

# **BUSINESS STRATEGY, STRATEGIC ROLE OF ACCOUNTANT, STRATEGIC MANAGEMENT ACCOUNTING AND THEIR LINKS TO FIRM PERFORMANCE: AN EXPLORATORY STUDY OF MANUFACTURING COMPANIES IN MALAYSIA**

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## **Abstract**

Despite that there is no agreed theoretical framework for strategic management accounting (SMA), the academics generally agree that SMA is external long-term focused, assists managers in the strategic decision-making process. This exploratory study investigates the mediating effect of SMA on the relationship between Porter's (1980) competitive strategy and firm performance. The contingency model incorporates the two dimensions of SMA, i.e. the usage of SMA techniques and the changing role of accountants in the strategic decision-making process. The results of partial least squares appear to support SMA usage mediates partially the relationship between product differentiation strategy and firm performance. There is also a positive relationship between business strategy and strategic role of accountant. However, it is unable to find support on the positive association between strategic role of accountant and firm performance.

**Key words:** business strategy, strategic management accounting and management control systems.

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## **Introduction**

Traditional management accounting has been dependent on redundant assumptions dealing with manufacturing process and fails to respond to the changing competitive and manufacturing environment. This has resulted in a situation that management accounting systems are considered no longer relevant to the changing environment and is counter-productive to good management decision-making (Bromwich and Bhimani, 1989; Otley, 2001; Drury, 2004).

In calling for the use of new management accounting techniques, Simmonds (1981) first coined the term “strategic management accounting” (SMA). But it was not taken seriously until the late 1980s (Otley, 2001). About the same time in USA, influential academics such as Robert Kaplan, Robin Cooper and John Shank also urged to improve the relevance of management accounting (Langfield-Smith, 2008). SMA involves numerous new techniques which are long-term, future-oriented and externally focused (Bromwich and Bhimani, 1989; 1994; Wilson, 1995; Roslender and Hart, 2003). The strong advocates of strategic management accounting 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 introduces value chain analysis and five competitive forces in formulating and implementing strategy to achieve above average returns in the long term via sustainable competitive advantage.

Since then, there were much interests expressed on the use of SMA but the empirical studies on the effectiveness in using these techniques have been scant. Langfield-Smith (2008) finds no compelling evidence to wide adoption of SMA. Roslender and Hart (2010) also lament that there is no consensus on the meaning of the term “SMA” 30 years after it was coined by Simmonds (1981). They remark that similar to market orientation which is the responsibility of all departments, SMA shall no longer be seen to be an exclusive accounting function. Meanwhile, Cadez and Guilding (2008) use two dimensions of SMA (strategically oriented management accounting techniques and strategic orientation of accountants who participate in the decision-making process) in their study to examine SMA’s mediation effect on the relationship between business strategy and firm performance. In the past, much of the research in SMA has concentrated on which accounting

techniques and in the circumstances in which they are used (Tillmann and Godddard, 2008).

In Malaysia, management control is still dominated by the use of financial accounting and there is minimal adoption of innovative management tools even for large companies (Smith, et al., 2008). It is encouraging to note that an exploratory study carried out recently on electrical and electronics companies operating in Malaysia shows the extensive usage of SMA information elements (Noordin, et al., 2009). Competitor information, customer information and production related information are regarded as SMA elements which are very important for organizations operating under intensified competitive market.

The main objective of this study is to advance the understanding of mediating effect of SMA (Cadez and Guilding, 2008) on the relationship between business strategy and firm performance. This is in line with Chenhall's (2003) suggestion on the study of contemporary settings as little contingency work was carried out on balanced scorecard, target costing, life cycle costing, which come under the broad array of non-financial performance indicators. Malaysia aims to be a progress and high-income nation by year 2020, able to compete on a regional and global stage, attract investment, drive productivity and innovation (source: Tenth Malaysia Plan 2011-2015). In tandem with the strategies set out in the Plan to achieve sustainable growth, it is important to understand whether the use of strategic tools such as strategic management accounting can improve Malaysia's competitiveness in the global market. The findings of this study will be beneficial for the corporate managers and policy- makers in Malaysia.

The remainder of the paper is structured in six sections. Next section covers literature review and followed by hypotheses development. Research method and results are presented in section three and section four, respectively. The fifth section provides a review of the salient points of the study and discussion of findings and limitations, and the final section presents the conclusion and recommendations for future research.

## **Literature Review**

### *Strategic Management Accounting*

Management accounting systems are formalized information systems used by organizations to monitor the behavior of their managers that leads to the attainment of organizational goals. Traditional management accounting is typically limited to providing financially oriented information and is no longer relevant to the changing environment and is counter-productive to good management decision-making (Bromwich and Bhimani, 1989; Otley, 2001; Drury, 2004). In view of the weaknesses in traditional management accounting, the advocates of SMA have strongly suggested that firms operating in the competitive environment adopt the 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, stress 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. They recommend the use of attribute costing to value the product attributes that appeal to the customers. Instead of employing a traditional absorption accounting approach, Kaplan initiates 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) proposes 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 and innovation and learning perspectives alongside a financial perspective, and defining future orientation. Roslender (1995) treats SMA as a "generic approach to strategic positioning" which encompasses Porter's competitive advantage theory and his strategic cost analysis. Roslender

and Hart (2002) propose a framework to advance the potential of SMA by integrating management accounting with marketing within the strategic management framework, and suggest a new concept in the form of brand management accounting.

Eventhough that there is no agreed theoretical framework for SMA, in this study SMA is regarded as broad scope, i.e. external, non-financial and future oriented (Bromwich, 1996; Wilson, 1995; Roslender and Hart, 2003) and a sub-set of management control systems (MCS). Broad scope information systems are found to be more suitable for firms employing a strategy of continuous product/market development and innovation than in firms which have stable product/market (Abernethy and Guthrie, 1994; Hoque, 2004).

### *Strategic Role of Accountant*

SMA accounting information system requires demand information and all the 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.

## **Strategy**

Strategy is one of the important contextual variables in the management accounting research using contingency approach (Chenhall, 2003). Mintzberg (1987) defines five Ps of strategy. “Strategy is a plan (intended), a pattern (realized), a position (a strong presence in a particular market), a perspective (doing things a unique way), and ploy (a specific maneuver intended to outwit a competitor)” (Abraham 2006, p.172). 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 towards emergent strategy formation (Lord, 1996).

Prominent business-strategy typologies identified are: prospectors-analyzers-defenders (Miles & Snow, 1978), build-hold-harvest (Gupta and 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). 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. However, some researchers question the accuracy of prediction propositions of strategies identified by Porter (1980; 1985) in this era of high competition and globalization (Campbell-Hunt, 2000; Parnell, 1997). Some studies find “pure” strategies (i.e. cost minimization or differentiation) are associated with superior performance (Dess and Davis, 1984; Hambrick, 1983). Numerous researches have linked each of Porter’s generic strategies to business performance in emerging nations (Parnell, 1997; Jusoh and Parnell, 2008; Parnell, 2011). But other studies also conclude that combination strategies (i.e. low cost and differentiation) are optimal (White, 1986; Hill, 1988; Miller and Dess, 1993; Kumar and Subramanian, 1997).

This study focuses on “pure” strategies since combination of strategies can be associated with either inferior or superior performance (Parnell and Hershey, 2005). It is also difficult to adopt combination (or hybrid) strategies as managers may need different kind of resources and difficult-to-manage organizational structure (Pertusa-Ortega et al., 2009).

### **Hypotheses development**

Based on past research, Jermias and Gani (2004) developed a hypothetical relationship between competitive strategy, organizational design, management accounting system (MAS) and business unit performance. On the one hand, product differentiating companies expect to benefit more from using decentralized organizational structure more behavioral control and use more MAS that enhance companies’ ability to differentiate their products to satisfy their customers. On the other hand, cost leadership companies will benefit from using a more centralized organizational structure, emphasizing more on output control, using more MAS that enhance companies’ ability to control costs.

The contingency model proposed in Figure 1 demonstrates how firm performance is enhanced by competitive strategy (Porter, 1980, 1985) through mediation of the accountants’ participation in strategic decision-making process (strategic role of accountants) and usage of SMA techniques. From the potential contingency variables, the paper restricts itself to consideration of the influence of strategy and two dimensions of SMA on firm performance.

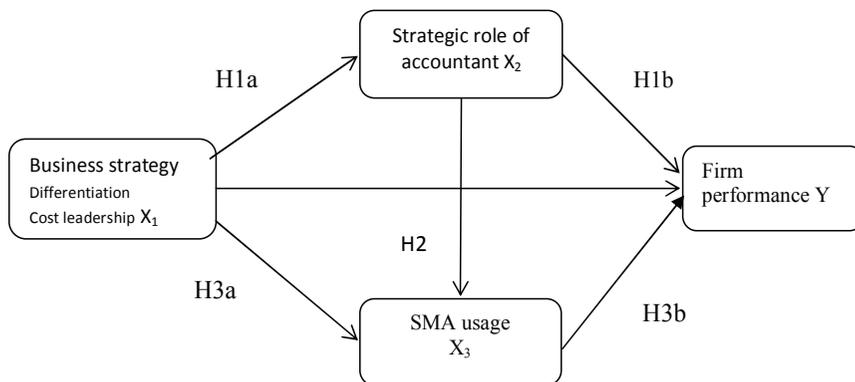


Figure 1: Hypothesized Path Model

Usage of SMA and strategic role of accountants are assumed to function individually as a mediator to the extent that each of them accounts for the relation between the predictor (strategy) and the criterion (performance) (Baron and Kenny, 1986). Gerdin and Greve's (2004) mediation model of the Cartersian-contingency approach acknowledges fit may exist when the impact of independent variable ( $X_1$ , e.g. strategy) on dependent variable ( $Y$ , e.g. performance) operates through a mediating variable ( $X_2$ , e.g. MAS).

### *Strategy - Strategic Role of Accountant - Performance*

Porter (1980; 1985) contends that a firm can attain above-average performance if it possessed one of the two basic competitive strategies (cost leadership or differentiation). Cost leadership strategy stresses internal efficiency, protection of domain, and low cost relative to competitors. Such firms are likely to focus on minimizing unproductive organizational processes. Firms following product differentiation strategy emphasize on growth, innovation and learning and are interested in external expansion to achieve profitability. They will focus on value creativity and create a product or service recognized industry wide as unique (Kumar and Subramanian, 1997; Dess and Davis, 1984).

Furthermore, strategic decision-making process requires wider participation to improve decision quality as it draws on wider information sources. Management accountants' involvement in strategic decision-making process is crucial as they have the ability to collect internal and external information, whether financial or non-financial, and setting desired objectives and direction (Louis, 2011). Past research also confirms that there is a positive relationship between middle management involvement in strategy and organizational performance (Floyd and Wooldridge, 1992; 1997). Hence, it is envisaged that firms may attain competitive advantage if the accountants are involved in the strategic decision-making process.

Middle level managers are found to involve in four strategic activities in the organizations, two upward (championing alternatives and synthesizing information) and two downward (facilitating adaptability and implementing deliberate strategy). Empirical research confirms a positive relationship between middle management involvement in strategy and organizational

performance (Floyd and Wooldridge, 1992; 1997). In the same vein, management accountants, being middle level managers, may have the capability to mediate the relationship between business strategy and organizational performance.

In fact, accounting plays a major role in helping firms to formulate differentiation strategy or cost leadership strategy (Bromwich, 1996). 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. Accountants must also be involved in modeling the cost structure of competitors which contributes to Porter's (1980) cost leadership strategy (Bromwich, 1996; Lord, 1996).

However, some researchers disagree that team-based structure results in performance improvement or management accountants have been accepted to perform their strategic role in most organizations (Chenhall and Langfield-Smith, 2003; Chenhall, 2008). Cadez and Guilding (2008) also fail to support the claim that accountants' participation in strategic decision-making process can enhance performance. But management accounting has changed its direction to strategic thinking and helping in formulating business or corporate strategy in the age of globalization. Hence, management accountants, as transformational leaders, are also playing their roles in ensuring sustainable growth (Mia and Ahmed, 2005). It is anticipated that strategic role of accountant mediates the relationship between business strategy and firm performance as reflected in the following hypotheses.

**H1a:** There is a positive relationship between business strategy and strategic role of the accountant.

**H1b:** There is a positive relationship between strategic role of the accountant and firm performance.

**H1c:** Strategic role of the accountant mediates the relationship between business strategy and firm performance.

### ***Strategic Role of Accountants – SMA Usage***

When the accountants are involved in the design and implementation of MAS together with the sub-managers according to their needs, it may encourage higher usage of the system (Abernethy and Bouwens, 2005). Accountants play an important role in costing the characteristics or attributes possessed by the 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. In a similar vein, Simmonds (1982) asserts that management accountants are the ideal people to collect and analyze external data that is relevant for strategic management. Management accountants with a business unit orientation tend to be more innovative on accounting system design than those with a functional (accounting) orientation (Emsley, 2005). Interestingly, Cadez and Guilding (2008) find usage of SMA higher when the accountants are involved in the strategic decision-making process.

Moreover, management accountants with requisite skills and business acumen can communicate well and can influence line changes (Anderson and Lanen, 1999). They should be able to provide: (1) much more qualitative information, (2) more future-oriented information, (3) broader range of information, (4) information on a much timely basis and (5) information on the implementation process, progress toward strategic objectives and deviations from plans (Brouthers and Roozan 1999). As such, management accountants can have an impact on the usage of SMA.

From the foregoing discussion, it can be concluded that the strategic role of accountant can have a positive impact on the usage of SMA techniques as shown by the following hypothesis.

**H2:** Strategic role of accountants positively correlates SMA usage.

### ***Strategy - SMA Usage - Performance***

Strategy has to be supported by appropriate control systems, organizational structure and management information systems to achieve competitive advantage and ensure high organizational performance (Jermias and Gani

2004; Chenhall and Langfield-Smith 1998). In view of uncertain external environment managers used new and advance management accounting techniques to support their decision needs and assist them to monitor progress against their strategies (Baines and Langfield-Smith, 2003; Waweru, 2008; Chenhall and Morris, 1986; Abernethy and Guthrie, 1994). Broad scope information systems are 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; Hoque, 2004). Broad scope information systems allow managers to obtain information necessary to make successful economic decisions in the long run (Hoque, 2006). The use of non-financial MAS information, the interactive use of MAS and the use of MAS for resource allocation seem to support flexibility strategy implementation (Naranjo-Gil and Hartmann, 2006).

Chenhall and Langfield-Smith (1998) discover that higher performing firms that place a strong emphasis on product differentiation strategies gain high benefits from management accounting practices such as: benchmarking, employee-based measures, strategic planning techniques and balanced performance measures. In contrast, higher performing firms that place a strong emphasis on low price strategies gain high benefits from management accounting practices such as: traditional accounting techniques and activity-based techniques. Prospector firms make greater use of customer-focused accounting and competitively-oriented analysis. Non-financial measures will also be beneficial to firms applying “build” strategy (Guilding, 1999; Govindarajan and Gupta 1985 cited in Jusoh and Parnell, 2008). The innovativeness of differentiation firms is similar to that of prospectors and ‘build’ firms (Langfield-Smith, 1997). Ittner and Larcker (1997) find benchmarking (one form of SMA technique) has little association with the performance of firms in computer industry but a positive effect on the performance in the automotive industry. Kennedy and Affleck-Graves (2001) discover firms adopting activity-based costing (ABC) techniques outperformed or matched non-ABC firms. Malina and Selto (2001) find balanced scorecard creates strategic alignment, effective motivation and positive organizational outcomes.

The cost leadership strategy requires that product lines remain rather stable and a strong emphasis on formal profit and budget controls in order to

keep costs and prices at a minimum (Miller, 1988; Govindarajan, 1988; Bruggeman and Van der Stede, 1993). Differentiation strategy encourages creativity and innovation, and has to rely on control through coordination (loose controls) rather than formal controls (Langfield-Smith, 1997). 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). Amir et al., (2010) also find support that differentiation strategy positively influences the use of contemporary performance measurement systems attributes, namely, performance evaluation, benchmarking, timeliness and scope. Furthermore, Porter (1980; 1985) suggests that competitor analysis is fundamental to the pursuit of competitive advantage. To pursue a successful differentiation strategy, it is necessary to have a range of reliable information with double external focus on competitors' value creation and customers' value attribution chains (Roslender and Hart, 2002).

However, using Miles and Snow's (1978) strategy types, Simons (1987) finds firms that embrace a defender strategy use their accounting control systems less intensively than those adopting a prospector (product innovation) strategy. These prospectors would find forecast data, setting tight budget goals and monitoring outputs more important. Similarly, Guilding (1999) finds that, relative to other firms, prospector firms make greater use of, and perceive greater helpfulness in competitor-focused accounting practices.

Based on the latest management accounting literature, Cadez and Guilding (2008) identified 16 SMA techniques which can be classified in five broad categories: costing; planning, control and performance measurement; strategic decision-making; competitor accounting and customer accounting. They claim that these strategically oriented management accounting techniques mediates the relationship between prospector-like strategy and firm performance. However, Cinquini and Tenucci (2010) find some SMA costing techniques are also associated with cost leadership strategy. Likewise, Abdel-Kader (2008) is unable to confirm that firms following differentiation strategy need a sophisticated cost system for better measurement of diversified product. Despite these mixed findings, SMA is expected to be associated with product differentiation strategy and has an impact on performance as stated in the following hypotheses.

**H3a:** SMA usage is higher in firms following differentiation strategy than in firms following a cost leadership strategy.

**H3b:** SMA usage is positively associated with firm performance.

**H3c:** SMA usage mediates the relationship between differentiation strategy and firm performance.

## **Research Method**

### *Sampling Frame*

The unit of analysis for the study is the strategic business units (SBUs) of Malaysian public listed companies which have core business in manufacturing. The selection of listed companies in Malaysia is based on the ground that these companies have to comply with stringent Listing Requirements and the Malaysian Code on Corporate Governance. The directors of listed companies are expected to review quality information, financial and non-financial, of their operations prepared by the management. Hence, these companies should have more established management accounting departments than unlisted companies. The use of companies in manufacturing segment is specific because this sector represents the most commonly employed management accounting systems (Smith et al., 2008). Historically, managers in service companies used management accounting information less intensively than managers in manufacturing companies (Kaplan and Atkinson, 1998).

A total of 430 companies engaging in manufacturing were selected from around 1,000 listed companies throughout Malaysia. Full addresses and contact numbers were obtained from the websites. Phone calls were made to these companies to find out the names of management accountants or heads of accounts. Management accountants are chosen as respondents in this survey since they are more knowledgeable about the firm's management accounting techniques, financial performance measurements and strategic choice than other operating managers. In Malaysia, all accountants are registered with the Malaysian Institute of Accountants which require minimum tertiary education and adequate working experience to be admitted as a member. It is probable that they are more conversant in answering these organizational questions.

## Survey and Respondents

Mail survey is selected for this study as it enables gathering of information from a broad cross-section of firms at relatively low cost (Hoque, 2004). The draft survey instrument was reviewed by three academics and pre-tested on 30 accountants for clarity and face validity. Upon revision, the instruments were sent with a personalized cover letter and a stamped return envelope to the management accountants/heads of accounts of these 430 companies. After five weeks a reminder was sent to those companies which had not completed the survey. Mail questionnaires were received from 103 manufacturing companies (response rate 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). The possible response bias from early and late responses was tested using t-test. There is no significant difference found in the results. The statistics of respondents in terms of size in employees and annual sales, proportion of export sales, history of responding firms and industry are presented in Appendix A. Descriptive statistics of 103 samples obtained from mail survey are prepared by SPSS Version 15.0 (Table 1).

## Variable Measurement

*Strategic management accounting (SMA)* Instrument used by Guilding and Mc Manus (2002) is applied to measure the degree of SMA techniques usage. 16 SMA techniques are listed together with a Likert-type scale ranging from “1” (not at all), to “7” (to a great extent). The respondents were asked to indicate the extent their organizations make use of each of these techniques. A glossary was provided to aid interpretation of these 16 SMA techniques which may be grouped into five categories: *costing* (attribute costing, life-cycle costing, quality costing, target costing, value-chain/activity costing), *planning, control and performance measurement* (benchmarking, integrated performance measurement), *strategic decision-making* (strategic costing, strategic pricing, brand valuation), *competitor accounting* (competitor cost assessment, competitive position monitoring, competitor performance appraisal), and *customer accounting* (customer profitability analysis, lifetime customer profitability analysis and valuation of customers as assets).

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

*Business strategy:* Business strategy was measured by using two of Porter's (1980, 1985) competitive strategies: product differentiation and cost leadership. Porter's 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). This study has not considered the third strategy "focus" identified by Porter (1980, 1985) as it is not about competitive advantage but about market scope (Pertusa-Ortega et al., 2009).

Measurement scales developed by Narver and Slater (1990) were used to operationalise the Porter's competitive strategies. The respondents were asked to express the extent the organization engaged in competitive activities (product differentiation and cost leadership) using a Likert-type scale ranging from "1" (not at all) to "7" (to a large extent).

*Firm performance:* Using a single profitability measure is no longer sufficient. Combining non-financial measures with financial measures can be better indicators to judge the organizational processes and outcomes (Jusoh and Parnell, 2008). Firm performance is measured according to 7 dimensions adapted from Gupta and Govindarajan (1984) and Chenhall and Langfield-Smith (1998). The questionnaire asked respondents to assess their organization's performance over the past three years, across 7 dimensions on a 7 point Likert-type scale, ranging from 1 (well below average) to 7 (well above average) in comparison with the industry average. The 7 dimensions are: ROI, sales growth, new product development, research and development, customer satisfaction, cost reduction programs and human resource development.

## **Results**

### *Structural Equation Modeling: Partial Least Squares*

The hypotheses are tested using Partial Least Squares (SmartPLS 2.0, Ringle, et al., 2005), a second generation statistical technique that allows testing models with multiple independent, mediating and dependent variables. PLS is more suitable for smaller sample sizes than covariance-based techniques (Chenhall, 2005; Hulland, 1999) and in an early stage of theory development (Henseler, et al., 2009).

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). A measurement model may have reflective indicators or formative indicators. The formative indicators help to describe the constructs while reflective indicators are determined by the constructs. Based on the nature of measures used in this study, the measurement model in this study is considered reflective as the underlying construct is reflected or manifested by a series of indicators (Bisbe, et al., 2007).

The results of reflective measurement (outer) model 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. A value above 0.7 is regarded as satisfactory. 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). All indicators have loadings above 0.6 in this PLS test (Figure 2).

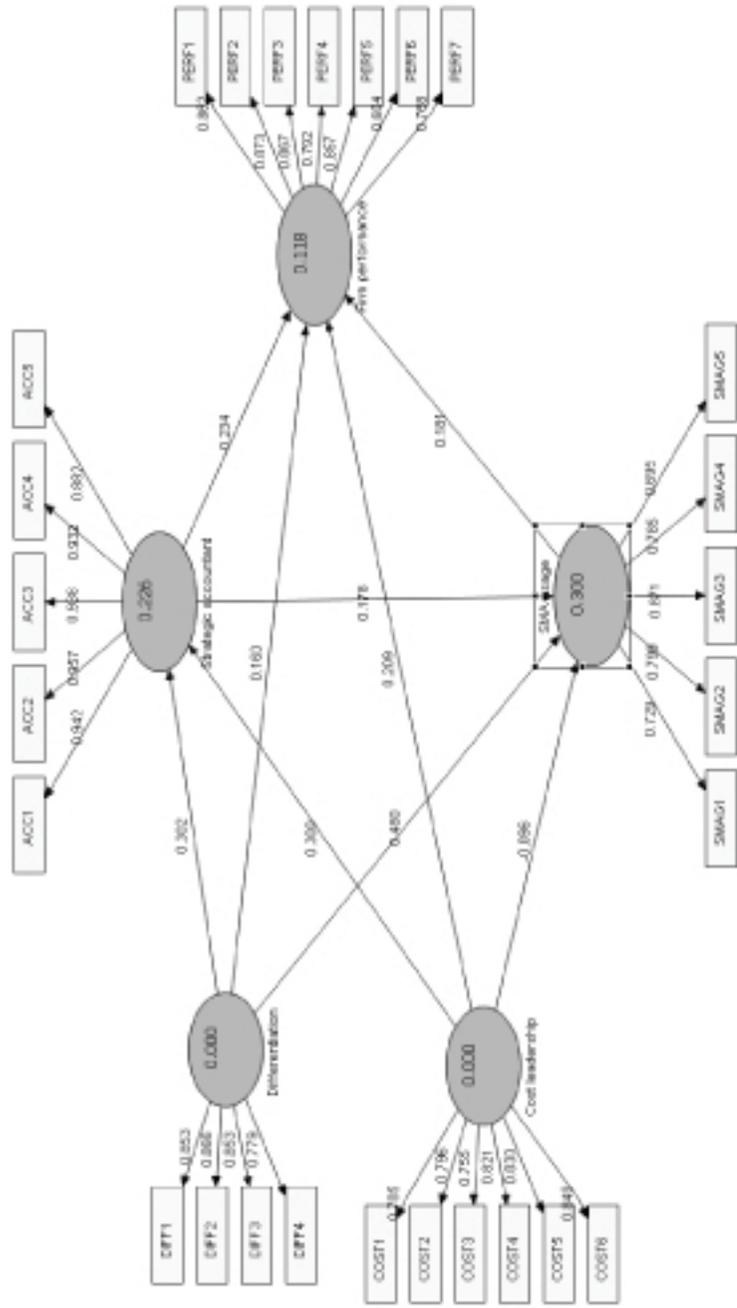


Figure 2: PIs Measurement & Structural Model

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 also 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 2 presents the results of composite reliability and Cronbach's alpha, showing all values exceeding 0.8. The AVEs of all latent variables are also above 0.6.

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 3).

The structural (inner) model can be assessed by examining the coefficient of determination ( $R^2$ ) of the endogenous (dependent) latent variables (Hulland, 1999). Chin (1998) describes  $R^2$  values of 0.67, 0.33, and 0.19 in PLS path models as substantial, moderate, and weak, respectively (cited in Henseler, et al., 2009). "Moderate"  $R^2$  may be acceptable if an endogenous latent variable is explained by only a few exogenous latent variables (Henseler, et al., 2009). A bootstrap procedure can be used to provide confidence intervals for all parameter estimates.  $R^2$  value of PLS model is presented in Table 2. Table 4 shows the path coefficients among latent variables and their t values. Figure 2 presents the measurement and structural model of PLS and Figure 3 illustrates the structural model as well as the significant path coefficients among the latent variables.

### *Test of Hypotheses*

The aim of this study is to determine the mediating effect of strategic management accounting on the relationship between business strategy and firm performance (Figure 1). The two dimensions of SMA are strategic role of accountant (accountant's participation in strategic decision-making process)

and SMA usage. The strategic role of accountant is hypothesized to have a direct impact on SMA usage (H2). Business strategy is associated with the two dimensions of SMA (H1a and H3a). Strategic role of accountants and SMA usage are hypothesized to be associated to the firm performance (H1b and H3b). By combining the earlier hypotheses developed, strategic role of accountants and SMA usage mediate the relationship between business strategy and firms' performance individually based on the propositions of Baron and Kenny (1986) (H1c and H3c).

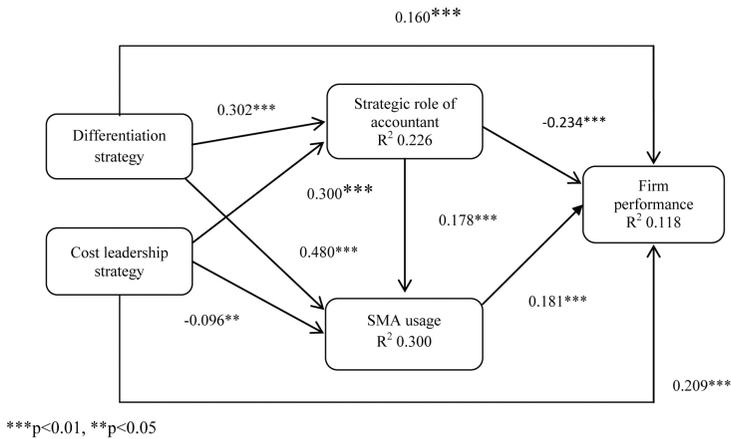


Figure 3: Structural Model Showing Path Coefficients and R<sup>2</sup> Values

The PLS results shown in Figure 3 illustrates business strategy (differentiation/cost leadership) has direct impact on firm performance (0.160, p<0.01; 0.209, p<0.01). SMA usage is positively associated with differentiation strategy (0.480, p<0.01) but negatively associated with cost leadership strategy (-0.096, p<0.05). SMA usage is also associated with firm performance (0.181, p<0.01). Thus H3a and H3b are supported, and SMA usage is deemed partially mediating the relationship between differentiation strategy and firm performance (H3c is supported). Strategic role of accountant positively associated with firms adopting business strategy (0.302, p<0.01; 0.300, p<0.01). H1a is supported. Strategic role of accountants also has a direct impact on SMA usage (0.178, p<0.01). Hence, H2 is supported. H1b is not supported as strategic role of accountant has a negative relationship with firm performance (-0.234, p<0.01). As such, H1c (mediation effect of strategic role of accountants) is not supported.

### **Discussion of findings**

This study aims to enhance the knowledge of strategic management accounting. Motivated by the two-dimension approach of SMA introduced by Cadez and Guilding (2008), the causal model considers the mediation role of SMA usage and strategic role of accountant on the relationship between business strategy and firm performance. The results of this study appear to support the contention of Porter (1980; 1985) that if a firm adopts either differentiation strategy or cost leadership strategy, it can enhance firm performance. These findings are consistent with past research (Parnell, 2011; Pertusa-Ortega, et al., 2009). Differentiation strategy has a significant direct impact on firm performance (0.160,  $p < 0.01$ ). Likewise, cost leadership strategy has a significant direct impact on firm performance (0.209,  $< 0.01$ ).

In this study, SMA (contemporary accounting techniques which are usually financial as well as non-financial, external and future-oriented) is significantly associated with differentiation strategy (0.480,  $p < 0.01$ , H3a is supported). SMA usage also has a significant impact on firm performance (0.181,  $p < 0.01$ , H3b is supported). These findings are consistent with past empirical studies (Chenhall and Langfield-Smith, 1998; Govindarajan and Gupta 1985; Malina and Selto, 2001; Jermias and Gani, 2004). Since H3a and H3b are supported, it is posited that SMA usage mediates partially the relationship between product differentiation strategy and firm performance (H3c is supported). However, Cadez and Guilding (2008) find SMA usage mediates fully the relationship between prospector strategy and firm performance. Their study does not find any direct link between 'prospectors' strategy and firm performance. Cost leadership strategy does not have a positive relationship with the usage of SMA techniques (-0.096,  $P < 0.05$ ). This is in line with the findings of Chenhall and Langfield-Smith (1998) and Cadez and Guilding (2008).

SMA has the characteristics of broad scope systems which cover information relating to external environment, financial as well as non-financial and future-oriented. Broad scope systems allow managers to make successful economic decisions in the long run (Hoque, 2006). The finding of this study is therefore consistent with past research that broad scope system is more effective for firms applying strategy of continuous/market development and innovation (Prospectors) than firms applying strategy of protecting a

comparatively narrow and stable product-market (Defenders) (Abernethy and Guthrie, 1994; Hoque, 2004).

Strategic decision-making involves a high degree of uncertainty and risk; requires wider participation and information to improve decision quality (Louis, 2011). The changing role of accountants in strategic orientation is associated with business strategy (differentiation and cost leadership). It is in line with the Floyd and Wooldridge's (1993; 1997) empirical studies that middle level managers are usually involved in strategic activities (0.302,  $p < 0.01$ ; 0.300,  $p < 0.01$ , H1a is supported). In line with Cadez and Guilding (2008), the study does not find support that accountants' participation in strategic decision-making process is associated with performance (-0.234,  $P < 0.01$ , H1b and H1c are not supported). Perhaps, it is right for Chenhall (2008) to claim that management accountants have yet to be accepted to perform their strategic role in most organizations. Floyd and Wooldridge (1997) find managers with formal positions in boundary-spanning sub-units report higher levels of strategic influence activity than others. 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. In spite of this, strategic role of accountants still has an indirect impact on firm performance through the mediation of SMA usage. The accountants' participation in strategic decision-making process tend to make them more innovative on accounting system design in order to provide more qualitative and future-oriented information for decision-making (Emsley, 2005; Brouther and Roozan, 1999; Abernethy and Bouwens, 2005). The increasing role of accountants in strategic orientation appears to support the greater usage of SMA techniques (0.178,  $P < 0.001$ , H2 is supported).

It was also pointed out that with the exception of activity-based costing and the balanced scorecard, there is scant interest shown in research on practice of management accounting (Baldvinsdottir, et al., 2010). Practicing accountants may have difficulties applying these SMA techniques as some of the techniques are in the stages of conceptual developments, e.g. attribute costing, strategic cost analysis (Roslender and Hart, 2003). Despite the claim by academics that standard costing and variance analysis are hiding the inefficiency of operations, many accountants are still reluctant to move away from traditional management accounting.

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 association of the latent variables. The sample is drawn from the manufacturing SBUs of listed companies in Malaysia, an emerging market. Some caution is required in interpreting the results. 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 size, industry, organizational structure, external environment and technology. Fourthly, cross-sectional research design cannot examine claims regarding the causal possibility. 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). Fifthly, the study only makes use of the “pure” strategies and does not test the effectiveness of combination (or hybrid) strategies. Sixthly, this study’s findings are based on the respondents’ opinions on their firms’ conditions.

Finally, SMA variables based on two dimensions need further exploration as the  $R^2$  value in respect of firm performance is rather weak. There may be potential implications on the adoption of the type of business strategy. Some accountants interviewed during pilot test lament that management accountants in Malaysia are not pro-active enough to play their role in strategic decision-making process and likewise top management has yet to change their mindset to allow accountants becoming more strategic in their role in formulating and implementing business strategy. This negative perception about accountants may have adverse impact on the association between strategic role of accountant and firm performance. Notwithstanding the limitations of the study, the PLS results helped advance the understanding in Strategy-SMA-Performance relationship.

## **Conclusion**

The study aims to enhance the knowledge in SMA. Using a contingency model, the study hypothesized that the two dimensions of SMA (strategic role of accountant and SMA usage) individually mediate the relationship

between competitive strategy and firm performance. It is expected that the first dimension of SMA, strategic role of accountant, mediates the relationship between differentiation strategy and cost leadership strategy and firm performance. It is also posited that the second dimension, SMA usage, is associated positively with differentiation strategy and firm performance. Strategic role of accountants is also expected to have an impact on SMA usage.

Consistent with Porter's (1980) contention, results from PLS test confirms that a firm can attain above-average performance if it possessed one of the two basic competitive strategies (i.e. cost leadership or differentiation). The path analysis shows that strategic role of accountant is positively associated with competitive strategy (differentiation and cost leadership), but negatively associated with firm performance. SMA usage is found to be positively and significantly associated with differentiation strategy but negatively associated with cost leadership strategy. The findings support that strategy requires the appropriate control systems to enhance competitive advantage, as SMA usage is positively and significantly associated with firm performance.

In conclusion, this exploratory study found SMA usage mediates the relationship between differentiation strategy and firm performance. The strategic role of accountant appears to influence the usage of SMA. The findings are consistent with most of the literature. Our study demonstrates that in the Malaysian context the management accountants have yet to be actively involved in the strategic decision-making process and some may have difficulties in applying these new SMA techniques. It appears that there is a gap between theory and practice. Porter's (1980, 1985) product differentiation strategy which stresses on innovation, growth and learning complements well with SMA, a broad scope and external focused information system.

Future research may have to explore further the motivational factors of accountants' involvement in strategic decision-making process, and whether adoption of combination strategies can be associated with higher usage of SMA. Since the study is confined to manufacturing SBUs only, future research should consider extending the study to service industry such as banking and healthcare organizations. The interaction between resource-

based theory of competitive advantage and Porter's (1980) competitive strategy has become a resurgent interest of strategic management researchers (Grant 1991; Spanos and Lioukas 2001; Parnell 2011). Hence, it is also important to ascertain whether strategy formulation can be influenced by organizational capabilities developed under resource-based theory of the firm. Using a longitudinal data or case studies may assist in addressing these issues.

## Appendix A. Profiles of the respondents

### Size

<i>By Employees</i>		<i>By Annual sales (RM million)</i>	
Below 150	25	Below 25	20
150-500	35	25 to 100	36
501-1000	25	101 to 500	33
Above 1,000	18	Above 500	14
Total	103	Total	103

### *Export sales (%)*

Below 20%	37
20% to 50%	28
More than 50%	38
Total	103

### *History of responding companies*

Less than 5 years	3
5 to 10 years	15
More than 10 years	85
Total	103

### *Industry*

Textiles & apparel	4
Food & beverages	14
Furniture, wood-based products	15
Electrical & electronics	13
Transport & automotive	6
Rubber-based products	4
Plastic products	7
Pharmaceutical, cosmetics	4

Chemicals	2
Iron, steel & other metal products	21
Other industry	13
Total	103

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Table 1: Descriptive Statistics

Variables	N	Items	Mean	Std. Dev.	Std. Error	Actual range		Theoretical range	
						Min	Max	Min	Max
SMA usage	103	16	4.14	1.12	0.11	1.00	6.63	1.00	7.00
Differentiation	103	4	4.46	1.34	0.13	1.00	7.00	1.00	7.00
Firm performance	103	7	4.67	1.06	0.10	1.57	6.86	1.00	7.00
Cost leadership	103	6	4.85	1.27	0.13	1.00	7.00	1.00	7.00
Strategic role of accountant	103	5	4.64	1.37	0.13	1.00	7.00	1.00	7.00

Table 2: Convergent Validity, R Square and AVE

	AVE	Composite Reliability	Cronbach's Alpha	R Square
Cost leadership	0.6509	0.9178	0.8924	
Differentiation	0.7032	0.9044	0.8590	
Firm performance	0.6681	0.9333	0.9170	0.1184
SMA usage	0.6056	0.8842	0.8379	0.2999
Strategic role of accountant	0.8660	0.9700	0.9611	0.2260

Table 3: Latent Variable Correlations

	Cost leadership	Differentiation	Firm performance	SMA usage	Strategic accountant
Cost leadership	1				
Differentiation	0.2468	1			
Firm performance	0.1767	0.2188	1		
SMA usage	0.0888	0.5230	0.2082	1	
Strategic role of accountant	0.3748	0.3759	-0.0370	0.3226	1
Root AVE	0.8068	0.8366	0.8174	0.7782	0.9306

Table 4: Path Coefficients and t Values

	<b>Coefficient</b>	<b>t Value</b>
Cost leadership -> Firm performance	0.2087	3.9204
Cost leadership -> SMA usage	-0.0965	2.0683
Cost leadership -> Strategic role of accountant	0.3003	4.7021
Differentiation -> Firm performance	0.1604	3.1181
Differentiation -> SMA usage	0.4797	9.5818
Differentiation -> Strategic role of accountant	0.3018	5.4258
SMA usage -> Firm performance	0.1813	3.3184
Strategic role of accountant -> Firm performance	-0.2340	4.5070
Strategic role of accountant -> SMA usage	0.1784	3.8926