

Business strategy, intensity of competition, strategic role of accountants, strategic management accounting and firm performance

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Abstract

This exploratory study investigates whether usage of strategic management accounting (SMA) techniques and the accountants' participation in strategic decision-making process mediate the relationship between differentiation strategy and firm performance. The contingency model also examines the impact of strategic role of accountant and intensity of competition on the usage of SMA. Past studies suggest that firms tend to adopt SMA techniques to better cope with the pressures of competitive and unpredictable environment. The results of partial least squares appear to support that differentiation strategy is closely associated with the usage of SMA techniques and strategic role of accountant. Intensity of competition is not associated with the usage of SMA. SMA usage mediates the relationship between differentiation strategy and firm performance. Strategic role of accountant has an indirect effect on firm performance via SMA usage. The current study also supports that strategic management accounting (SMA), being proactive, forward-looking and outward-looking, is more relevant to larger firms pursuing product differentiation strategy. Equally important is the changing role of management accountants who begin to participate in the strategic decision-making process.

Key words: business strategy, strategic management accounting, management accountants, intensity of competition.

Introduction

Due to the changing competitive and manufacturing environment, traditional management accounting which focuses on financial measurements is no longer sufficient for managers' decision-making in this new era (Bromwich and Bhimani, 1989; Otley, 2001; Drury, 2004). Simmonds (1981) first introduced the term "strategic management accounting" (SMA) which involves numerous new techniques that are long-term, future-oriented and externally focused (Bromwich and Bhimani, 1989; 1994; Wilson, 1995; Roslender and Hart, 2003). The strong advocates of SMA are Simmonds (1981), Shank (1989), Bromwich (1996), Roslender (1995) and Kaplan and Norton (1992). Most of their work is influenced by Porter (1980; 1985) who introduced value chain analysis and five competitive forces in formulating and implementing strategy. Though there were much interests expressed on the use of SMA, the empirical studies on the effectiveness in using the SMA techniques have been scant. Langfield-Smith (2008) found no compelling evidence to wide adoption of SMA and no consensus on the meaning of the term "SMA".

Past research in SMA has concentrated on which accounting techniques are used and in what circumstances these techniques are applied (Tillmann and Godddard, 2008). Cadez and Guilding (2008) introduced two dimensions of SMA - usage of SMA techniques and accountant's participation in strategic decision-making process – which play as mediators in the contingency model. Though SMA usage mediates the relationship between strategy and firm performance, Cadez and Guilding (2008) were not able to find any association between market orientation and SMA usage, and between strategic role of accountant and firm performance. According to the feedback of interviews, they have also omitted an important contextual factor, intensity of competition. Therefore, the current study is motivated by the two dimensions of SMA introduced by Cadez and Guilding (2008) and their research gap in relation to intensity of competition as a contextual factor.

Past findings on the relationship between competition and usage of management accounting practices are not conclusive. For example, Hoque et al. (2001) reported that there is a positive and significant relationship between the intensity of market competition and use of multiple measures for performance evaluation. Dekker and Smidt (2003) also found the adoption of target costing is related to a competitive and unpredictable environment. However, Ax et al. (2008) discovered that the adoption of target costing positively correlates with the intensity of competition, but negatively correlates with perceived environmental uncertainty. They claimed that when an environment is perceived as uncertain, customer and competitor information can be unpredictable or difficult to predict. Their finding is similar to Hoque (2004) who found no support on the relation between environment uncertainty and non-financial performance measures. Hoque and James (2000) and Lee and Yang (2011) found no significant association between intensity of competition and integrated performance measurement systems.

Since contingency-based management control systems researches which look at contemporary techniques are still lacking (Chenhall, 2003), the current study attempts to provide more understanding of SMA usage as proposed in Cadez and Guilding (2008). In Malaysia, management control system is still dominated by the use of financial accounting (Smith, et al., 2008). However, the SMA information has been used to some extent among electrical and electronics companies operating in Malaysia (Noordin, et al., 2009). Hence, building from Cadez and Guilding's (2008) model, the objective of the current study is primarily to investigate whether usage of SMA techniques and the accountants' participation in strategic decision-making process mediate the relationship between differentiation strategy and firm performance. This study also examines the impact of strategic role of accountant and intensity of competition on the usage of SMA.

The remainder of the paper is structured in seven sections. Second section presents literature review and third section covers theoretical framework and hypotheses development. This is followed by research method and results in section four and five. Section six covers discussion of findings. Final section presents conclusion and limitations of the study.

Literature Review

Strategic Management Accounting

In view of the weaknesses in traditional management accounting, the advocates of SMA have strongly suggested that firms operating in the competitive environment should adopt advanced management accounting techniques (Simmonds, 1981; Shank, 1989; Bromwich, 1996; Roslender, 1995; and Kaplan and Norton, 1992). Bromwich and Bhimani (1989; 1994), in their CIMA Reports, stressed the importance of qualitative and non-financial measures in manufacturing activities. Management accounting needs to become more externally focused to enable the enterprise to look outward to the final goods market. Kaplan initiated activity-based costing (ABC) which is based on the principle that it is activities and not products that give rise to costs. This approach eventually became activity-based management (ABM) which is capable of identifying and implementing opportunities for improvements in profitability, efficiency and quality within an entity (Roslender, 1995). Shank (1989) proposed the blending of three themes: value chain analysis, strategic positioning analysis and cost driver analysis from the strategic management literature to become a framework called 'strategic cost management' (SCM). Since strategy and vision are of significance to all the stakeholders in the organization, Kaplan and Norton (1992) developed a new performance measurement system called Balanced Scorecard which takes into consideration the necessity of customer, internal business process, and learning and growth perspectives alongside a financial perspective, in defining future orientation. Roslender (1995) considered SMA as a "generic approach to strategic positioning" which encompasses Porter's competitive advantage theory and his strategic cost analysis.

Based on the latest literature, Cadez and Guilding (2008) reported that there are 16 SMA techniques which can be classified into five broad categories: costing; planning, control and performance measurement; strategic decision-making; competitor accounting and customer accounting. However, there is an over-simplification by viewing each of these 16 techniques as independent of one another (Woods, et al., 2012). For example, in applying 'strategic cost management' approach, value chain analysis, cost driver analysis or ABC, quality costing and competitive advantage analysis have to be considered (Wilson, 1995; Bhimani and Langfield-Smith, 2007). The valuation of customers as asset is also not possible without first applying customer profitability analysis and lifetime customer profitability analysis. The list appears not exhaustive, as Bhimani and Langfield-Smith (2007) have also included interactive management control systems (MCS) as another strategic oriented technique.

Strategic role of accountant

SMA accounting information system requires information from both internal and external data for strategic cost analysis. This suggests the important role of management accountants in helping to provide information for strategic decision-making and strategic control (Bromwich 1996). The increasing globalization of business over the last two decades and the speed of technological change have also profoundly affected the role of management accountants (Burns and Baldvinsdottir, 2007). As uncertainty increases, pre-planning will eventually become harmful to performance and organizations require the interaction of accountants and managers to determine appropriate courses of action (Chapman 1998). Using a case study, Lambert and Pezet (2010) argue that management accountants' involvement in monthly performance review meetings is proof that they are becoming the producer of truthful knowledge. Strategic decision-making process involves "the scanning of the environment to gather data and making sense of it by developing cognitive models and building mental representations that guide managers' thinking and the direction of their decisions" (Bonn and Fisher, 2011 p.7). With their expertise

and experience, it is imperative that management accountants participate in the strategic decision-making process and enhance the firm's effectiveness.

Business strategy

Strategy is one of the important contextual variables in the management accounting research using contingency approach (Chenhall, 2003). According to Mintzberg and Waters (1985), deliberate and emergent strategies may be conceived as two ends of a continuum which real-world strategy lies. It is unlikely to find any perfectly deliberate strategies in organizations. They are of the view that highly deliberate strategy-making processes will be found to drive organizations away from prospecting activities and towards cost leadership. Some writers have questioned the effectiveness of traditional MCS in an organization which tends to focus on emergent strategy formation (Lord, 1996).

Prominent business-strategy typologies identified are: prospectors-analyzers-defenders (Miles & Snow, 1978), build-hold-harvest (Gupta & Govindarajan, 1984) and product differentiation-cost leadership-focus (Porter 1980; 1985). These typologies have caused much research interest in strategy-MCS relationship (Langfield-Smith, 1997; Chapman, 1997). Porter's (1980; 1985) competitive strategy is more theoretically sophisticated than others (Miller, 1988), and receives more empirical support from previous research than other constructs have and remains the most commonly supported and identified in key strategic management literature (Allen and Helms, 2006). It was also cited in Govindarajan (1988) that Porter's (1980) strategy framework conceptualization is academically well accepted and internally consistent (Dess and Davis, 1984; Hambrick, 1983).

Past research has shown that differentiation, build or prospector type strategies have similar characteristics (Langfield-Smith, 1997). To ensure long term profitability and sustainable competitive advantage, Porter (1980; 1985) claims that a firm must make a choice between one of the generic strategies (cost leadership or differentiation) rather than end up being "stuck in the middle" (Allen and Helms, 2006). These strategies are mutually exclusive. A firm following differentiation strategy seeks to offer some unique dimension in its products/service that is valued by customers and which can command a premium price (Porter, 1980; Wilson, 1995; Langfield-Smith, 1997). Past studies found firms following build or innovation-oriented prospector strategy placed greater emphasis on non-financial measures or future oriented and broad scope information system such as SMA (Govindarajan and Gupta, 1985; Hoque, 2004; Cadez and Guilding, 2008). As such, this study emphasizes the use of differentiation strategy as a competitive strategy variable and excludes cost leadership strategy.

Intensity of competition

Intensity of competition is the degree of external influence that threatens the success of organizational goals (Mia and Clarket, 1999). Planning and control can become more problematic when firms are facing uncertain events, such as fierce competition from the market and competitors. At times, managers' perception of 'competition' could be culturally influenced (Velayutham and Abdel-Maksoud, 2007). The utilization of contemporary management accounting techniques may be influenced by the perception of different aspects of competition,

e.g. quality, innovation, customer service, price, delivery and flexibility (Velayutham and Abdel-Maksoud, 2007).

Theoretical Framework and Hypotheses Development

Contingency theory assumes that there is no one best way to organize and greater information must be processed during uncertainty to achieve a given set of performance (Galbraith, 1973). The design and use of control systems is contingent upon the context of the organizational settings (Fisher, 1998). Management accounting research has attempted to identify and assess the most important contingent variables that impact on controls design (Ryan, et al., 2002; Otley, 1995). The theoretical model of this study (see Figure 1) demonstrates that firm performance is enhanced by the accountants' participation in strategic decision making processes (strategic role of accountant) and usage of SMA techniques. Intensity of competition and strategic role of accountant are posited as the antecedents to usage of SMA. The model assumes that usage of SMA functions individually as a mediator for the relation between the predictor (strategy) and the criterion (firm performance) (Baron and Kenny, 1986). This mediation model is in line with the Cartesian-contingency approach identified by Gerdin and Greve (2004) which states that the effect of the independent variable (strategy) on the dependent variable (firm performance) can operate through the mediating variable (SMA usage).

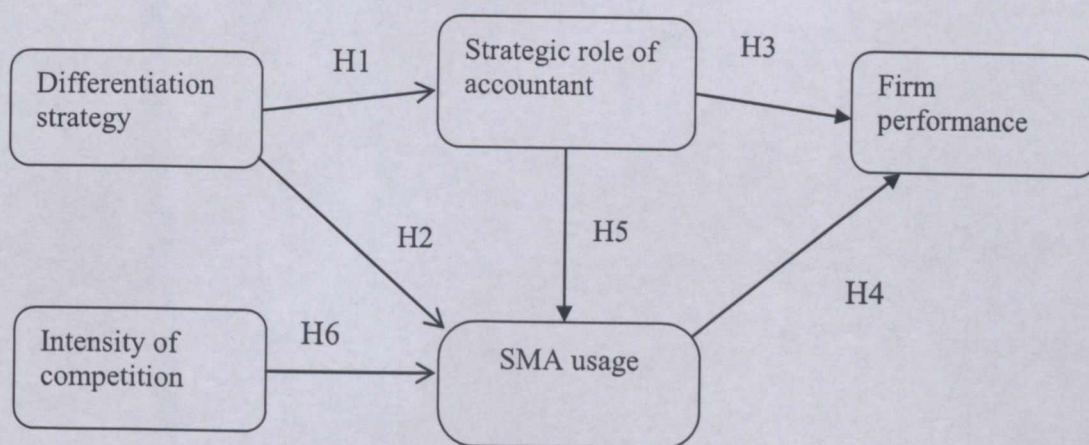


Figure 1: Theoretical model of the study

Differentiation strategy – strategic role of accountant

Porter (1980; 1985) contends that firm can attain above-average performance if it possesses one of the two basic competitive strategies (i.e. cost leadership or differentiation). Firms following differentiation strategy emphasize on growth, innovation and learning. They will focus on value

creativity and create a product or service recognized in industry wide as unique (Kumar and Subramanian, 1997; Dess and Davis, 1984).

The first dimension of SMA refers to strategic role of accountant or accountants' participation in strategic decision-making process. This is crucial as management accountants are capable of collecting internal and external information, whether financial or non-financial, and setting desired objectives and direction, and monitoring the implementation and success of strategic plans (Ittner and Larcker, 1997; Louis, 2011). In this new era, management accountants generally engage in multiple new tasks which include: assessing the financial implication of operational decisions, risk assessment, strategy formulation, change management system design and implementation, and customer relationship management (Burns and Baldvinsdottir, 2007). The emergence of SMA has made accountants to become integral to strategic decision-making process which leads to a new concept called "strategic accountant" (e.g. Brouthers and Roozen, 1999; Cadez and Guilding, 2008). These arguments explain the relationship between strategy and strategic role of accountants.

Furthermore, in practice, management accountants have been regarded as middle managers. When an innovation strategic priority is selected, it has a positive relationship with middle management involvement (Chenhall and Morris, 1995; Cabrera et al., 2003) and requires a more expansive set of information, emphasizing flexibility that allows the organization's participants to adjust planned decisions (Abernethy and Brownell, 1999). Floyd and Wooldridge (1992) found that managers in 'prospectors' firms are reported to have significantly higher levels of upward and divergent forms of strategic involvement than analyzers and defenders. Veliyath and Shortell (1993) also found support that prospectors place greater emphasis on key personnel involvement in the planning process than defenders. This is supported by Cadez and Guilding (2008) who found accountants' participation in strategic decision-making is greater in prospector-type companies than defender-type companies.

Moreover, the management teams with diversity in terms of backgrounds (e.g. age, experience, and education) are broader minded and better able to recognize strategic opportunities. In this regard, Naranjo-Gil and Hartmann (2007) found that heterogeneous top management teams with different experience are positively and significantly associated in strategic change toward prospector position. Accountants are prepared to take on the role of strategic advisors and to act as change controllers across functions and hierarchical levels (Faure and Rouleau, 2011). A survey of 280 accountants in Australia found that management accountants are strongly involved in strategic formulation and implementation (Ferreira and Moulang, 2009). For example, accountants need to perform strategic cost analysis in order to cost product characteristics or attributes which in turn contributes to Porter's (1980) differentiation strategy.

More specifically, several empirical studies found that high involvement of middle managers, including accountants, in the strategic decision-making process is positively associated with the adoption of innovative or differentiation strategy (Floyd and Wooldridge, 1992; Veliyath and Shortell, 1993; Chenhall and Morris, 1995; Naranjo-Gil and Hartmann, 2007; Cadez and Guilding, 2008). This is possible due to firms pursuing differentiation strategy are facing greater environmental uncertainty, they require higher creativity, innovativeness, risk

taking and broad inter-functional discussion (Anthony and Govindarajan, 1998; Barney, 2001; Langfield-Smith, 2005; Cadez and Guilding, 2008). Hence, the following hypothesis is developed.

H1: Differentiation strategy is positively associated with strategic role of accountant.

Differentiation strategy – SMA usage

Product differentiation strategy creates customer loyalty and higher margins through product innovation, brand image, advertising intensity and exclusive distribution network. Some forms of these advantages can be difficult to imitate (Ghemawat, 1986; Porter 2001). Organizations that shifted towards a prospector typology are more likely to use MAS interactively (Simons, 1990; 1994; Abernethy and Brownell, 1999). Interactive use of management accounting is a continual exchange between top management and lower levels of management. Similar to the interactive use of MAS, SMA can be used interactively to generate the benefits from on-going dialogue.

Moreover, broad scope MAS information is found to be more effective in firms employing a strategy of continuous product/market development and innovation (prospectors) than in firms which are protecting a comparatively narrow and stable product-market (defenders) (Abernethy and Guthrie, 1994). Similarly, Naranjo-Gil and Hartmann (2007) found broad scope design of MAS is associated to strategic change toward prospector positions but not associated to strategic change toward defender positions. Broad scope information is actually an important characteristic of SMA.

Amir et al. (2010) found support that differentiation strategy positively influences the use of contemporary performance measurement systems. Firms emphasizing product differentiation also found balanced performance measures which are linked to measures of customer satisfaction and benchmarking more suitable (Chenhall and Langfield-Smith, 1998). In formulating and implementing a product differentiation strategy to overcome competitive threats, company requires an accurate approximation of product attribute costs, and monitoring these costs overtime (Mia and Clarke, 1999).

Baines and Langfield-Smith (2003) found advanced management accounting practices (AMAP), including SMA techniques help managers to focus on achieving differentiation priorities, such as innovative products, quality, flexibility, delivery and customer service compared to traditional financial-based accounting practices. Changes in AMAP are also associated to higher use of non-financial-based management accounting information (Baines and Langfield-Smith, 2003).

Porter (1980; 1985) suggested that competitor analysis is fundamental to the pursuit of competitive advantage. Guilding (1999) found evidence that, relative to other firms, prospector firms make greater use of, and perceive greater helpfulness in competitor-focused accounting practices. Anderson and Lanen (1999) also found prospectors pay more attention to competitors' performance and measures on customer satisfaction. Similarly, prospectors who are considered innovative organizations tend to adopt contemporary accounting techniques, e.g. activity-based costing (Gosselin, 1997). Broad scope accounting information such as strategic cost data, external information on competitors and customers are valuable attributes of SMA which may

help firms pursuing differentiation strategy to deal with intense competition. Hence, the following is hypothesized.

H2: Differentiation strategy is positively associated with usage of SMA.

Strategic role of accountants – Firm performance

Chapman (1998) argues that accounting does have a beneficial role in highly uncertain conditions, and that the interaction patterns of accountants appear to be a crucial factor in this relationship. Individuals' behavior influences how managers process information in control systems and may have positive/negative impact in decision-making process. Increase in satisfaction can sometimes result in increased productivity (Hoque, 2006).

Naranjo-Gil and Hartmann (2007) found heterogeneous top management teams with different experience could be beneficial in strategic change or during uncertain environment. However, Chenhall and Langfield-Smith (2003) did not find team-based structure results in performance improvement. Cadez and Guilding (2008) also fail to support accountants' participation in strategic decision making process enhances performance. But management accounting has changed its direction to strategic thinking and helping in formulating business or corporate strategy in the age of globalization. Management accountants, as transformational leaders, are also playing their roles in ensuring sustainable growth (Mia and Ahmed, 2005). Hence, it is expected that the strategic role of accountant can improve the firm performance.

H3: There is a positive relationship between strategic role of accountant and firm performance.

SMA usage – Firm performance

The relationship between management accounting usage and performance has been extensively investigated (Cadez and Guilding, 2008). However, Cadez and Guilding (2008) pointed out that the exact nature of its relationship is rather ambiguous (Baines and Langfield-Smith, 2003) and the relationship is rather dependent on organizational contextual factors (Chenhall, 2003). With regard to SMA, despite its overwhelming increase in literature, it suffers from a lack of empirically based research (Cadez and Guilding, 2008; Nixon and Burns, 2012). Therefore, for the purpose of this study, prior studies relating to budgets, the use of management accounting system (MAS), the use of non-financial information, benchmarking, and balanced scorecard will be used to lend some support for the SMA and performance relationship.

SMA is expected to provide many benefits similar to budget setting process if used interactively or as a planning mechanism. According to Dunk (2011), budgets that are used predominantly as a planning mechanism and consistent with Simons' (1990) interactive MCS approach, then such planning would facilitate product innovation resulting in enhanced performance. This argument is consistent with Abernethy and Brownell (1999) who found interactive use of budgets (i.e. using the budget to stimulate dialogue and continuous learning) is matched with higher levels of strategic change and performance. Generally, academics regard SMA as forward-looking,

outward-looking, and broad scope which includes financial and non-financial measures (Wilson, 1995; Lord, 2007). Empirical investigation supports that firms employing a combination of financial and non-financial measures achieve higher returns on assets (Said, et al., 2003). SMA, which has the characteristics of broad scope MAS information, may be used interactively to encourage dialogues among managers and to enhance performance. This is in line with the argument that interactive use of MAS focuses on the use of information for dialogue and communication (Abernethy and Brownell, 1999; Simons, 1995). Abernethy and Bouwens (2005) argued that if sub-managers are involved in the system design, there will be a greater level of managerial acceptance of accounting innovation, greater level of system satisfaction, and which in turn leads to the performance improvement. In the context of SMA, sub-managers' acceptance of SMA practices and satisfaction can lead to higher performance if sub-managers are involved in the SMA system design. Interestingly, Ittner and Larcker (1997) found that the association between benchmarking (a form of SMA techniques) and firm performance depends on the industry types. They revealed that benchmarking has little association with the performance of firms in computer industry but has a positive effect on the performance in the automotive industry.

Moreover, Kennedy and Affleck-Graves (2001) discovered firms adopting ABC techniques outperformed or matched non-ABC firms. Malina and Selto (2001) found BSC creates strategic alignment, effective motivation and positive organizational outcomes. Likewise, Hoque and James (2000) found that greater use of BSC is associated with improved performance. Porter (1980 and 1985) suggests that competitor analysis is fundamental to the pursuit of competitive advantage. Chenhall (2005) also discovered integrative strategic performance measurement systems, such as BSC, enhance the strategic competitiveness of organizations through the support of alignment of manufacturing with strategy and organizational learning.

As set out above, most SMA techniques can enhance competitive advantage and contribute to better performance. Hence the following hypothesis is proposed.

H4: SMA usage is positively associated with firm performance.

Strategic role of accountant – SMA usage

Management accounting practices are gaining importance and changing in substance due to the demands of new environment. Firms do not need bookkeepers but management accountants with requisite skills and business acumen who can communicate well and can influence line changes. They are able to produce much more qualitative, future-oriented and broader scope information (Anderson and Lanen, 1999; Brouthers and Roozen, 1999). Fry, et al. (1995) also argued that management accountants must take a broader role in the management of the manufacturing plant by becoming more proactive in the design, selection, and implementation of a management accounting system that supports manufacturing strategies.

Accountants have become more pro-active in supporting strategic management. Besides getting involved in the design of management control systems, they have to provide financial and non-financial information for the multi-disciplinary teams for strategic decision-making and performance measurement. If the accountants are involved in the design and implementation of

MAS together with sub-unit managers, it may encourage higher usage of the systems (Abernethy and Bouwens, 2005). Similarly, with management accountants as a business partner, the functional managers are actively involved in the design and regular update of information system (Pierce and O'Dea, 2003). Chapman (1998) argued that accounting, as a tool for organizational control, exists not as a collection of techniques, but as on-going process. Thus, accountants' interaction in such process is to shape the accounting for organizations in highly uncertain conditions.

Accountants play an important role in costing the characteristics or attribute possessed by product in strategic planning and modeling the cost structures of competitors (Bromwich, 1996). Hence when accountants are actively involved in providing cost information for strategic decision-making, it may result in higher usage of SMA. Management accountants having a business unit orientation is more innovative on accounting system design than those with a functional (accounting) orientation (Emsley, 2005). Bromwich and Bhimani (1994) also agreed that SMA demands new skills and attitudes of management accountants and requires full cooperation with other functional managers.

If the accountants are able to participate in the strategic decision-making process, it is likely that they can exert the influence on the usage of these SMA techniques.

H5: Strategic role of accountants is positively associated with SMA usage.

Intensity of competition – SMA usage

Intensity of competition is much related to environment and represents one dimension of environmental uncertainty (e.g. Duncan, 1972; Miles and Snow, 1978). According to contingency researchers, competitive environment determines the form and the intensity a firm makes use of the management accounting practices (Anderson and Lanen, 1999). Accounting systems have to incorporate more non-financial information, more forecasts, and more frequent reporting during uncertain environment (Chapman, 1997). Organizations tend to use non-financial and broad scope MAS information to a greater extent in order to cope with external environmental uncertainty more effectively (Chenhall and Morris, 1986; Gul and Chia, 1994; Chong and Chong, 1997).

There is a positive relationship between management accounting system sophistication and competition intensity (Khandwalla, 1972). Intensity of market competition also increases demand of accounting information (Hill, 2000) as customers have increased demands with respect to quality and efficiency (Anderson and Lanen, 1999). Moreover, Baines and Langfield-Smith (2003) also discovered increased competitive environment influences changes in organizational design, advanced manufacturing technology and advanced management accounting practices. Al-Hazmi (2010) argued that market competition stimulates strategic movement and use of cost information for strategic considerations is important to support strategic development in meeting competitive pressures. Hoque (2011) found a significant association between intensity of competition and changes in MAS which are more appropriate for decision making in competitive environment. Likewise, Libby and Waterhouse (1996) found

intensity of competition positively correlated with MAS changes for Canadian manufacturing companies.

Furthermore, the findings of Dekker and Smidt (2003) revealed that to better cope with the pressures from a perceived intensive competition, firms are induced to adopt and develop management accounting practices. Target costing is particularly beneficial to ensure that only profitable products are introduced into the market under intense competitive pressure. Dekker and Smidt (2003) found that the adoption of target costing is positively correlated with the intensity of competition. But Ax, et al. (2008) claimed that there is no direct relationship between environmental uncertainty and the adoption of target costing since customer and competitor information can be unpredictable or difficult to predict.

Ambe and Sartorius (2002) concurred that there is a positive correlation between the level of competition and the performance of SBUs utilize management accounting as a strategic response to competition. SMA techniques, including benchmarking, performance monitoring, JIT manufacturing systems help to provide strategic response to increased intensity of competition (Ambe and Sartorius, 2002). Firms operate in competitive environment will be motivated to change their control systems because appropriate costing systems and proper performance monitoring are essential to survival (Kloot, 1997). In addition, with greater competition, firms also have to find ways to differentiate their products and services from those provided by competitors by developing customer retention initiatives and customer profitability information (Guilding and McManus, 2002). Noordin et al. (2009) found that Malaysian electrical and electronics companies operating under intense competitive environment generally use SMA information elements (i.e. competitor information analysis, customer information analysis and product-related information analysis) more extensively.

From the foregoing evidence, it is obvious that companies will adopt broad scope MAS, non-financial information, target costing, and customer and competitor information analysis to support strategic development under competitive environment. Thus, it is reasonable to expect that intensity of competition is positively associated with SMA usage as stated by the following hypothesis:

H6: Intensity of competition is positively associated with SMA usage.

Research Method

Sampling frame

The study used strategic business units (SBUs) of Malaysian manufacturing public listed companies as the unit of analysis. It is believed that these companies should have more established management accounting department than unlisted companies. The manufacturing sector was chosen because the usage of management accounting systems is most common in the said sector (Smith et al., 2008). A total of 430 companies engaging in manufacturing were randomly selected from around 1,000 companies listed in the Bursa Malaysia database.

Survey and respondents

This study employed mail survey as it enables gathering of information from a broad cross-section of companies at relatively low cost (Hoque, 2004). A total of 103 completed

questionnaires were received, representing a response rate of 24%. The response rate is within the range of recent mail surveys in similar academic research (Chenhall et al., 2011; Parnell, 2011; Amir et al., 2010). Since company size is an important factor influencing the MAS design and adoption (Guilding, 1999; Hoque and James, 2000; Gerdin, 2005; Cadez and Guilding, 2008), for the purpose of the data analysis, a total of 43 SBUs that employ more than 500 employees (based on United States' definition of large companies in manufacturing industry) were identified (<http://www.bizjournals.com/bizjournals/on-numbers/scott-homas/2012/07/16055>). Most contingency-based MCS studies measured size according to number of employees (e.g. Abernethy and Bouwens, 2005; Libby and Waterhouse, 1996; Gerdin, 2005).

Variable Measurement

Strategic management accounting (SMA): The study adopted Guilding and Mc Manus's (2002) instrument which is applied to measure the degree of SMA techniques usage. A total of 16 SMA techniques (Cadez and Guilding, 2008) was grouped into five categories: (1) *costing* (attribute costing, life-cycle costing, quality costing, target costing, value-chain/activity costing), (2) *planning, control and performance measurement* (benchmarking, integrated performance measurement), (3) *strategic decision-making* (strategic costing, strategic pricing, brand valuation), (4) *competitor accounting* (competitor cost assessment, competitive position monitoring, competitor performance appraisal), and (5) *customer accounting* (customer profitability analysis, lifetime customer profitability analysis and valuation of customers as assets). Based on Likert-type scale ranging from "1" (not at all) to "7" (to a great extent), the respondents were asked the following question - "To what extent does your organization use the following techniques". To help interpretation, a glossary containing definitions of these SMA techniques was provided in the questionnaire.

Differentiation strategy: Measurement of Porter's (1980) competitive strategy is based on scales developed by Narver and Slater (1990) consisting of four elements: introduce new products, differentiate products, offer broad product line, and utilize marketing research. The respondents were asked to express the extent the organization engaged in product differentiation using a Likert-type scale ranging from "1" (not at all) to "7" (to a large extent).

Strategic role of accountant: The extent of the accountants' involvement in the strategic decision making process was assessed based on Wooldridge and Floyd's (1990) instrument using a Likert-type scale ranging from "1" (not at all involved) to "7" (fully involved).

Intensity of competition: Competition is measured using the same instrument applied by Guilding and McManus (2002), which was modified from Khandwalla (1972). Using a seven-point scale ranging from "1" (negligible intensity) to "7" (extremely intense), respondents were asked to indicate the perceived intensity of competition of five indicators: selling and distribution, quality and variety of products, price, market share, and customer service.

Firm performance: Firm performance was measured according to six dimensions adopted from Gupta and Govindarajan (1984). The respondents were asked to assess their organization's performance over the past three years in comparison with the industry average, across six

dimensions on a seven point Likert-type scale, ranging from 1 (well below average) to 7 (well above average). The six dimensions are: ROI, sales growth/market share, new product development, research and development, cost reduction programs and human resources development. There is evidence to suggest that managers' self-rating of performance is highly correlated to objective measures (Chenhall, 2005).

Results

The mean scores and standard deviation of five variables used in the contingency model are shown in Table 1. Panel A shows the five categories of SMA techniques according to Cadez and Guilding (2008). First category, 'costing', appears not too popular to the Malaysian manufacturing companies as the mean score is below 4.00. The most popular SMA technique is in the 'planning and control' category. As shown in panel B, except for competition which indicates a mean score of 5.69, mean scores of other variables range between 4.39 and 4.88.

Table 1: Descriptive Statistics

A) Types of SMA techniques	N	Theo.	Actual	Actual	Mean	Std. Dev.
		Range	Min	Max		
Costing	43	1.0 - 7.0	1.0	6.6	3.83	1.46
Planning, control	43	1.0 - 7.0	1.0	7.0	4.93	1.24
Strategic decision-making	43	1.0 - 7.0	1.0	7.0	4.63	1.32
Competitor accounting	43	1.0 - 7.0	1.0	7.0	4.45	1.54
Customer accounting	43	1.0 - 7.0	1.0	7.0	4.10	1.45

B) Variables	N	Theo.	Actual	Actual	Mean	Std. Dev.
		Range	Min	Max		
SMA usage	43	1.0 - 7.0	1.1	6.7	4.39	1.12
Differentiation	43	1.0 - 7.0	2.0	7.0	4.82	1.25
Role of accountant	43	1.0 - 7.0	1.0	7.0	4.85	1.47
Competition	43	1.0 - 7.0	3.8	7.0	5.69	0.79
Performance	43	1.0 - 7.0	1.9	6.9	4.88	1.04

Partial Least Squares (PLS) Results

The hypotheses are tested using Partial Least Squares (PLS) which is a second generation statistical technique that allows testing models with multiple independent, mediating and dependent variables. PLS is more suitable for smaller sample size than covariance-based techniques (Chenhall, 2005; Hulland, 1999) and in an early stage of theory development (Henseler, et al. 2009). The correlation matrix produced from PLS shows that all the variables are significantly related to each other except for strategic role of accountant which is negatively related to firm performance (see Table 2).

A structural model in PLS technique identifies the relationship among constructs while a measurement model specifies the relations between the indicators and the constructs that they represent (Chenhall, 2005). There are two basic types of epistemic relationships relevant to

causal modeling: reflective indicators and formative indicators. The researchers have to ascertain whether it is more correct to use the underlying construct as ‘causing’ the observed measures (i.e. a reflective relationship) or of the measures as ‘causing’ (or defining) the construct (i.e. a formative relationship) (Hulland, 1999). Based on the nature of measures used in this study, the indicators in this study are considered reflective indicators.

The results of reflective measurement (outer) models should be assessed with regard to their reliability and validity. The first criterion is to check for individual item reliability by examining the loadings (or simple correlations) of the measures with their respective construct. In general, items with loadings of less than 0.4 (a threshold commonly used for factor analysis results) or 0.5 should be dropped (Hulland, 1999). Indicators having loadings below 0.6 were dropped in this PLS test. The dropped items are: attribute costing, life-cycle costing, quality costing and target costing (costing category), competitive position monitoring and competitor performance appraisal (competitor accounting category), and lifetime customer profitability analysis and valuation of customers as assets (customer accounting category). The relationship between measures and constructs was evaluated by the measurement model through assessing the scale measures reliability and validity a shown in Figure 2.

Table 2: Latent variable correlations

	Competition	Differentiation strategy	Performance	SMA usage	Strategic accountant
Competition	0.763				
Differentiation strategy	0.438	0.849			
Performance	0.244	0.064	0.843		
SMA usage	0.289	0.526	0.162	0.737	
Strategic accountant	0.194	0.519	-0.174	0.533	0.931

Square roots of AVE are shown diagonally

Table 3: Internal consistency and convergent validity of measurement model

	AVE	Composite Reliability	R Square	Cronbachs Alpha	Root AVE
Competition	0.582	0.804		0.651	0.763
Differentiation strategy	0.722	0.912		0.873	0.849
Performance	0.711	0.936	0.121	0.920	0.843
SMA usage	0.544	0.904	0.375	0.879	0.737
Strategic accountant	0.867	0.970	0.269	0.961	0.931

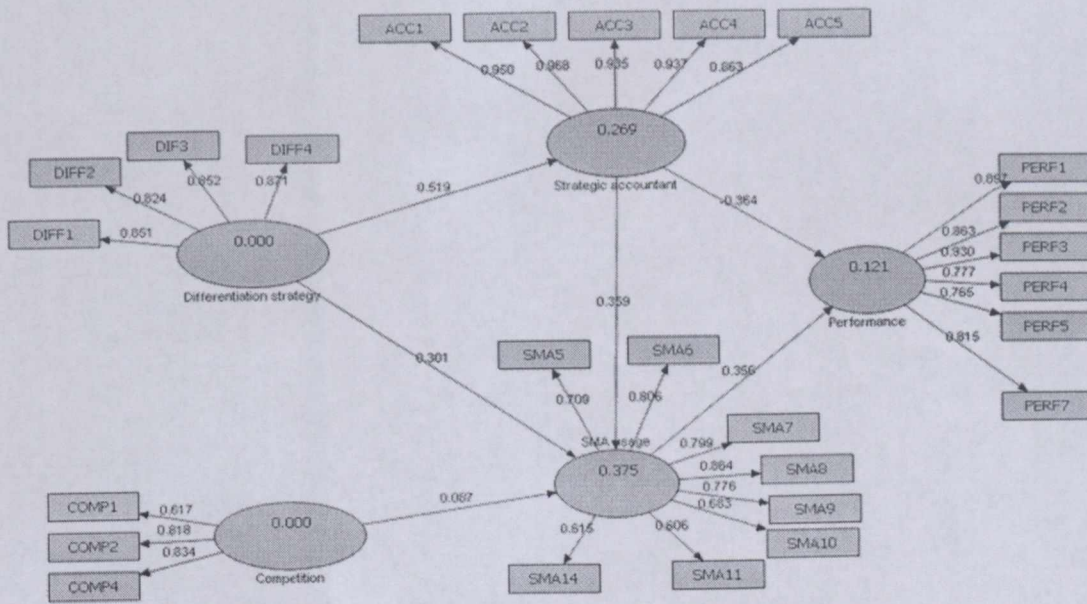


Figure 2: PLS measurement model

To satisfy convergent validity, a set of indicators must represent one and the same underlying construct. An AVE (average variance extracted) value of at least 0.5 indicates sufficient convergent validity. Composite reliability and Cronbach's alpha must have an internal consistency reliability value above 0.7, whereas a value below 0.60 indicates a lack of reliability (Henseler et al., 2009; Hulland, 1999). Table 3 presents the results of composite reliability and Cronbach's alpha, showing all values exceeding 0.8 except for competition which has a value of 0.651. The AVEs of all latent variables are also above 0.5.

In addition, convergent validity exists when the t values of the outer model loadings are above 1.96. Table 4 shows that the t values of the outer model are much greater than 1.96 indicating high convergent validity.

Table 4: Outer Loadings (Mean, STDEV, T-Values)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	Standard Error (STERR)	T Statistics (O/STERR)
ACC1 <- Strategic accountant	0.950	0.950	0.021	0.021	44.600
ACC2 <- Strategic accountant	0.968	0.966	0.017	0.017	56.822

ACC3 <- Strategic accountant	0.935	0.931	0.028	0.028	33.516
ACC4 <- Strategic accountant	0.937	0.933	0.035	0.035	27.134
ACC5 <- Strategic accountant	0.863	0.857	0.048	0.048	18.036
COMP1 <- Competitio n	0.617	0.586	0.271	0.271	2.278
COMP2 <- Competitio n	0.818	0.736	0.226	0.226	3.623
COMP4 <- Competitio n	0.834	0.769	0.229	0.229	3.643
DIF3 <- Differentiat ion strategy	0.852	0.853	0.040	0.040	21.266
DIFF1 <- Differentiat ion strategy	0.851	0.847	0.053	0.053	16.018
DIFF2 <- Differentiat ion strategy	0.824	0.815	0.074	0.074	11.160
DIFF4 <- Differentiat ion strategy	0.871	0.865	0.053	0.053	16.579
PERF1 <- Performanc e	0.897	0.887	0.081	0.081	11.134
PERF2 <- Performanc e	0.863	0.848	0.090	0.090	9.638
PERF3 <- Performanc e	0.930	0.916	0.068	0.068	13.637
PERF4 <- Performanc e	0.777	0.748	0.147	0.147	5.301
PERF5 <- Performanc	0.765	0.743	0.141	0.141	5.425

e					
PERF7 <- Performanc e	0.815	0.785	0.120	0.120	6.768
SMA10 <- SMA usage	0.684	0.683	0.123	0.123	5.553
SMA11 <- SMA usage	0.606	0.583	0.146	0.146	4.150
SMA14 <- SMA usage	0.615	0.598	0.144	0.144	4.277
SMA5 <- SMA usage	0.709	0.685	0.120	0.120	5.920
SMA6 <- SMA usage	0.806	0.802	0.086	0.086	9.327
SMA7 <- SMA usage	0.799	0.768	0.134	0.134	5.960
SMA8 <- SMA usage	0.864	0.852	0.065	0.065	13.380
SMA9 <- SMA usage	0.776	0.740	0.132	0.132	5.895

The cross loadings offer another check for discriminant validity. Cross loadings of indicators for a respective latent variable should be higher than the cross loadings of their correlations with other latent variables. The PLS results confirm that cross loadings of indicators for each respective construct are higher than other indicators. The discriminant validity can also be assessed by comparing the square roots of AVE calculated for each of the constructs and the correlations between different constructs in the model. The square roots of AVE are all higher than the latent variable correlations denoting discriminant validity (Table 2).

PLS does not use any overall goodness-of-fit measures. Fit is evaluated by the overall incidence of significant relationships between constructs and the explained variance of the endogenous variables (Chenhall, 2005). Table 5 shows the path coefficients among latent variables and their t values. A bootstrap procedure can be used to provide confidence intervals for all parameter estimates (path coefficients). Bootstrapping using 500 samples with replacement was used to assess the significance of the path coefficients. Figure 3 illustrates the structural model as well as the significant path coefficients among the latent variables.

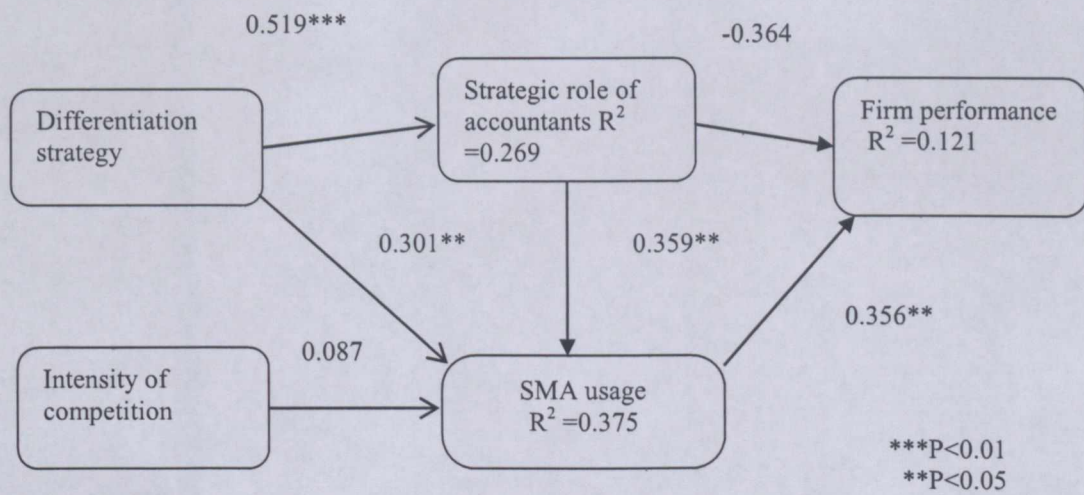


Figure 3: Structural model showing path coefficients and R²

Table 5: Path Coefficients (Mean, STDEV, T-Values)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	Standard Error (STERR)	T Statistics (O/STERR)
Competition -> SMA usage	0.087	0.141	0.129	0.129	0.674
Differentiation strategy -> SMA usage	0.301	0.297	0.149	0.149	2.025
Differentiation strategy -> Strategic accountant	0.519	0.532	0.116	0.116	4.472
SMA usage -> Performance	0.356	0.390	0.165	0.165	2.149
Strategic accountant -> Performance	-0.364	-0.379	0.189	0.189	1.921
Strategic accountant -> SMA usage	0.359	0.349	0.173	0.173	2.073

Test of hypotheses

The aim of this study is to determine the mediating effects of two dimensional SMA on the relationship between differentiation strategy and firm performance. It is posited that differentiation strategy is associated with strategic role of accountant (H1) and SMA usage (H2). Strategic role accountant and SMA usage are hypothesized to be associated with firm performance (H3 and H4). Strategic role of accountant and intensity of competition are hypothesized to have an impact on the usage of SMA (H5 and H6).

The PLS results shown in Figure 3 illustrates that differentiation strategy is associated with strategic role of accountant (0.519, $p < 0.01$) as well as SMA usage (0.301, $p < 0.05$). The structural model also shows SMA usage is positively associated with firm performance (0.356, $p < 0.05$). Strategic role of accountant has an impact on SMA usage (0.359, $p < 0.05$) but it is negatively associated with firm performance (-0.364, ns). This denotes that SMA usage mediates the relationship between differentiation strategy and firm performance. Surprisingly, intensity of competition does not have any impact on SMA usage (0.087, ns). Hence, H1, H2, H4 and H5 are supported, while H3 and H6 are not supported.

Discussion of Findings

Differentiation strategy and SMA relationship

This finding supports that differentiation strategy and SMA usage are positively associated. The finding is consistent with past studies that broad scope systems are more effective for firms applying strategy of continuous/market development and innovation than firms applying strategy of protecting a comparatively narrow and stable product-market (Abernethy and Guthrie, 1994; Hoque, 2004; Cadez and Guilding, 2008). The sample covers 43 large manufacturing companies in Malaysia which are mainly export-oriented (33 companies export 20% and more of their output). Based on the mean scores of competition variable shown in Table 1, it appears that these companies operate under competitive environment and most of them apply differentiation strategy. Since firms pursuing differentiation strategy has to focus on production innovation, growth and learning, managers require new and advanced management accounting techniques to support their decision needs and assist them to monitor progress against their strategies (Chenhall and Morris, 1986; Abernethy and Guthrie, 1994; Baines and Langfield-Smith, 2003; Waweru, 2008;). In addition, Naranjo-Gil and Hartmann (1997) found broad scope MAS is positively associated with interactive use of MAS, and both are correlated to strategic change toward prospector positions. Korravee and Phapruke (2010) also found SMA implementation and competitive strategy are positively associated.

The study also found differentiation strategy to be significantly associated with the changing role of accountant. New role of management accountants covers participation in strategic decision-making process which involves a high degree of uncertainty and risk; requires more information to improve decision quality (Louis, 2011). Management accountants are found to be strongly involved in strategy formulation and implementation, and they are capable of collecting internal and external information, either financial or non-financial (Ittner and Larcker, 1997; Burns and Baldvinsdottir, 2007; Ferreira and Moulang, 2009). In addition, Faure and Rouleau (2011) also

found accountants can act as change controllers across functions and hierarchical levels. Thus the changing role of accountant in strategic orientation is important as firms pursuing differentiation strategy generally encounter strategic uncertainties resulting from new product development. The results are also in line with the Floyd and Wooldridge's (1992; 1997) empirical studies which supported that middle level managers in prospector-type firms have higher level of strategic involvement than in defender-type firms.

SMA and firm performance relationship

SMA usage has a positive impact on firm performance according to the PLS results (H4). This finding is consistent with past empirical studies (e.g. Govindarajan and Gupta, 1985; Chenhall and Langfield-Smith, 1998; Malina and Selto, 2001; Jermias and Gani, 2004) where advanced management accounting techniques have a direct effect on firm performance. Performance measurement systems are significantly related to performance (Hoque and James, 2000; Ittner et al., 2003). Kallunki et al. (2011) also found formal MCS significantly associated with non-financial performance which in turn improves financial performance. Hoque (2011) discovered change to contemporary management accounting systems is positively associated with organizational performance. Broad scope MAS information (such as SMA) is an important antecedent of SBU performance (Chong and Chong, 1997). Dunk (2011) claimed that interactive use of MCS (one form of SMA) facilitates product innovation resulting in improved performance. Hoque and James (2000) found the greater use of Balanced Scorecard (a form of SMA technique) is associated with improved performance. Chenhall (2005) also found integrated performance measurement system such as Balanced Scorecard enhances the strategic competitiveness of organizations.

The results are unable to support that strategic role of accountant is positively associated with firm performance (H3). This is consistent with Cadez and Guilding (2008) who found accountants' participation in strategic decision-making has no impact on firm performance. Perhaps, it is true in Chenhall's (2008) contention that management accountants have yet to be accepted to perform their strategic role in most organizations. Accountants may not be able to play a significant role in strategy formation since they are not educated in strategy and there is a tendency for functional areas to claim ownership of data and reluctant to share it for general business use (Coad, 1996). Without reliable information about the critical external factors relating to the business may result in accountants unable to contribute effectively in strategic decision making. Floyd and Wooldridge (1997) found managers with formal positions in boundary-spanning sub-units (units having social influence e.g. sales, marketing, R & D) report higher levels of strategic influence activity than others, thus facilitating higher organizational performance. It is possible that management accountants may not be in the boundary-spanning units which usually play a key mediating role between environmental uncertainty and internal organizational arrangement (Floyd and Wooldridge, 1997). Hall (2008) also pointed out that role clarity is positively related to managerial performance. In this regard, management accountants may not be aware of the expectations and behaviors associated with their work role (Hall, 2008). It may also due to accountants' traditional preference for provision of financial information and their frequent participation in strategy implementation rather than strategy development (Bhimani and Langfield-Smith, 2007), which is essential in enhancing performance.

The main benefits of increasing the strategic role of accountant may be motivational than instrumental (Perera et al., 1997). Therefore, a match between strategy and role of accountant may be reflected in manager-affective outcomes (e.g. increased motivation and satisfaction) rather than in direct firm performance (Perera et al., 1997). In fact, strategic decision-making process involves high degree of uncertainty and risk, interrelated to other decisions and is difficult to assess its outcomes (Bonn and Fisher, 2011; Louis, 2011).

Strategic role of accountant and SMA usage relationship

Prior research supported that accountants' participation in strategic decision-making process tend to make them more innovative on accounting system design in order to provide more qualitative, future-oriented and broad scope information for decision-making (Anderson and Lanen, 1999; Brouthers and Roozen, 1999). The result of H5 shows that accountants have influence on the usage of SMA for decision making.

Accountants play an important role in costing the characteristics or attribute possessed by product in strategic planning and modeling the cost structures of competitors (Bromwich, 1996). Accounting is an organizational control and exists as on-going process (Chapman, 1998). When the management accountants are considered a business partner, the functional managers are actively involved in the design and regular update of information system (Pierce and O'Dea, 2003). Thus, accountants' interaction in such process is to shape the accounting for organizations in highly uncertain conditions. In this regard, this new role of accountants may also lead to higher usage of SMA techniques.

However, the use of certain SMA techniques is still quite low. For example, according to the survey conducted in Malaysia, the usage rate of target costing and activity-based costing is around 30% (Rahman et al., 2005). Practicing accountants may have a poor understanding of SMA techniques as some of them are in the stages of conceptual developments, e.g. attribute costing, strategic cost analysis (Roslender and Hart, 2003; Rahman et al., 2005).

Intensity of competition and SMA usage relationship

The results from PLS test does not support that intensity of competition is positively associated to SMA usage (H6). There are some studies that discovered competition or environmental uncertainty is not positively related to management accounting systems. For example, Lee and Yang (2011) were unable to find the effect of competition on the use of integrated PMS. They reckoned that firms facing high competition in the development of overseas market might make use of other tools to enhance their competitiveness. Similarly, balanced Scorecard (BSC) may meet the greater needs of internal communication, but Hoque and James (2000) do not find any support for the positive association between a strong market position and a greater reliance on BSC. Williams and Seaman (2001) discovered MAS changes are associated with decreasing competition in Singaporean manufacturing companies. Likewise, Hoque's (2004) study on New Zealand manufacturing companies did not find evidence of a significant relationship between environmental uncertainty and performance through management's use of non-financial performance measures. Overall, it can be reasonably concluded that there is still no conclusive evidence to support the significant association between intensity of competition and MCS.

Conclusion and Limitations

The study aims to advance the literature of strategic management accounting and the extent of its usage in Malaysia. There is still limited SMA study in this region. Intensity of competition is an important contextual variable in management research but past research of its impact on the usage of advanced accounting techniques is not conclusive. This exploratory study found strategic role of accountant and SMA usage are significantly associated with differentiation strategy. Strategic role of accountant does have an impact on SMA usage but it is not positively associated with firm performance. Only SMA usage is mediating the relationship between strategy and firm performance. Strategic role of accountant has an indirect effect on firm performance via SMA usage. Though regarded as an important contextual factor in the quality data of Cadez and Guilding (2008), intensity of competition has no direct impact on the usage of SMA techniques.

The study has to consider some limitations before drawing any conclusion from the findings. Firstly, in view of the small sample size, it is unlikely to have satisfactory proof of the causal relationship of the latent variables. Secondly, quite a number of the 16 techniques identified in Cadez and Guilding (2008) are overlapping, and different education background of accountants in the region could pose cognitive issues. Thirdly, the study has not considered other contextual variables such as industry, organizational structure, environmental uncertainty and technology. Finally, the single conceptual model assumes that all constructs are unidimensional. Alternative models play a critical role when a particular construct is more properly conceptualized as multidimensional (Hulland 1999). Future research needs to explore the relationship between SMA and organizational capabilities developed under resource-based view of the firm. Recent studies of SMA have ignored the new era of strategic management literature which has placed emphasis on internal capabilities which are believed to enhance firm's competitive advantage (Nixon and Burns, 2012). Notwithstanding the limitations of the study, the PLS results helped to advance the understanding of strategy-SMA-performance relationship and the extent of intensity of competition's impact on usage of advanced management accounting practices.

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