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ROLE OF MANAGEMENT ACCOUNTANTS IN AUTOMOTIVE SUPPLY CHAIN MANAGEMENT

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ABSTRACT

This study examines the role of management accountants in the supply chain management (SCM) of an automobile manufacturer. A case study was conducted on an automobile manufacturing firm operating in Malaysia. Drawing from SCM and management accounting literature and the Institute of Management Accountants' statements on management accounting (SMAs), this study argues that despite recommendations from professional accounting bodies, the role of management accountants in SCM processes remains limited. However, management accountants are involved in the SCM of the case firm in one of four capacities: as a 'planner', 'evaluator', 'controller' and 'verifier'. The results of this study provides additional insights into the contribution of management accountants to SCM as practiced within automotive manufacturing firms in Malaysia. Thus, this research adds to the body of knowledge on the integration of management accounting with SCM. Furthermore, it provides an opportunity to obtain increased understanding of how such an integration could be leveraged to enhance firm performance.

Keywords: *supply chain management, role, management accountant, case study, Malaysia*

INTRODUCTION

In the 21st century, firms, particularly in the automotive industry, constantly respond to environmental changes to maintain their competitive advantage (Abdullah, Maharjan & Tatsuo, 2008). Local automotive firms at present face more challenges than before in maintaining their competitiveness as they strive to become serious competitors in global markets. The pursuit of competitiveness in the automotive industry relies largely on the ability of firms to achieve cost reduction, which in turn enables them to offer value-added products to consumers in terms of reduced prices without compromising quality. The Tenth Malaysia Plan of the Malaysian government recognises the importance of supply chain management (SCM) as a global competitive tool to achieve cost reduction. SCM focuses on increasing efficiency, reducing lead times, minimising inventory costs and maximising customer satisfaction, all of which aim to improve supply chain performance (Mentzer, DeWitt, Min, Nix, Smith & Zacharia, 2001; Ou, Liu, Hung & Yen, 2010; Stock, Boyer & Harmon, 2010).

A possible opportunity for the advancement of SCM as a global competitive weapon, but which remains largely neglected, is the potential contribution of management accounting (MA) in the implementation of SCM. SCM originated from the operations management and logistics discipline; however, recent development indicates an increasing amount of attention from MA researchers (Boute, Bruggeman & Vereecke, 2014; Pitingolo, 2012; Joyce, 2006; Cullen & Metcalf, 2006). Accordingly, management accountants are expected to offer significant contributions within the supply chain context (Chenhall, 2008). For example, Boute (2014) noted that management accountants are expected to provide managers relevant information regarding total supply chain activity costs which commonly include direct material, activity and driven overhead costs.

From a practitioner perspective, the Institute of Management Accountants (IMA) has developed a series of statements on management accounting (SMAs) to promote the organisation's official professional standing in MA. Among these statements are several SMAs that focus on the standards relevant for implementing an integrated SCM. Within these SMAs, the roles and potential contribution of management accountants in SCM implementation are clearly highlighted, particularly at the design, development and execution stages.

Nevertheless, despite concerns in the academia and the development of well-documented policies and standards that promote the active role of management accountants in SCM processes, the participation of management accountants in SCM processes remains low (see Alvarenga, 2014; Pitingolo, 2012; Chua & Mahama, 2007; Joyce, 2006; Ramos, 2004). In addition, empirical evidence on how the expertise of these management accountants is actually leveraged in practice is still limited. This gap implies that the nature of association between MA and SCM remains largely unexplored in literature. Hence, the need to examine further the potential roles of management accountants in facilitating SCM processes is evident. This research intends to close this gap by addressing the research question of how management accountants contribute to SCM processes, particularly within the Malaysian automobile manufacturing industry.

LITERATURE REVIEW

Supply Chain Management (SCM)

Globalisation causes organisations to operate in a more uncertain environment than that in the past. Efforts to mitigate uncertainties and enhance control over supply and distribution channels focus on SCM (Carter, Rogers & Choi, 2015; Borges, 2015; Boute, Bruggeman & Vereecke, 2014; Gunasekaran, Patel & McGaughey, 2004). Uncertainty factors, such as those related to product demand and supply, force organisations to collaborate with one another and result in the elaborate management of supply chains.

Numerous definitions of the supply chain concept are available in SCM literature. The basic supply chain concept is based on the premise that the products and services that reach the final customers result from the cumulative effort of multiple supply chain business members linked together in the provision of such goods (Lummus & Vokurka, 1999). Multiple supply chain business members typically consist of suppliers, manufacturers, warehouse facility providers, distributors, retailers and end customers (Boute, Bruggeman & Vereecke, 2014; Simchi-Levi, Kaminsky & Simchi-Levi, 2003). A contemporary view posits that a supply chain is a complex and adaptive network system (Carter, Rogers & Choi, 2015). SCM is expected to enhance customer value and satisfaction, which in turn leads

to enhanced competitiveness of the supply chain and each member firm. This relationship ultimately improves the profitability of the supply chain and its members (Mentzer, DeWitt, Min, Nix, Smith & Zacharia, 2001).

Interface of Supply Chain Management (SCM) and Management Accounting (MA)

Management accounting (MA) information serves as a potentially effective avenue to provide inter-organisational supply chains with information regarding efficiency and tasks performed as well as performance of managers and operating units (Ramos, 2004). Proponents of MA concur that the accounting profession, particularly by employing the various tools and techniques of MA approaches, offer significant contributions within the supply chain context (Alvarenga, 2014; Pitingolo, 2012; Chua & Mahama, 2007; Cullen, 2009). Specifically, management accountants are expected to play active roles in SCM, such as reporting and improving financial and non-financial performance management across the supply chain and using MA tools at different stages of the development of supply chain relationships (e.g. lifecycle costing, open-book accounting, target costing and quality costing) (Cullen & Metcalf, 2006). Cullen and Metcalf (2006) further suggested that supply chain accounting should include facilitating trust among collaborating organisations, modelling supply chains and logistic operations and facilitating capital investment decisions across the supply chain. This role is consistent with that proposed by Berry, Ahmed, Cullen, Dunlop, Seal, Johnston and Holmes (1997), who suggested that management accountants can contribute to SCM by being familiar with relevant tools and techniques for inter-firm relationships, such as value chain analysis. Value chain analysis provides management accountants appropriate tools to acquire information on value-adding activities across the entire chain, which in turn enables firms to achieve a competitive advantage (Berry, Ahmed, Cullen, Dunlop, Seal, Johnston & Holmes, 1997). Nevertheless, several findings from previous studies show scepticism with regard to the role of accounting information in strategic alliances formed by SC partners (see Chua & Mahama, 2007).

From a systemic point of view, Yasin, Bayes and Czuchry (2005) argued that the accounting sub-system within a firm should not be viewed in isolation from the other sub-systems, such as marketing and operations. A more open system view that integrates the accounting sub-system and others was proposed; the proposed view could result in a shift in the role of management accountants in firms. In particular, their study on quality orientation of firms suggests that the shift from transactional processing of accountants towards a strategic decision supportive role is warranted.

Role of Management Accountants in Supply Chain Management (SCM) Processes

The importance of the link between SCM and MA has been recognised by several professional bodies. For example, IMA in the US has issued a set of standards that delineate the roles and responsibilities of management accountants in supporting SCM processes. These standards comprise a series of SMAs to promote the organisation's official professional standing in MA. Through the effort of its Management Accounting Practices (MAP) Committee, IMA successfully promulgated the statements as authoritative statements to guide MA practices in terms of concepts, policies and recommended practices. Through the publication of these SMAs, the potential contributions of management accountants in providing relevant data to operational managers on SCM issues are provided.

Among the series of SMAs published by IMA, three are of particular importance in delineating the expected roles of management accountants within the SCM context. These SMAs consist of (1) SMA (1999) – Implementing Integrated Supply Chain Management for Competitive Advantage, (2) SMA (1999) – Tools and Techniques for Implementing Integrated Supply Chain Management and the more recent (3) SMA (2008) – Managing the Total Costs of Global Supply Chains. According to these SMAs, the expertise of management accountants can be leveraged in three stages, namely, design, development and execution of integrated SCM through several means. Table 1 presents these roles and responsibilities according to the three stages.

Table 1: Roles of Management Accountants in SCM

Stages of SCM	Description of Roles
Design	<ul style="list-style-type: none"> ● Creating or supporting the creation of an integrated supply chain management (ISCM) business case(s) as the need arises ● Supporting the design and development of effective, efficient integrated information systems ● Creating performance benchmarks, milestones and measures to support the development of the ISCM business case ● Supporting process redesign efforts focused on removing waste, reducing throughput time and increasing the flexibility and responsiveness of financial transactions across the supply chain ● Participating in the identification and implementation of new databases and information technology enablers for key supply chain transactions ● Creating management reporting and evaluation tools to ensure that the ISCM initiative meets its objectives and delivers the required performance improvements
Development	<ul style="list-style-type: none"> ● Developing 'virtual control' systems to safeguard the integrity of company and supply chain databases, transactions and flows ● Supporting the development of new forms of incentives and reward systems to encourage active participation and cooperation of individuals across the organisation in supply chain initiatives ● Developing new measurements, both financial and nonfinancial, to assess the degree of improvement of the supply chain ● Developing financial analyses of the costs and benefits of ISCM to participating firms

Stages of SCM	Description of Roles
Execution	<ul style="list-style-type: none"> ● Providing economic and nonfinancial evaluation of alternative improvement opportunities to facilitate the development of ISCM priorities ● Providing current estimates of supply chain costs and performance against defined customer expectations ● Providing management with timely reports that isolate current performance shortfalls ● Participating in analysing proposed changes to ensure that economic factors are realistically portrayed ● Providing analytical support to ISCM teams, including identifying and estimating the costs and benefits of various decisions throughout design, conversion and execution efforts ● Participating in natural systems to improve team efforts ● Ensuring the integrity of supporting databases, internal control procedures, key proprietary technologies, processes and physical and/or knowledge assets ● Examining existing transactional systems to identify ways to reduce the costs or delays that reduce customer value, including instituting changes to the accounts payable effort within the order-to-payment system ● Collaborating with finance and operation professionals in partnering organisations to identify creative ways to solve logistics and support problems

As shown in Table 1, the roles of management accountants in facilitating SCM processes, as suggested in the SMAs, cover all key areas of integrated SCM practices. During the design stage, the roles of management accountants focus more on creating and supporting design efforts, such as creating performance benchmarks, milestones and measures to support the development of integrated SCM. Management accountants also play a role in the development of integrated SCM practices by developing and supporting initiatives, such as developing financial analyses of the costs and benefits of SCM. Finally, management accountants contribute to the success of SCM practices during the execution stage, at which they are expected to provide relevant information to stakeholders. The information generated includes economic and nonfinancial evaluation of alternative SCM improvement opportunities, variance analyses and current estimates of supply chain costs and performance against defined expectations.

From the local perspective, the Malaysian Institute of Accountants (MIA) in conjunction with the International Federation of Accountants (IFAC) has also developed a series of statements on International Management Accounting Practices (IMAPs) as an effort to enhance the quality of MA practices. However, unlike the standards issued by IMA, appropriate guidance has yet to be implemented on the SCM issued by MIA.

Despite the expected roles of management accountants in facilitating SCM processes, practical applications remain limited. This gap could be due to the limitation of traditional accounting practices that fail to fulfil their supporting role in inter-organisational decisions (Bastl, Grubic, Templar, Harrison & Fan, 2010). The present study seeks to examine the role played by management accountants in facilitating SCM processes in automotive firms. In particular, the nature of their contribution and the underlying factors that affect the degree of their contribution are investigated.

RESEARCH METHODOLOGY

The present study utilised the qualitative methodology to address the research question. Strauss and Corbin (1998) defined qualitative research as ‘any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification’. In particular, a case study was conducted as a method of investigation. Yin (2003) defined a case study as ‘an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident’. Furthermore, he argued that this approach is appropriate when a ‘how’ or ‘why’ question is being asked about a contemporary set of events, over which the investigator has little or no control. Given that the nature of association between SCM and MA within the automotive industry is largely unexplored, the case study method is perceived as the most appropriate research strategy to be adopted.

The case study approach utilises the data triangulation technique which essentially aims to enhance the accuracy of the findings through the use of multiple sources of evidence. Denzin and Lincoln (2008) supported data triangulation by noting that ‘there is frequently a commitment to using more than one interpretive practice in any study’. In line with the

data triangulation technique, several methods, such as face-to-face semi-structured interviews, observations and extensive use of archival data, were utilised to address the research question. The research issues were mainly addressed by using semi-structured face-to-face interviews with key informants within relevant departments in the case company. The informants were personnel employed at the senior management and managerial levels who are expected to be involved in the MA function that relates to SCM processes. The main respondents for addressing the current research question consist of accountants from the Finance and Accounts Department. Non-accountants within the case firm were also interviewed to obtain additional insights into the potential contribution of management accountants in SCM processes. The views of non-accountants, such as logisticians, procurement personnel and engineers, are crucial because they comprise the majority of the employees involved in SCM in the case firm. Interviews were conducted by setting prior appointment with the relevant interviewees. The interview meetings were on an ad hoc basis as and when deemed appropriate. Before conducting the interviews, the respondents were promised confidentiality to elicit candid responses.

A semi-structured interview protocol was used as a guideline during the interviews. However, the respondents were allowed to develop their own explanations, and cues were taken from these responses for subsequent discussions and probes. The interviews lasted an average of one to one and a half hour per session. This duration is vital to ensure that a sufficient amount of time exists to develop prolonged engagement with the interviewee (Maykut & Morehouse, 1994). The data were recorded and subsequently transcribed. The other sources of evidence examined included public documentation, such as documents from the Internet-enabled company website, and annual reports. Qualitative data analysis was then conducted. This process begins with data reduction, followed by data display and formulation of conclusions (Miles & Huberman, 1994). The sampling procedure for the case studies is purposive sampling strategy, in which only a company exhibiting relatively significant SCM practices was selected as a case firm. This approach is consistent with that in prior studies, such as the research of Sohal, Power and Terziovski (2002).

FINDINGS

Case Firm Profile – ACE

The case company, ACE, is an automobile manufacturer established in the 1990s. ACE is a manufacturing subsidiary of a holding company that was incorporated as a joint venture involving several local and foreign Japanese companies. The focus of ACE is on producing small and affordable vehicles. At the time of this study, the authorised and paid up capital of the holding company to which the case firm relates were RM500 million and RM140 million, respectively. The company has over 10,000 employees. The head office and its manufacturing plant share a common land area covering 200 acres. This land area uses 60% of the entire 340 acres of land area. The sales and services business of the group is handled by its own sales and service subsidiaries. To date, ACE has 41 sales branches and 139 sales dealers that cover sales activities nationwide. Throughout Malaysia, the holding company has 46 service branches and 124 service dealers that deal with after-sales services. Apart from catering to the domestic car market, ACE also manufactures automobiles for export to seven countries, namely, the United Kingdom, Singapore, Brunei, Fiji, Nepal, Mauritius and Sri Lanka.

The manufacturing plant of ACE covers an area of 64,000 square meters and has the capacity to produce 250,000 units per annum on a two-shift cycle. The plant is equipped with manufacturing facilities that consist of various shops, namely, press, body, paint and assembly. Other facilities include logistic, training centre, quality audit, pre-delivery inspection (PDI), stockyard and parts warehousing. Although the holding company is a local firm, ACE is effectively controlled by its Japanese parents. This scenario implies that the case firm follows instructions and reports regularly to its Japanese parent companies.

Findings on the Role of Management Accountants in Supply Chain Management (SCM)

Evidence from ACE was used to examine the current research question of how management accountants contribute to SCM processes.

The discussion in this section is based on the expected role of management accountants in SCM processes proposed by the IMA's SMAs shown in Table 1. Case evidence from ACE was used to determine the extent to which management accountants fulfil these roles.

The case evidence revealed that the role of management accountants in ACE is broadly characterised into two functions, namely, financial and management accounting. As the custodian of financial accounting information, accountants are mainly concerned with the maintenance of accounting records, preparation of financial statements to fulfil statutory audit requirements, management of accounts receivable and accounts payable and management of the cash flow. From the MA perspective, accountants play an active role in management and decision making by providing relevant financial information to assist respective management levels.

For effective provision of accounting services within ACE, the Finance and Accounts Department is structured into the following four main sections.

1. General ledger section – preparation of all management accounts, including profit and loss accounts, and balance sheets
2. Accounts payable (and accounts receivable) section – preparation and processing of all payments
3. Product costing section
4. Treasury – management of the firm's cash flows and foreign exchange exposure

Apart from these functions, management accountants also play a supportive role in SCM under the corporate planning section. The corporate planning section is headed by a separate general manager and is particularly concerned with two sub-functions, namely, cost planning and cost management. The cost planning process involves the planning of product costs before any new model is mass produced, and cost management activities relate to ongoing improvement initiatives, such as operational improvement, kaizen and cost reduction.

Key Observations and Patterns of Involvement

The discussion on the role of management accountants in SCM processes at ACE is based on the four distinct categories of roles identified as follows:

1. Planner of strategic and operational SCM – ‘planner’
2. Advisor/evaluator of SCM projects/initiatives – ‘evaluator’
3. Controller of key internal operations – ‘controller’
4. Verifier of financial and non-financial accounting information – ‘verifier’

Management accountants are expected to participate actively in the design, development and execution stages of integrated SCM. Given this view, the case findings from ACE were used to discuss the involvement of management accountants in these stages. Table 2 summarises the key findings on the role of management accountants at ACE.

Table 2: Patterns of Management Accountants’ Involvement

Role	Capacity	Involvement
Design		No involvement
Development		No involvement
Execution	‘Planner’	<ul style="list-style-type: none"> ● Participates in business and product profit plans ● Provides accurate costing data during cost planning, such as involvement in target costing processes
	‘Evaluator’	<ul style="list-style-type: none"> ● Evaluates the proposed SCM improvement initiatives that require financial consideration by evaluating associated costs and benefits
	‘Controller’	<ul style="list-style-type: none"> ● Participates in key internal control activities by identifying variances in planned actions against actual results ● Prepares variance reports
	‘Verifier’	<ul style="list-style-type: none"> ● Verifies the financial implications of proposed SCM improvement initiatives ● Conducts detailed financial analysis during supplier assessment

As shown in Table 2, the management accountants at ACE have no direct involvement in the design and development stage of an integrated SCM because ACE employs the SCM framework that was adopted from the Toyota Production System (TPS). TPS serves as a main reference for most automotive firms not only in Japan but also in the entire world. As such, the framework of TPS is viewed as a universal SCM framework used by firms operating in the automotive industry, including ACE. Hence, very little contribution is expected from management accountants during the design and development phases of SCM within the case firm.

Involvement of Management Accountants at the Execution Stage of Supply Chain Management (SCM)

The case findings show that management accountants are involved in SCM processes at the execution level in their capacity as the ‘planner’, ‘evaluator’, ‘controller’ and ‘verifier’ of accounting information. The nature of their involvement under each capacity is presented in the following sections.

Management Accountants as ‘Planners’ of Supply Chain Management (SCM)

As indicated in Table 2, within SCM, the management accountants of ACE are largely involved as ‘planners’, particularly in the cost planning process. The cost planning process at ACE is concerned with formulating both the business profit plan and the product profit plan. The business profit plan is further sub-divided into long-term profit and annual profit plans. The long-term business profit plan typically covers a planning horizon of three to five years, whereas the annual profit plan estimates the annual profit after considering current business conditions. Individual profit plans for each product are derived from the annual profit plans. For example, profit is determined based on product types (compact and medium car groups) and specific car models. As ‘planners’, management accountants are frequently involved in the profit planning of ACE by providing relevant cost information to be incorporated into the profit plans. Apart from the formulation of profit plans, the cost planning process also represents a

crucial stage of the new product development stage of ACE. Specifically, management accountants are involved in the application of target costing for new car models to be produced. According to a manager in the Finance and Accounts Department,

The main function of cost planning is to plan the cost before any model goes into mass production. Before we roll out a new model, they will perform a study project whereby they have a certain target cost to achieve. When the actual operation takes off, the costing department (product costing section) within my department will conduct actual cost computation for the purpose of reporting.

The target costing process requires accurate cost information because it is critical to determining the competitive pricing for the company's products. Inaccurate cost planning could lead to inaccurate costing, which would adversely affect the profitability of the product. A manager of the cost planning section at ACE commented that

If the costing figures are incorrect, the new product costing will also be incorrect. Thus, the company cannot obtain profit. It is important for the figures to be correct, and these figures are collected by the [management] accountants.

Apart from the target costing techniques utilised in MA at ACE, management accountants are also involved in the other tools used for cost planning purposes, such as cost and value engineering.

Management Accountants as 'Evaluator' of Accounting Information

In ACE, management accountants act as 'evaluators' because they are frequently required to evaluate the costs and benefits of the proposed SCM improvement initiatives (Table 2). Within SCM processes at ACE, the case firm needs to decide on capital expenditures involving the purchase of new production equipment. Such purchase proposal requires top management approval, which is usually granted after a detailed analysis of the costs and benefits has been performed. A manager stated that

Any proposal that involves the supply chain, such as to fabricate a second link (mould) to overcome capacity problems, will be presented for approval in the monthly management committee meeting. If it is justified through the analysis of costs and benefits, the management will give its approval, and the project can proceed.

Therefore, the management accountants who are responsible for providing their evaluation of the costs and benefits act as an 'evaluator' of these decisions. These management accountants may challenge the financial figures presented by the proposer (the SC related personnel) on the justification of projected costs and revenue data.

Another example of the evaluative role of management accountants is evident in cost planning and cost management activities. While the cost planning process occurs at the research and development stage of a product, the cost management process involves cost control and cost improvement processes at the mass production stage. The cost control process involves the control of actual cost by comparing it with the standard costs derived at the cost planning stage. By contrast, cost improvement activities are concerned with the revision of existing standard costs followed by cost reduction activities based on the revised standard costs.

For effective cost management at ACE, each department within the case firm is required to improve continuously in terms of cost and expense reduction during the mass production stage. Each department is required to formulate specific action plans that are intended to reduce costs, particularly those at the operational level. These action plans are typically submitted by operational-level employees who basically have little background in accounting. Thus, most of the initiatives that they propose require evaluation from management accountants in terms of the projected financial implications of these cost reduction initiatives. An accounts manager commented that

They have the idea to do this and that. We just come in and tell them, "if you do this, this is going to be the result. This is going to be the savings or operational cost." That's how we help them.

Management Accountants as ‘Controller’ of Key Internal Control Activities

From the control perspective, management accountants actively participate in comparing the planned action against actual results by conducting variance analyses. These analyses, which are usually in aggregated forms, are presented at the monthly management committee meeting for further action. Apart from this, the control activities conducted by management accountants also concern cost reduction programs.

Cost control is a fundamental element in the cost planning process at ACE. This process is linked to the ‘plan-do-check-act’ (PDCA) cycle implemented in the cost planning process at ACE. The cost control process is combined with the PDCA cycle. Management accountants are mainly responsible for cost control through both the ‘do’ and ‘check’ processes within the PDCA cycle. As discussed previously, management accountants facilitate cost control by providing actual cost information which is allocated into separate cost centres. Based on this information, each department is able to assess their own spending and prepare a variance analysis for management control purposes. Consequently, at the ‘act’ stage of the PDCA cycle, cost improvement activities are carried out by establishing revised standard costs as a guideline. Based on these revised standard costs, each department identifies specific action plans to support the cost reduction activities.

Management Accountants as ‘Verifier’ of Accounting Information

Apart from acting as controllers, management accountants are also actively involved in verifying accounting information, particularly in dealing with estimates of costs and benefits of SCM improvement initiatives. Their tasks basically involve verification of accounting data at the operational SCM level which is commonly generated by non-accountants. For example, an interviewee recalled that in one occasion, an improvement initiative for the logistics processes required that the lorry transportation efficiency be increased. Instead of operating at 50% efficiency, they aimed to achieve a higher efficiency level to avoid non-value added costs. For the initiative to proceed, a justification of the costs and benefits involved must be provided. He further commented that

At the end of the day when the lorry comes back, it is at a higher level efficiency, and the only person who can confirm the ringgit and sen (financial implication) is the staff from the accounts department.

In addition, management accountants are tasked with the detail audited of the cash flow position of the suppliers, which is performed during the selection of suppliers. They also deal with suppliers who are facing financial difficulties.

DISCUSSION OF FINDINGS

The section discusses the role of management accountants in facilitating SCM processes by comparing the framework suggested by the SMAs on integrated SCM with evidence from the case firm. In the SMAs discussed previously, management accountants are expected to be actively involved during the design, development and execution of SCM. However, contrary to the SMAs, the results showed that management accountants are not involved in the design and development stages. Nevertheless, management accountants are involved at the execution stage of SCM. Their involvement in SCM at this stage is in one of four capacities, namely, ‘planner’, ‘evaluator’, ‘controller’ and ‘verifier’. Contrary to Rajamanoharan (2007) who found that the role of management accountants in facilitating Six Sigma processes varies from being proactive to reactive, the results for both case firms showed that the level of involvement of management accountants in SCM varies from being active to reactive in each of the four capacities (Table 3).

Table 3: Level of the Involvement of Management Accountants

Level of Involvement of Management Accountants in SCM Roles	Planner	Controller and Verifier	Evaluator
Role of management accountants in SCM	Reactive Updating of accounting information in response to changes in SCM	Reactive Informal and ad hoc monitoring and assessment of results	Active Formal role in evaluating SCM strategic investment portfolio decisions

As indicated in Table 3, management accountants as ‘planners’ are mainly “reactive” by merely responding to the changes in environmental conditions and subsequently updating the plans. Meanwhile, as ‘controllers’ and ‘verifiers’, they are also “reactive” in their informal and ad-hoc monitoring of the results as well as in assessing the accuracies of accounting information proposed by the non-accountants on certain projects. By contrast, the more active role of management accountants as ‘evaluators’ is noted. As ‘evaluators’, they assume a more formal role, particularly when their input is highly regarded in approving strategic capital investment portfolio decisions for SCM purposes.

Although support was provided for the traditional bookkeeping and supportive roles of management accountants in SCM processes, the majority of the case participants raised the issue of the tasks being exclusively performed by management accountants. The views of one of the interviewees highlighted the usual practice of assigning accounting tasks to non-accountants.

The target costing technique that we used under cost planning is mostly done by the engineers.

Despite this concern, the contribution of management accountants to SCM is still valued. For instance, when asked to rate the importance of management accountants to SCM from 1 to 10 (1 being the least important and 10 being the most important), a manager at the Finance and Accounts Department replied: *‘If you talk in terms of numbers, such as “1” being not so important and “10” being very important, I would give a rating that is not less than 7’.*

CONCLUSION

Despite the concern over the involvement of management accountants in SCM, the results showed that a large gap exists between professional standards and practice. Moreover, non-accountants have little regard for the contribution of management accountants to SCM. Therefore, although these findings support the expectation on several of the roles of management accountants in facilitating SCM processes as suggested by SMAs,

more active participation and contribution by management accountants are still required. Thus, this study concurs with previous research (see Rajamanoharan, 2007) that despite a plausible association and a strong call for the integration of MA and other management disciplines (including SCM), management accountants still play a limited role in SCM. Instead of demonstrating essential roles in facilitating SCM, management accountants merely play a supportive role. In particular, they are still viewed as traditional ‘number crunchers’ rather than business partners who can offer valuable accounting perspectives on facilitating SCM success. However, the absence of active involvement of management accountants in SCM did not affect the success of SCM in this study. The results show that non-accountants who have little background in MA are viewed as sufficiently competent in undertaking several of the MA roles in SCM. This finding is consistent with extant views on the limited role of management accountants in implementing MA practices (Rajamanoharan, 2007; Birkett & Poullaous, 2001; Abdul Rahman, 1993).

Overall, these findings demonstrate that management accountants have not embraced the potential opportunities for increased involvement in facilitating SCM as indicated by previous research and recommendations of professional bodies (IMA). However, this research reinforces the views of previous studies on the evolving role of MA. For instance, the findings are consistent with those of Hiromoto’s study (1988), in which the accountants in a Japanese-led firm assumed a more influential role as opposed to accountants in a locally-managed firm who were mainly influenced by the engineering culture. These findings highlight possible recommendations for the MA function in firms not only in the automotive industry but also in other industries to emulate the Japanese MA approach. The Japanese approach of involving management accountants and non-accountants working together in a multidisciplinary team could provide more synergism than management accountants working in ‘silos’. As such, the findings highlight the many opportunities provided by SCM for involving management accountants and thus serve as a useful reference for both accountants and academicians.

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