAPs	
	Egypt	Saudi
Benchmarking of performance (BP)	72.0	95.2
Activity-based costing (ABC)	82.5	91.7
Activity-based management (ABM)	85.8	89.6
Activity-based budgeting (ABB)	82.1	94.4
Economic value added (EVA)	74.6	83.3
Balanced scorecard (BSC)	90.5	90.3
Strategic management accounting (SMA)	83.4	95.8
Throughput accounting (TA)	87.1	93.1
Customer profitability analysis (CPA)	74.2	79.9

Table 6 shows that Saudi firms seem to deploy CMAPs more extensively than their Egyptian peers (i.e six of the nine CMAPs are deployed by more than 90% of the surveyed Saudi firms). Moreover, it is interesting to see that BSC, is partially systematically deployed by 90% of the surveyed firms in both countries.

Results, however, show that most of the respondents, more than 70%, in the Egyptian and Saudi surveyed firms partially/systematically apply the nine CMAPs under study. Such deployment rates exceed deployment rates reported in other recent international surveys in other countries.

In Denmark, for instance, Israelsen *et al.* (1996) state that benchmarking is applied by 25.0% of their surveyed firms. With regards to ABC, Innes *et al.* (2000) report 17.5% application rate of ABC in UK firms and 20.3% of respondents who did not adopt ABC were considering implementing it. In USA, Hrisak (1996) found that 53% of survey respondents were using ABC. In Canada, an adoption rate of 14% was reported (Armitage and Nicholson, 1993). In NewZealand, Adler *et al.* (2000) survey reports 19.4% adoption rate. With regards to ABM and ABB, Bruggeman *et al.* (1996) report a 13.8% adoption rate, in Belgium, of ABM with 28.4% intending to adopt it, and 13.9% adoption rate of ABB with 58.6% planned adoption. Also, Drury and Tayles survey (2000) on UK firms indicates that 74% use CPA. Furthermore, a 39% deployment rate of BSC in UK FTSE 100 registered firms was reported (Tonge *et al.*, 2000).

The reader, though, is reminded that such discrepancies could be attributed to the passage of time and the increased adoption of these practices and technologies in Egyptian/Saudi firms in their pursuit to catch up with the international competition.

5.2 Level of Application of Innovative Management Practices (IMPs)

Respondents were asked to rank the levels of application of six IMPs on 7 point-scale, [1 (not at all), 4 (moderately), and 7 (extensively)] (See, for instance, Drury *et al.*, 1993 and Dean and Snell, 1996). Table 6 shows the distribution of respondents, Egyptian and Saudi, by their evaluation.

Table (7). Distribution of respondents' level of application of IMPs

IMPs	Egyptian firms (N=240)		Saudi firms (N=124)	
	Mean	% firms applying this practice	Mean	% firms applying this practice
MRPI/ II	6.2	92.1	3.92	٩٧,٢
Enterprise requirement planning (ERP)	5.5	90.0	3.98	٩٧,٩
Total quality management (TQM)	6.2	96.3	5.23	٩٩,٣
Total preventive maintenance (TPM)	5.9	96.7	3.49	٨٦,٨
Just-in-time production (JIT)	5.7	92.1	5.70	100
Optimised production technology (OPT)	5.5	90.0	3.80	٨٠,٥

(1= Not at all, 4= moderately, and 7= extensively)

It can be concluded, from Table 7, that Egyptian firms apply IMPs more extensively (Means > 6) than their Saudi peers. This seems inconsistent with previous results reported on the higher deployment rates of CMAPs in Saudi firms compared to their Egyptian peers. Results, interestingly, show that both TQM and JIT are applied extensively (highest Means in comparison to other IMPs) in the surveyed firms in both countries.

Table 7 shows that MRP I/II and TQM are employed in Egyptian manufacturing firms more extensively (highest mean) than the other IMPs. In addition, JIT seems to be employed in Saudi manufacturing firms more extensively than the other IMPs.

The application rates reported in this study, again, seem different than those reported in other recent international surveys in other countries. For instance, application rates of JIT in UK firms in the last decade have fluctuated, varying from 23.6% (Murphy and Braund, 1990) to 28.0% in 1993 (Drury *et al.*, 1993). Also, Davis and Sweeting (1991a and b) report 69.0% and 77.0% implementation rates of TQM and MRPI/ II respectively (Davis and Sweeting, 1991a and b). Such variances could be ascribed to the passage of time and the increased adoption of these practices and technologies in Egyptian/Saudi manufacturers in their endeavour to modernise.

Comment

The above section sheds light on responses received in this study. The acceptable reliability of the study data should be borne in mind as to augment the above reported results.

The next section examines whether there are associations between the levels of deployment of CMAPs and levels of application of IMPs in the surveyed Egyptian / Saudi manufacturing firms.

6. Testing for significant associations between levels of deployment of CMAPs and levels of application of AMTs

The second objective of this study was to examine for significant associations between the levels of deployment of the nine contemporary management accounting practices and the levels of application of the six IMPs in use the survyed Egyptian and Saudi firms. The nine CMAPs are as follows:

1. Benchmarking performance (BP) (Y_1)
2. Strategic management accounting (SMA) (Y_2)
3. Customer profitability analysis (CPA) (Y_3)
4. Activity-based costing (ABC) (Y_4)
5. Activity-based management (ABM) (Y_5)
6. Activity-based budgeting (ABB) (Y_6)
7. Balanced scorecard (BSC) (Y_7)
8. Economic value added (EVA) (Y_8)
9. Throughput accounting (TA) (Y_9)

The six IMPs are:

1. MRPI/ II (X_1)
2. Enterprise requirement planning (ERP) (X_2)
3. Total quality management (TQM) (X_3)
4. Total preventive maintenance (TPM) (X_4)
5. Just-in-time production (JIT) (X_5)
6. Optimised production technology (OPT) (X_6)

In order to examine the associations between the incorporated variables a non-parametric statistical test is applied. The data was primarily ordinal, thus Kendall's tau statistic test was applied

(De Vaus, 1996 and Cramer and Bryman, 2001). Two hypotheses are postulated in applying Kendall's tau statistic test, the first is the null hypothesis (H_0) that the levels of deployment of CMAPs in the surveyed firms are not associated with the levels of application of IMPs in the population, and the second is the alternative hypothesis (H_1), that they are associated. The null hypothesis H_0 (there is no significant correlation between the variables) will be rejected in favour of the alternative hypothesis H_1 (there is a significant correlation between the variables) when the probability associated with the occurrence under H_0 of any value (α) is equal to or less than (0.05) (Seigel, 1956).

There are nine sets of hypotheses in this study, these are as follows:

H_1 0: There is no association between $X_1 - X_6$ and the level of deployment of benchmarking performance (Y_1) in Egyptian / Saudi manufacturing firms[7].

H_1 1[8]: There is an association between $X_1 - X_6$ and the existence and importance of benchmarking performance (Y_1).

H_2: There is no association between $X_1 - X_6$ and the level of deployment of strategic management accounting (Y_2).

H_3: There is no association between $X_1 - X_6$ and the level of deployment of customer profitability analysis (Y_3).

H_4: There is no association between $X_1 - X_6$ and the level of deployment of activity-based costing (Y_4).

H_5: There is no association between $X_1 - X_6$ and the level of deployment of activity-based management (Y_5).

H_6: There is no association between $X_1 - X_6$ and the level of deployment of activity-based budgeting (Y_6).

H_7: There is no association between $X_1 - X_6$ and the level of deployment of balanced scorecard (Y_7).

H_8: There is no association between $X_1 - X_6$ and the level of deployment of economic value added (Y_8).

H_9: There is no association between $X_1 - X_6$ and the level of deployment of throughput accounting (Y_9).

Where:

X_1- X_6: the levels of application of the six IMPs incorporated in the study (i.e. MRP I/II, ERP, etc.)

SPSS (14) was used in applying Kendall's tau. Significant correlations are shown with asterisks in Tables 8 - 10. For brevity, the acceptance or rejection of the null hypotheses will depend on the reported correlations in Tables 9 and 10. A discussion of the reported associations is shown hereafter.

[7] "in Egyptian / Saudi manufacturing firms" applies hereafter but is omitted for brevity.

[8] From hereafter the alternative hypothesis will be assumed and not stated.

Table 8. Kendall's tau correlations between the levels of deployment of CMAPs (composite) and levels of application of IMPs (composite) in Egyptian manufacturing firms

	CMAPs (composite)	
	Egypt	Saudi
IMPs (composite)	0.477**	0.018

- **Significant at 99% level of significance (α= .01, 2-tailed).
- *Significant at 95% level of significance (α= .05, 2-tailed).

Table (8) shows that the levels of deployment of CMAPs seems to be highly significantly correlated with levels of application of IMPs in Egyptian firms but not in the Saudi ones. Further analysis at a disaggregate level was carried out where Tables 9 and 10 show correlations among the nine CMAPs and the six IMPs in Egyptian and Saudi firms respectively.

Table 9. Kendall's tau correlations between the levels of deployment of CMAPs and levels of application of IMPs in Egyptian manufacturing firms

IMPs	CMAPs								
	BP	SMA	CPA	ABC	ABM	ABB	BSC	EVA	TA
MRP I/II	-	-	.118*	.150**	.163**	-	.213**	.155**	.147*
ERP	.107*	.127*	.187**	.252**	.205**	.152**	.236**	.295**	.187**
TQM	.146**	.148*	.158**	.205**	.188**	.191**	.310**	.253**	.183**
TPM	.109*	.249**	.152**	.175**	.194**	.196**	.297**	.286**	.211**
JIT	.152**	.16**	.140*	.175**	.280**	.141*	.265**	.202**	.256**
OPT	.193**	.213**	.212**	.232**	.265**	.290**	.346**	.251**	.247**

- **Significant at 99% level of significance (α= .01, 2-tailed).
- *Significant at 95% level of significance (α= .05, 2-tailed).

Table 10. Kendall's tau correlations between the levels of deployment of CMAPs and levels of application of IMPs in Saudi manufacturing firms

IMPs	CMAPs								
	BP	SMA	CPA	ABC	ABM	ABB	BSC	EVA	TA
MRP I/II					.167*	.192**	-.142*		
ERP									
TQM								.170*	
TPM					.162*	.160*			
JIT	.188*	.176*	-.202**				.164*	.170*	
OPT								.195**	

- **Significant at 99% level of significance (α= .01, 2-tailed).
- *Significant at 95% level of significance (α= .05, 2-tailed).

It can be concluded, from the above results that the study alternate hypotheses, that levels of deployment of CMAPs are significantly associated with the levels of application of IMPs, are accepted in case of the Egyptian firms. This seems consistent with the extensive levels of application of IMPs reported on the Egyptian firms (See Section 5).

This, however, is reversed in case of the Saudi surveyed firms where most of the

null hypotheses, no significant associations, are accepted. This is interesting and merits further investigation and analysis as one would have expected to see many significant associations following the extensive deployment of CMAPs in the surveyed Saudi firms (See Section 5). One possible interpretation is that Saudi managers apply CMAPs as they learn about them or as evidence of modernising but they do not seem to be fully acquainted with their mechanisms. This conclusion is consistent with the view that companies introduce technology into 'islands of excellence' rather than comprehensively (See, Murphy and Braud, 1990).

7. Summary and conclusions

Two main questions were raised on the levels of deployment / application of contemporary management accounting practices (CMAPs) and innovative management accounting practices (IMPs) in Egyptian and Saudi manufacturing firms. First, what are the levels of deployment / application of CMAPs and IMPs in Egyptian and Saudi manufacturing firms. Second, whether there are significant correlations between the levels of deployment of CMAPs and the levels of application of IMPs in the surveyed firms. Interviews were carried out, in mid 2005, with 240 Egyptian managers and 124 Saudi managers of randomly selected medium / large manufacturing firms belonging to various industry sectors in both countries. A number of conclusions can be drawn from the interpretation of the study responses. These are as follows:

- Respondents tend to deploy all contemporary management accounting practices incorporated in this study. However, results show that CMAPs tend to be more extensively deployed in the surveyed Saudi firms than in Egyptian firms.
- Responses show that, Egyptian firms apply IMPs more extensively than their Saudi peers. This seems inconsistent with previous results reported on the higher deployment rates of CMAPs in Saudi firms compared to their Egyptian peers.
- Results, interestingly, show that both TQM and JIT are applied extensively (highest Means in comparison to other IMPs) in the surveyed firms in both countries.
- Testing for significant associations among levels of deployment of CMAPs and levels of application of IMPs shows significant correlations in case of the Egyptian firms but not the Saudi firms.

Results reported in this study merits further investigations and interpretations. It is recommended that further research studies on the reported discrepancies between the surveyed Egyptian and Saudi firms are investigated in light of possible influence that managers' perception of the importance of aspects of competition could exert on their decisions to deploy contemporary management accounting practices in manufacturing firms (See, for instance, Velayutham and Abdel-Maksoud, 2007)

Last, but not least, this study builds its importance on the fact that findings and conclusions reported in this study contribute, heavily, in enriching Egyptian and Saudi literature on contemporary management accounting practices.

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