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MANAGEMENT ACCOUNTING IN A SUPPLY CHAIN ENVIRONMENT: CASE STUDY INSIGHTS

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Abstract

As companies become involved in inter-organizational supply chains and the 'boundaries' of the organisation changes, the implications for cost and management accounting are increasingly important. In the recent management accounting literature, increased attention is being given to the role management accounting (MA) information plays within supply chain relationships. However, attempts to systematically relate supply chain management (SCM) to management accounting practices (MAP) have been limited.

In this paper, we investigate companies' SCM practices and relate these to MA practices. Data was collected from semi structured interviews with senior managers of two international quoted companies in Malaysia. Managers' views of how SCM influences MA practices were sought. The findings suggest that the sophistication level of management accounting practices varies with SCM practices. Further analysis reveals that the interviewees differ in their views of how SCM affects MA.

Keywords: management accounting, supply chain management, contingency theory

Introduction

Until recently supply chain management (SCM) has had only a relatively modest impact on management accounting research despite its importance in other disciplines and its rapid proliferation in organizational practice (Berry et al., 1997; Dekker and Van Goor, 2000; Ramos, 2004). However, success in the constitution and maintenance of long term collaborations in the supply chain can benefit from information provided by management accounting techniques (Mouritsen et al., 2001; Dekker, 2003; Ellram, 2002, Dekker and Van Goor, 2000**).**

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Contributions in the management accounting literature have focused on the forms and functions of cost and accounting controls in inter-organizational setting (Håkkansson and Lind, 2006; Van de Meer-Koistra and Vosselman, 2000). It is argued that SCM has several implications for management accounting which are related to subjects such as value chain analysis, cost control and performance measurement (Berry et al., 1997; Kulmala et al., 2002).

Over the last few decades, a number of innovative management accounting techniques have been developed across a range of industries. Significant contributions include activity-based techniques, strategic management accounting, the balanced scorecard, target costing and value chain analysis (Hopper et al., 2007; Guilding et al., 2000; Kaplan and Atkinson, 1998; Kaplan and Norton, 1996; Innes and Mitchell, 1995). The modern techniques have affected the whole process of management accounting namely planning, controlling, decision making and communication. Management accounting focus has shifted from a 'simple' or 'naive' role of cost determination and financial control, to a 'sophisticated' role of creating value through improved deployment of resources (Abdel-Kader and Luther, 2008; Tillema, 2005). It has been argued that these modern management accounting techniques have been designed to not only support modern technologies and new management processes, such as total quality management and just-in-time production systems, but also to meet the challenge of global competition and network development (Spicer, 1992).

As firms adapt to environmental, technological and management developments, it is argued that firms must design a management accounting system and adopt more 'sophisticated' techniques. The appropriateness of using sophisticated techniques depends on the circumstances in which these techniques are being used. This gives rise to the need to adopt a contingency theory perspective **(**Gerdin, 2005; Tillema, 2005). MAPs evolve partly in response to the environmental contingencies (supply chain environment) confronted by individual firms. Although the role of management accounting in SCM has received increasing attention in the last few years, these relationships are still far from being clearly determined. The aim of this paper is to qualitatively investigate whether MAPs vary with levels of SCM practices. Specifically, the objective of the paper is to explore the state of supply chain management practices and management accounting practices and how SCM affects MAPs.

The remainder of the paper is organized as follows. The next section presents the literature review that helps to underpin the research framework. The research methodology is presented in the third section. Results and discussion are discussed in section four followed by conclusion and implications.

Literature Review

Management Accounting Sophistication and Contingency Theory Perspective

There is ongoing and considerable interest in the introduction of recently-developed, so-called, sophisticated management accounting techniques. The successful use of sophisticated accounting techniques may also be related to more general characteristics of organizations and their environments; that is, the appropriateness of using sophisticated techniques may depend on the circumstances in which these techniques are being used.

One route to indentifying the sophistication of a firm's management accounting practices (MAPs) is by locating it with reference to four levels derived from International Federation of Accountants (IFAC) 1998 statement on *Management Accounting Concepts.* The focus in the first stage was on cost determination and financial control (CDFC), through the use of budgeting and cost accounting technologies; while in the second stage, the focus had shifted to the provision of information for management planning and control (IPC). Management accounting was said to evolve to its third stage where attention was focused on the reduction of waste in resources used in business processes (RWR). The stage four was recognized where attention had shifted to the generation or creation of value (VC) through the use of technologies which examine the drivers of customer value, shareholder value and organizational innovation. The first stage represents a lack of sophistication and the fourth stage is the highest level of sophistication (IFAC, 1998).

Researchers have also documented a large number of supply chain accounting practices influencing the ongoing management of buyer-supplier relationship. They include inter-organizational cost management (Cooper and Slagmulder, 1998: 2004; Coad and Cullen, 2006; Kulmala et al., 2002), target and Kaizen costing (Carr and Ng, 1995; Mouritsen et al., 2001; Ellram, 2002; Everaet, 2006), activity-based-costing and value chain analysis (Dekker, 2003; Axelsson et al., 2002; Liberatore and Miller, 1998), joint performance measurement system (Hoque and James, 2000; Axelsson et al., 2002; Mahama, 2006; Liberatore and Miller, 1998) open book accounting (Car and Ng, 1995; Seal et al., 1999; Van der Meer-Koistra and Vosselman, 2000; Tomkins. 2001; Mouritsen et al., 2001).

There are a number of studies on adoption of aggregate MAPs (see e.g., Abdel-Kader and Luther (2006), Gerdin (2005), Haldma and Laats (2002), Joshi (2001), Luther and Longden (2001), Lin and Yu (2002), Anderson and Lanen (1999), Chenhall and Langfield-Smith (1998**)).** In this paper dimensions used by Abdel Kader and Luther (2008): (2006) which are based on IFAC management accounting evolution model were employed.

The contingency approach to management accounting advocates that there is no universally best management accounting control system that can be applied to all organization as it depends upon the situational factors. The situational factors represent the contingent factors or the contingent variables (Otley, 1980; Fisher, 1995). Contingency theory provides an explanation of why management accounting systems vary between firms operating in different settings. The theory suggests that particular features of an appropriate accounting system will depend upon the specific circumstances in which an organization finds itself. Literature shows that important characteristics (contingencies) affecting organizational structure include size, environmental uncertainty, production technology, corporate strategy, market environment. According to Gerdin and Greve (2004), the continuous stream of empirical articles signals the importance and vitality of this research area. Much of this research has been of a quantitative nature and survey-based, however, Chenhall (2003) has pointed out the need for and value of case studies to provide insights using a contingency perspective. Table 1 summarises studies on MAPs based on contingency theory in some developed and emerging countries. It can be seen that attempts to systematically relate supply chain management (SCM) to management accounting practices have been very limited.

Table 1: MAPs and Contingency Theory

Authors	Findings
Abdel-Kader and Luther (2006)	The analysis operationalises the IFAC statement on Management Accounting Concepts and its description of the evolution of management accounting. MA employed in many UK industrial companies is not particularly sophisticated. Budgeting, product profitability and financial performance measurement remain the central pillars.
Haldma and Laats (2002)	Identify possible new factors e.g. legal accounting environment and shortage of properly qualified accountants. They confirm earlier findings related to the contingent factors that influence management accounting.
Joshi (2001)	Indian manufacturing companies still rely heavily on the traditional MATs. Higher benefits were derived from the traditional practices compared to newer ones. Significant differences in the adoption of several practices were found between Indian and Australian practices attributed to differing cultural values.
Luther and Longden (2001)	Significant changes in the perceived benefits derived from MATs over the period 1996-2002 and these benefits differ from the UK equivalents. Factors causing management accounting change in South Africa are also different from those in UK.
Anderson and Lanen (1999)	The results are consistent with the basic premise of contingency theory. Providing descriptive evidence that those changes in the external environment prompt changes in organizational strategy and structure (MAPs).
Chenhall and Smith (1998**)**	The adoption rates for many recently developed practices were higher than those reported in surveys from other countries. Traditional MATs were found to be widely adopted than recently developed techniques.

SCM Practices

SCM is concerned with the relationship between a company and its suppliers and customers.

It is a concept that involves the coordination of operations from the supplier of raw materials at one end of the supply chain all the way to the consumer at the other end. It demands that organizations look beyond their own boundaries and consider relationships with suppliers and customers along the value chain (Chow et al., 2008). As defined by the Council of Supply Chain Management Professionals (CSCMP), SCM encompasses the planning and management of all activities involved in sourcing and procurement, conversion and all logistics management activities as well as coordination and collaboration with channel partners. In other words, SCM includes a set of approaches and practices to effectively integrate suppliers, manufacturers, distributors and customers for improving the long term performance of the individual firms and the supply chain as a whole.

SCM practices are defined as the set of activities undertaken by an organization to promote effective management of its supply chain. SCM practices are proposed as a multi-dimensional concept (See Table 2 below). This research will use the dimensions of SCM practices developed and validated by Li *et al*. (2005; 2006) as a basis for interview dialogue

Strategic supplier partnership represents the long-term relationship between the organization and suppliers. A strategic partnership emphasizes direct, long-term association and encourages mutual planning and problem solving efforts. The objective of strategic supplier partnership is to promote shared benefits among the parties and ongoing participation in one or more key strategic areas such as technology, products and markets. This enables organizations to work more effectively with a few important suppliers who are willing to share responsibility for the success of their products.

Customer relationship covers the practices on complaint handling, customer satisfaction and long term relationship establishment. The growth of mass customization and personalized service is leading to an era in which relationship management with customers is becoming crucial for corporate survival. Close customer relationship allows an organization to differentiate its product from competitors, sustain customer loyalty and extend the value it provides to its customers (Tan et al., 1998).

Information sharing means the information communicated between partners where the accuracy, adequacy and timeliness refer to the quality of information. The flow of information and the ability to analyse that information is a key driver in today's supply chain challenges for our customers. By taking and sharing the

data available with other parties within the supply chain, information can be used as a source of competitive advantage (Monczka et al., 1998). Thus the capability of the channel as a whole to react faster and more effectively to developments in the market will be increased.

Lean practices are represented by the elimination of waste, low inventory, small lot sizes and Just-in-time delivery. Postponement is the delayed differentiation of products on the supply chain. It allows an organization to be flexible in developing different versions of the product in order to meet changing customer needs and to differentiate a product or to modify a demand function

In summary, for the benefits of SCM to be realised, the relationships between the suppliers and their customers should be characterised by a long term perspective, multiple supplier selection criteria, mutual commitment and dependence, intense information exchange as well as improved lean practices and postponement to eliminate waste and meet customers' preferences. Reviews of SCM practices from previous studies are summarised in the following table:

Table 2: SCM Pratices

Author	SCM Practices
Donlon (1996)	Supplier partnership, outsourcing, cycle time compression, continuous process flow, information technology sharing.
Tan *et al.* (1998)	Purchasing, quality, customer relations
Tan *et al.* (2002)	Supply chain integration, information sharing, supply chain characteristics, customer service management, geographical proximity and JIT capability
Chen and Paulraj (2004)	Supplier base reduction, long term relationship, communication, cross-functional teams, supplier involvement to measure buyer-supplier relationships.
Li *et al*., (2005), (2006)	Strategic supplier partnership, customer relationship, level of information sharing, level of information quality, internal lean practices, postponement.

MAPs in Malaysia

Very few empirical analyses of MAPs have been carried out in Malaysia. Among the studies that have been carried out in the Malaysian environment are Abdul Rahman *et al*. (1998) and Sulaiman *et al*. (2005: 2004). The former research surveyed MAPs in Small Medium Industries (SMI). The study provides evidence that the SMIs were still relying on the simple and less complicated MAPs. The advanced management accounting techniques were gaining favourable acceptance

among the SMIs and there was a positive trend towards the implementation of these new techniques in future.

Sulaiman *et al*. (2005: 2004) surveyed companies in the industrial and consumer products sectors of Kuala Lumpur Stock Exchange. The studies suggest that the use of contemporary management accounting tools (like ABC, TQM, target costing and BSC) in Malaysia is still lacking. Traditional MAPs (like standard costing, budgeting, cost-volume profit analysis and return on investment measures) are still widely used because of the lack of awareness of new techniques, the lack of expertise and management support and high cost of implementation. However, there is still very limited Malaysian evidence provided on both traditional and advanced MAPs, nor on the emphasis that organizations intend to place on particular MAPs in the future particularly in inter-organizational setting.

Research strategy and methods

Case Studies

To secure a deeper understanding and richer description (Yin, 2009) of the nature of SCM practices and MAPs, this study employed semi-structured interviews in two selected publicly listed companies representing the food industry in Malaysia. The interview questions determined the SCM practices and MAPs and examined whether, and in what way, managers perceive the level of SCM practices influence management accounting practices, specifically the sophistication level of management accounting.

The focus of these interviews was to gather the experiences and views of two selected companies. The work analyses similarities and differences between the firms in terms of the practice of supply chain management (SCM), management accounting practices (MAPs), their relationships and the impact of SCM on MAPs. The interviews were based on a semi structured questionnaire consisting of open ended questions. An interview protocol was developed and served as a guide for the researcher. In both cases, the participants were provided with the written transcribed interview to corroborate its accuracy. Apart from the interviews, evidence was also obtained from secondary data, such as company's announcements made through their websites and bulletin, brochures and company's annual reports.

Background of the Development Cases

Company A: The Food Nanufacturer / Distributor

Company A is a multinational manufacturer and distributor of food-based products. The company manufactures wide ranges of food products including coffee and beverages, milk, infant nutrition, cereal, ice cream and confectionary. The company now manufactures its products in 7 factories and operates from its head office and 6 sales offices nationwide. Today, with annual turnover over RM500 million, the company employs over 5,000 people and manufactures as well as markets more than 300 food products in Malaysia.

The management of SCM is formalised in Company A by having its own supply chain division led by a supply chain director. Because of the emphasis on the management of supply, the company undertakes supply chain leadership. The company recognises that a consumer products company remains profitable only if it has the right product at the right price in the right place at the right time. To emphasise on the importance of supply chain, the company is committed to ensure supply of products and to ensure delivery of these products to customers in full on time. In short, supply chain in Company A is constantly on the move to deliver the company's key objective of ensuring supply from end to end. The supply chain is therefore, customer / consumer centric.

Due to the company's size and huge number of food products manufactured, the company has its own supply chain division to oversee all supply chain management matters. This, as claimed by the management, is an improvement to the company's supply chain. The supply chain division, led by a supply chain director, is controlled by supply chain managers and supply chain controllers whose main responsibilities are centred on handling costing for the company's distribution centres (distribution costing). The main function in distribution costing is to improve cost transparency and accuracy of distribution cost information in all the company's distribution centres. Throughout the country, Company A has a number of official distribution centres.

The management carries out people development to ensure the company builds and grows an internal core competence and supply chain leadership in tandem with the business. The importance of SCM must be communicated to all levels of employees as the management accountant noted:

> "Developing the people is another area in supply chain itself. You need to have a good mix of management. Because if you don't develop the people, they will not be focused to ensure that everything is in synchronisation." - ***Company A***

In the food industry, one cutting edge capability that the supply chain can offer is speed; ensuring that the company's products are made available on shelves in

shortest possible time. Because of the nature of the industry itself, SCM is especially critical for the food industry because of the ease of spoilage. The efforts of supply chain in Company A for instance are focused on ensuring supply of stocks via the 'shortest route to availability', ensuring delivery of stocks to customers in full on time, targeting competitive costs for services rendered, innovating and renovating supply chain 'services' and 'products' to maximize productivity and empowering and growing functional and management skills.

Company B: The Sugar Company

The company manufactures a wide range of high quality sucrose based products that comprise refined sugar grades as well as liquid products for export, domestic and industrial purposes. The company commenced business in 1965 with an initial raw melting capacity of 150 metric tonnes a day. Today, after decades of expansion and modernisation, the refinery achieves a melting capacity of 1,500 metric tonnes a day. The company employs approximately 500 employees with average annual turnover of over RM100 millions.

The company is the first company in the Malaysian sugar industry to be awarded both the MS ISO 9002:1987 Quality Management System Certification and MS ISO 14001 Certification for Environment Management System. As it is their vision to be the leading producer of refined sugars in Malaysia, the company is thereby committed to its quality policy in assuring satisfaction to all their customers.

Unlike Company A, Company B does not have its own supply chain division. SCM, to the company, is the management of linkages between functions and between organizations. To achieve this, the supply chain is generally managed through effective use of information technology (IT) integration tools. It is believed that even though the company does not have its own supply chain division, with fully integrated systems, communication between all trading partners could still be made possible.

> "Currently most of the suppliers and customers do not want fax anymore but email. I myself (as Management Information System Manager) am involved on that directly with the customers and suppliers. Most of our suppliers use the IT infrastructure and go paper less. (Because of) our environmental management system, they are beginning to use the IT infrastructure. I believe SCM is there from the very beginning people start business. It is formalized when IT comes into place. Before IT, nothing is said about (for example) CRM (Customer Relationship Management), SCM. All these come with IT." - ***Company B***

Interestingly, this company also benefits from the integration of SCM to handle customers' complaints.

> "When we have customer complaints, all the departments concerned will form an ad-hoc committee. So the sales people, the quality people, accounts and people from the production will form a committee to find out and investigate the cause, visit the customers and find out the root cause." – ***Company B***

Findings and Discussions

SCM Practices in Case Study of Companies

Relationship with Suppliers and Customers

According to the management of Company A, concerning their relationships with suppliers (domestic as well as foreign suppliers), the aim is to deal only with reputable suppliers who are willing to apply the company's quality standards. Key suppliers with which the company has a con-tractual relationship are audited in order to ensure that they comply with the company's corporate business principles or that they are working actively to achieve compliance. Whenever instances of non-compliance are brought to the company's attention, the company will demand that corrective measures be initiated. The company regularly solves problems jointly with its suppliers and has helped its suppliers to improve their product quality. This is done through continuous improvement programs that include their key suppliers.

Being an international food manufacturer and a consumer-driven company, Company A is also committed to meeting consumer preferences. Qualities, freshness of products and short shelf life are amongst the elements most emphasised.

> "I think the most important thing about our product; it has to be what customer wants, what the customer perceives as quality and easy to handle in terms of when you stack, when you place on shelf, offering the freshest products etc. It is started with the consumer and how the consumer wants it to be. More sugar, less sugar, small, big pack, small pack. So that's how we work back, innovation of the product, renovation of the product, and then we have to go back to the sourcing supplies and the quality assurance." ***Company A***

The company is very conscious of its role in communicating it's responsibility to consumers, particularly as it influences a healthy diet and lifestyle. The food industry is sensitive towards those nutritional aspects. According to Company A, their wide ranges of products should portray nutritional aspects of life and should not be contradictory or jeopardizing what they propagate. Interestingly, the company also carries out extensive consumer testing on their products to make sure that consumers will prefer their products to those of their competitors'. This test is known as the 60-40 test as the objective is to ensure that at least 60 percent of

customers would prefer the company's products compared to competitors' products when they are blind-folded. It is hoped that every product has to meet this 60-40 test. Additionally, the company also tailors its products to suit local tastes as well.

To maintain freshness and to speed the process of ensuring products reach consumers (market) in the quickest time, the company engages with their own official main distributors.

The distributors are the company's long term partners, main distributors and these distributors handle a certain region.

Unlike Company A, Company B, is in a different business environment. The products (wide range of refined sugars), are less complicated as the main raw material is basically raw sugar; largely imported from Queensland, Cuba and Brazil. It is interesting to note that the company's position as the main supplier of sugars (raw materials for many other food industries in the country) makes it deal with fewer suppliers but many close major customers. Through IT tools and appropriate systems, they communicate effectively with their trading partners. The company's senior manager commented:

> "We do not have many suppliers. The product is raw sugar. But our major customers include large food manufacturers and those big hypermarkets and retailers. With our customers, we communicate almost everyday, every hour." **– *Company B***

In assuring satisfaction to their customers, according to the management, the company is committed to producing high-quality refined sugar at competitive costs (even though price of sugar is government-controlled) and achieving zero customer complaints and on-time delivery. As the price of the company's products is fixed, the focus on customers' satisfaction lies on the quality and service availability.

> "We have to maintain continuity in our own way. That's why I believe, even though not in a formal way, but through an informal way, within our organization, we do practice supply chain management. We do communicate with our suppliers, for example with regards to material that we buy. We do maintain certain level of standard or quality." **– *Company B***

The high quality and strong customers' satisfaction are reflected in the quality award recognition.

> "We achieve ISO 9000, of which in ISO 9000 the quality of management system emphasizes almost everything with regards to the customers. We need to take into account what customers' want. So, that's how we come out with customers' satisfaction assured policy. So, we do improve in the way for example we deal with export customer. They come to us because we have all the quality systems.

> We have all the systems in place for example, HACCP (Hazard Analysis and Critical Control Point) the food safety management system. We are the first in Malaysia to achieve that certification." – ***Company B***

Information Management

Information sharing is important when integrating the supply chain. By sharing the data available with other parties within the supply chain, information can be used as a source of competitive advantage. Ensuring the quality of the shared information becomes the critical aspect of effective SCM as there is a built-in reluctance within organizations to give away more than minimal information. Information disclosure is perceived as a loss of power and this is true for both companies under study where limited information is shared.

Concerning information they are willing to share, both companies agreed they generally share proprietary information with their customers and suppliers. They also keep their trading partners fully informed in advance of their changing needs especially issues which may affect the business. To a certain extent, both companies exchange information that supports their business planning.

Nevertheless, Company A commented that because the nature of the industry (food industry) is itself extremely competitive, the firm does not share much of other information with their trading partners. When asked the level of information shared with their trading partners, the manager prompted:

> "There are a lot of things that we don't share because it is a very competitive business. We don't share the recipe. For example, if we have new products, for example, we want to introduce our new products and we invest on research. (We want to avoid) if the information leaks to our competitor and what's more our competitor has smaller base and perhaps work faster than us."***- Company A***

It is also interesting to note that restricted information is shared by Company B as a consequence of control the government is imposing on the products (sugar as a basic necessity). The nature of the product (though there are 70 different product types) and the fact that it is government controlled, the manager noted:

> "In our business, we are very cost sensitive. Our product is straight forward and simple. Price is fixed. The product is government controlled, and the price is government controlled. Number one, the product is a necessity; a basic necessity for the population. Our ranges of products are only colour and size but the core, the basic ingredients is the sucrose. Number two, rightfully the price is fixed and we cannot do anything. When we buy our main raw materials, of which it is from the commodity exchange, the price is determined by the market." ***– Company B***

When asked about the type of information they share, the manager added:

> "The only information that we share is availability. We do send samples to them (customers). You know, for every product that we send out, there is a COA (Certificate of Analysis) that comes out with it. So, our quality department will issue the certificate with regards to that specific batch of production. So, that is the part that we provide to them."**- *Company B***

Internal Lean Practices and Postponement

Companies recognised that by implementing internal lean practices and removing non-value added activities, costs can be managed for better productivity. In Company B, where both internal lean practices and postponement are being implemented, the manager declared:

> "We have the just-in-time system. Obviously it leads to optimizing the cost. Some of it for example, you save cost on warehousing and all the cost of logistic activities for example stacking. We don't have to stack. You don't have to use extra pallet, and to a certain extent, your packaging material. You save. You know, sometimes when you pack, for example packing, you know we have several types of packing. Maybe, it can be the same material, but for different customer or different market sector, there is a different signage or coding." **– *Company B***

In terms of postponement practice, according to the manager, the production process is arranged so that customization can be carried out according to customers' orders.

> "We do provide customization for our customers, some customers they want certain level of colour, you know. There is a unit of measurement for colour, sugar colour and they call it ICUMSA (International Commission for Uniform Methods of Sugar Analysis – the unit for colour measurement in sugars). 50 ICUMSA, 20, 25. So the darkest, brown sugar, the darkest that is maybe about 700 or 1000 ICUMSA." **– *Company B***

In the case of Company A, the manager informed that the company has in place all the practices that lead to reduction of waste and set-up times (for instance, JIT, pull production systems and continuous quality programme) but they do not employ any postponement practices at all. The manager noted:

> "We do have all those (internal lean practices and continuous improvement) that will cater for the factories and the plants. But we don't have different products (for different orders or customers)."**- *Company A***

MAPs in Case Study of Companies

Contemporary MAPs in Company A

More contemporary management accounting practices were found being implemented in Company A. It appears that costing systems in this company has developed from traditional costing systems to more modern costing system such as activity-based costing (ABC). The company has moved towards activity based costing for quite some time and is still improving on it in all areas. The technique, according to the management, has gained increasing attention as a tool to help allocate overheads with a greater degree of accuracy especially with regard to SCM context. The management accountant agrees that SCM requires more accurate cost data concerning all activities and processes within the organizations. ABC can significantly contribute to SCM by providing more accurate, detailed and up-to-date information on all activities and processes in organisations. On the other hand, the traditional accounting approach, where cost allocation is based on labour hours or machine hours, does not reflect the true cause and effect relationship between indirect costs and individual products.

The manager further stressed that compared to the traditional cost approach; ABC offers substantially better information for SCM because its cost information is capable of supporting and monitoring the supply chain strategy. More importantly, it partially integrates customer requirements into the analytical procedures used to establish the value of an activity. According to Company A, the activity based model not only supports product profitability analysis but also customer profitability analysis and benchmarking.

In search for opportunities to create customer value and to better reflect customers' true requirements, the company has also begun adopting target costing. It viewed target costing as more process oriented and customer centred. Due to the shift of market power from "producers" to "customers", the technique like target costing places customer requirements at the heart of the companies' efforts to develop and deploy product strategies. Cost is also viewed as an end result while customer requirements are viewed as binding competitive constraints. Under target costing, the supply chain incurs whatever costs are necessary to satisfy customers' expectations for quality, functionality, and price.

From the perspective of Company A, target costing provides the company with a competitive edge as it offers continuous improvement both at the design and production stages. The management detailed how target costing is implemented in the companies and how the technique supports the analysis of competitors' costs:

> "Yes we implement target costing. We ask what actually the consumer wants. So that's how we work backwards until we come to a point of, consumer wants this price, this big, consumer wants it to be in hypermarket or consumer wants it to be in provisions. It is started from the consumer and how consumer wants it to be. More sugar, less sugar, small, big pack, small pack. So that's how we work back to innovation of the product, renovation of the product, and then we have to go back to sourcing supplies and then the quality assurance. Then we set our cost and at the same time we set what would be the price because we also have competitors in the market. How can competitors price at so much lower price and how can we meet, match the competitors' selling price. So then we start to analyze what the competitors' cost is."***- Company A***

Additionally, according to the manager the technique may, when associated with a customer perspective and adopted early in the product life cycle, leads to large cost reductions. This is because a large amount of product costs are initially committed in the development and design phase. When design is outsourced, functional analysis and target costing can become important parts in inter-organizational management control. With target costing the company developed its cost management systems that help initiate cost-reduction activities across the entire life cycle of the firms' products'. Negotiations with suppliers were carried out as part of cost reduction programmes for lowest possible cost.

> "We have some negotiations done by the purchasing division. They will let us know, they will update us, what is the price of commodities, what is the price of major materials, packaging materials, so they will let us know if there is any short supply or oversupply of packaging, raw materials which will affect the prices. The group handles all purchases; they will do all the negotiations with all the suppliers. Negotiation is actually part of the cost reduction program because we want to meet our target cost because customers only want to pay at this price." ***Company A***

The manager added that cost analysis is carried out to determine an actual cost and identify the extent of, and develop plans for, the cost reduction required to achieve target cost. The company found that the strength of target costing is as an overall framework for cost improvement and efficiency.

Open book costing and target costing help to develop inter-organizational controls to establish relationships with trading partners. To create a new form of transparency and new opportunities for control, companies must have a highly developed sense of trust and inter-dependencies between parties. It is interesting to note that although Company A had adopted more contemporary MAPs and high levels of SCM practices, the Company did not implement open book costing. It seems that the company is not prepared to reveal costing information (the cost make up of a product and how they approach cost allocation) to the other parties. The company only disclosed costing information to their affiliates (group companies in other countries worldwide) where profitability is not the business concern.

In order for open book costing to work effectively the company must be prepared to be completely open with their trading partners and be prepared to reveal information which under traditional circumstances would be unheard of due to the sensitivity of the data. In the case Company A, open book costing was not being implemented due to its position in the strictly competitive environment as a global food manufacturer and hence confidentiality of the costing data. The manager of Company A explained:

> "We don't share the costing data, because this is a very competitive environment. But once you are in the industry, is also your job to estimate the costing of your competitor information like where do we source our raw material. Say, for example, we are sourcing from a company. So, by having that particular information, our competitor can easily estimate what our costing would be like." ***– Company A***

In short, Company A places great emphasis on management accounting as the backbone of its planning process especially viewing it as the tool for products innovation. The manager of Company A summarised:

> "It (management accounting) is our key tool, basically to decide whether we launch products or not. All our decisions on innovation, consumer communication, and availability of products are all based on cost. Management accounting is the right tool to provide the right costing, so we can make the right decision and plan for the future based on management accounting. We really value management accounting as the backbone of our planning process as it is obviously the key to value creation. This is especially true when we launch new products for innovation." ***– Company A***

Traditional MAPs in Company B

The use of traditional management accounting techniques remains strong in Company B. The use of a plant wide rate overheads apportionment is still widely used. From the interview, the managers also revealed that traditional techniques such as standard costing and variance analysis, traditional budgeting and cost-volume-profit (CVP) analysis were predominantly used. The contemporary MAPs were not seen as absolutely central to them while traditional methods appeared more suitable in their opinion. According to the company, the practice of management accounting is rather simple because the price of their products is already set. The focus is mostly centred to maintain the low cost and the large portion of it comes from raw sugar; even that is mostly contracted by the government.

MAPs related to SCM (target costing and inter-organizational cost management and open book costing) were also not employed in Company B. The manager stressed that the product is government-controlled and the fact that they purchased

the raw material from the commodity exchange means the sharing of costing information becomes irrelevant.

> "No sharing of costing information with our suppliers. The fact is that our cost, rightfully, the price is fixed. We bought the main raw materials from the commodity exchange. They are not concerned with; they cannot be bothered with what our cost is." **– *Company B***

As a consequence, more contemporary MAPs would mean the need for more sophisticated IT systems which involve unnecessarily high costs of implementation. Additionally, the nature of its products and business environments were among the main reasons for not implementing more modern MAPs. It seems for the manager of Company B, providing management accounting can provide up to date information of the status of the cash flows and profitability, an element that is crucial for decision making, that is considered sufficient. As noted by the manager:

> "(We understand) management accounting information is very important. It can become a tool to position the company. That means you will not only know your profit at the end of the financial year, but you will know your profit and cash flows now. **– *Company B***

The Impact of SCM on MAPs

The companies have diverse views of whether SCM influences the way they adopt MAPs. Company A emphasised the impact of their strong relationship with customers and development of SCM processes which influenced their MAPs. The adoption of more contemporary MAPs in this company is mainly due to its strong commitment to customers' preferences. The food industry is a very competitive industry where they ought to portray nutritional aspects of life. Inevitably, all decisions made in this multinational company are based on customers' requirements following from its SCM. The manager commented:

> "Whatever decision made by our people, for example the brand, whatever direction, whatever product that they want to introduce, as management accountant, first of course we need to ask whether it serves the customers. So we always talk about stock cover, damaged goods, market return. As management accountant, we want to emphasise on whether it adds value to the company and to the customers." **– *Company A***

Accordingly, the changes which occur in the company's distribution environment, particularly when considering the increasing concentration, power and skills of their trading partners, force the company to react more specifically and rapidly to new market challenges in order to maintain or improve their competitive position. Furthermore, the company has to face the consequences of the diversification of their food business as well.

To respond efficiently to the business environment, the management of the company needs highly accurate and realistic information on the flow of goods along the supply chain and the cost and utilization of the available resources, so as to improve the quality of the decisions concerning products as well as customers. The overall aim is the improvement of cost transparency throughout the company in order to increase the performance of the supply chain.

> "Yes, because then we have got to consider whether this meets customers' requirements and suppliers as well. I would say it (MAPs) is highly influencing because every material, every product that we have introduced or we have currently, we have a very detailed costing and we know the profitability level." ***– Company A***

Emphasis on Value Creation

The company's business objective is to manufacture and market the company's products in such a way as to create value to not only shareholders and consumers, but also business partners and the large number of national economies in which the company operates. The value created is hoped to be sustained over the long term. The manager noted:

> "We are focusing on value creation. It's a value generating kind of culture. We have taken strategic and operational decisions; for example product innovation, promotions, etc., which are more important than short term growth and superficial marketing considerations. Simultaneously, we have had to write off millions of Ringgit and make painful restructuring moves. So, value generation has to become a more important part of our culture. The emphasis on value creation is the main theme now." ***– Company A***

Company A places considerable emphasis on Value Based Management (VBM). It is the management approach that ensures corporations are run consistently on value (normally maximizing shareholder value). They believe that VBM maximizes value creation consistently, increases corporate transparency, facilitates communication with investors, analysts and stakeholders, improves allocation of resources, and streamlines planning and budgeting. The Company relied on management accounting to provide the tools to make good decisions in creating value over time. The manager added his role as management accountant:

> "Yes the management emphasize on this, because it is already within the company. You know, we talk about it all the time. I think as a management accountant, we are responsible to a certain extent to make sure that whatever you do it has to be maximizing value creation; it has to increase the transparency. It involves all kind of values; it helps organization to deal with the market share, competitive advantage, cost cutting and all those. So as management accountant, we want to emphasise on whether it adds value to the company, to the customer etc. " - ***Company A***

Unlike Company A, Company B claimed that its adoption of more traditional MAPs was as a result of product simplicity and price controlled by government. More importantly, its position in the supply chain has to a certain extent impacted the application of simpler MAPs. When asked how the supply chain influences its MAPs, the manager prompted:

> "The business environment is totally different.Ours, number one; the product is necessity. The product is the basic necessity for the population. Number two; price is controlled by the government. The other one that I want to mention is in a food chain; other companies might be in the final part or in the middle. We are the beginning. The first ingredient, the basic ingredient, others are not. We buy our main raw materials, of which it is from the commodity exchange, unlike others. When you consider that commodity exchange, the price is determined by the market." – ***Company B***

Summary of Findings

Based on the research interview, the following indicators (summarised in Table 3(a) below) are used to indicate the level of companies' SCM practices and MAPs. Table 3 (b) sums up the findings of both practices.

Table 3(a): Summary of Companies Level of SCM and MAPs

Dimension of SCM	Company A	Company B	Key
Supplier partnership	√√	√	
Customer relationship	√√	√	
Information sharing and quality	√	√	
Lean practices	√√	√	√√ - high level of practice
Postponement	√	√	√ - moderate level of
Overall level of SCM practice	**HIGH**	**MODERATE**	practice
Dimension of MAPs			√ - low level of practice
Costing systems	√√	√	High SCM – scoring high level
Budgeting	√√	√	of practices in at least 3
Performance evaluation	√√	√	dimensions of SCM
Information for decision making	√√	√	
Strategic analysis	√√	√	
Open book costing	√	√	
Target costing and IOCM	√	√	
Overall level of sophistication	**HIGH**	**MODERATE**	

Table 3b: Summary of Findings Regarding SCM Practices and MAPs

Company	Summary of SCM practices
A	Remarkable SCM practice and strong emphasis on SCM's importance within supply chain leadership and people development, supply chain division, long term partners (local / international, long term partners, official distributors, branches, retailers, fully integrated system, highly implemented internal lean activities but less awareness on postponement.
B	Fully integrated system, close relationship with a few suppliers and major customers, its position in supply chain as 'supplier' for others, moderate level of internal lean practices and postponement.
	Summary of MAPs
A	Contemporary costing systems, budgeting, performance evaluation, information for decision making, strategic analysis.High level of practice of : Activity based costing, Target costing, Quality costing, activity based budgeting, budgeting for strategic plans, performance evaluation based on financial and non financial measures, benchmarking, customer profitability analysis, evaluation of major capital investments using non financial aspects, analysis of competitive position, value chain analysis, product life cycle analysis, integration with suppliers and customers' value chains.
B	High level of traditional MAPs; a plant wide overhead rate, budgeting for planning and controlling and strategic plans, CVP analysis, performance evaluation use both financial and non financial measures, long range forecasting.

Conclusions

Company A indicates a very impressive appreciation of SCM and its importance with a formal and systematic way of managing its SCM. With its own supply chain function and supply chain leadership theme, efforts can be focused on establishing stronger relationships with external parties. There is much evidence that this company has the long term strategic supplier partnerships and close customer relationships. Freshness of food products is the key criteria in meeting customers' preferences; indicating a very time based thinking. Thus the company stresses on established long term partnerships with their own official distributors. The company's SCM strategy is to ensure right products are supplied to customers at the right quantity, right quality and the right condition, at the right time and at the right cost. To achieve stronger SCM practices, the company believes in 'Team and People development'. Commitments from all level of employees are essential so that efficient SCM can be implemented.

Therefore to support the implementation of SCM, the company strongly believes that its management accounting systems must be capable of identifying costs and value adding processes across its organizational boundaries. The company thus implements more sophisticated MAPs with value creation theme indicating evidence of the use of more contemporary MAPs such as ABC, target costing and inter-organizational cost management supporting previous research of Kajuter and Kulmala (2005), Dekker (2003), Seal et al. (2004), Mouritsen et al. (2001).

The total involvement in supply chain management of Company B is considered as moderate. The company claimed their level of SCM is being influenced by its single and simple product and the fact that the price of sugar is fixed and controlled by the government. Hence, the company focuses on quality and service availability to meet customers' satisfaction and preferences. At the same time the company perceives the importance of SCM where its SCM application is based on its IT interface. Furthermore, the high quality and strong customers' satisfaction are reflected in the quality recognition awarded to this company. As the company indicates a more moderate level of SCM, this company also uses less sophisticated MAPs compared to Company A. The company shows evidence of predominantly traditional MAPs being implemented.

It is also important to note that both companies do not share cost information with their suppliers and customers and this is evidenced in not implementing open book costing. This might be due to the belief information disclosure is perceived as a risk and a loss of power (Monczka et al., 1998). Additionally, the environment in which they are operating requires them to put more trusts as suggested by Tomkins (2001) and this has not developed yet in both companies.

From the research interviews, both companies have shown to a certain extent some practices to encompass relationship with suppliers and customer and have described themselves as customer oriented (Chen and Paulraj, 2004; Li et al., 2006). Companies have shown a different level of overall SCM practices; stronger SCM practices is found in Company A while with regard to MAPs practices, Company A implements contemporary and thus more sophisticated MAPs.

Company A have a clear vision that SCM is critical to their organisational success and this drives the contemporary MAPs that have developed. In particular, using value-based approaches, more proactive management and feedforward control. Hand in hand with this, both SCM and MAPs are supported by a strong ethos of 'people development'. Company B sees SCM in the context of their IT systems, perhaps somewhat subservient to them and hence not achieving the same visibility in this company. There is a much more 'informal' and 'relaxed' approach to the SCM system. As a result there has not been the same emphasis on MAPs; contemporary MAPs have not been developed to the same extent. There is greater

evidence here of a 'financial accounting mentality' and a feedback orientation to cost control.

It is clear that exactly the same degree of inter-organisational cost management is not appropriate in both organisations. Their relative positions in the supply chain, the variability in their respective product ranges, the organisational attitude and the scope and support given to the accounting practitioners probably dictates this.

We can conclude that both Company A and B give evidence to support the contingency theory framework that MAPs is contingent on environmental factors (in this study SCM practices). The theory provides an explanation of why management accounting systems vary between both firms as both are operating in different settings. This is consistent with previous research findings in contingency approach (Gerdin and Greve, 2004; Fisher, 1995). The theory suggested that particular features of an appropriate accounting system will depend upon the specific circumstances in which an organization finds itself (Otley, 1980).

Companies in a highly SCM environment will benefit from the practice of more modern MAPs to better identify costs and value adding processes across their traditional organisational boundaries. In addition, apart from long term relationships with customers and suppliers, the relationship should also be built by exchanging useful information pertaining to product development and improvement, materials and supplies needed to meet production, demand schedules as well as costs. As supply chain relations require openness and transparency, the implication of this for management accounting is the opportunity for open book costing which requires that trading partners establish an agreement that allows access of their books to the other parties. This appears a step too far for both of these companies at the moment.

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