

## **FACTORS THAT INFLUENCE THE USE OF STRATEGIC MANAGEMENT ACCOUNTING (SMA) IN MALAYSIAN GOVERNMENT-LINKED COMPANIES (GLCs)**

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### **ABSTRACT**

*This study examines the factors that influence the use of Strategic Management Accounting (SMA) techniques among Malaysian Government-Linked Companies (GLCs), business strategy, and information technology (IT). This study also examines how the relationship influences firm performance. GLCs have successfully played a significant role in contributing to the Malaysian economy. GLC performance is reportedly going through a good phase, but some GLCs still underperform. Data were collected via questionnaires answered by 70 federal and state owned Malaysian GLCs. Results show that certain SMA techniques, such as attribute costing, are highly used in Malaysian GLCs. Life cycle costing is least used. The study also reveals that business strategy and IT have significant relationships with SMA usage. SMA usage also had a significant relationship with firm performance. The findings would provide further understanding on SMA technique usage, particularly the factors that influence usage and enhance firm performance.*

**Keywords:** *Strategic Management Accounting (SMA), Government-Linked Companies (GLCs), Business Strategy, Information Technology, Firm Performance*

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## Introduction

The emerging global economy, technological advances, business strategy, and a high level of competition has led to changes in manufacturing industries; the role of the management accountant has also become more challenging than before (Bromwich, 1990; Bromwich & Bhimani, 1989; Guilding, Cravens, & John, 2001; Lord, 1996; Zahra & Covin, 1993). Management accountants are expected to make decisions to benefit the business, but changes have made decision making more crucial to good performance (Bromwich, 1990). Firm performance is an important factor among capital providers to access management stewardship, especially in Government-Linked Companies (GLCs), because financial investment comes from the public. Public awareness relating to their investment fund is increasing. GLCs are companies whose objective is primarily commercial and is directly controlled by the Malaysian Government. The controlling stake refers to the government's ability to appoint people to the board of director (BOD) and senior management of GLCs to make major decisions directly or indirectly. GLC performance has become an important issue in Malaysia and RM 30.599 billion has been invested in 56 GLCs as of 2012 by the Malaysian government. High government investment fostered an expectation of high returns by the public.

The role of the management accountant is becoming more demanding. The liberalization and globalization of the business world over the years and the faster speed of technological changes have profoundly affected the role of the management accountant (Baldvinsdottir, Mitchell, & Norreklit, 2010). Chenhall (2003) highlighted the important role of management accountants in helping provide information for strategic decision-making and control. Therefore, management accountants are required to determine appropriate courses of action using their expertise and experience. Participating in strategic decision-making process is imperative for management accountants, which includes formulating and implementing the business strategy to enhance the firm effectiveness.

A broad scope of information is necessary for business decision making (Bromwich & Bhimani, 1989; Cooper & Kaplan, 1988; Guilding, Cravens, & Tayes, 2000; Tippins & Sohi, 2003). Previous studies conducted on Malaysian Public Listed Companies (PLCs) indicate that most companies

still use Traditional Management Accounting (TMA) for decision-making purposes (Mamat & Ismail, 2011; Tuanmat & Smith, 2011). TMA is highly quantitative and internally focused (Bromwich & Bhimani, 1989; Dixon, 1998; Drury, 2011; Lord, 1996); the changing manufacturing environment and competition makes it difficult for TMA to provide dynamic information for businesses (Bromwich & Bhimani, 1989; Cooper & Kaplan, 1988; Guilding, Cravens, & Tayes, 2000; Tippins & Sohi, 2003). TMA leads managers to limit their focus to operational issues and downplay their focus on broader issues relating to competitors, products quality, and customers (Bromwich & Bhimani, 1989). Such information was previously deemed important and sufficient for planning, decision making, and control, but the changing landscape demands a broader scope of information (Cadez & Guilding, 2008; Kaplan & Norton, 1996). A new system is needed to fit to the new dynamic and global environment.

Strategic Management Accounting (SMA) is a new technique to meet contemporary challenges facing modern companies (Simmonds, 1981). The operating environment of most firms today is more dynamic and competitive compared to a decade ago. Competitors try to outmaneuver each other with new and improved products and services, more efficient manufacturing and service delivery processes, and better quality (Simmonds, 1981). Bromwich and Bhimani (1989) assert that the TMA that focuses on internal orientation is highly quantitative and has not been able to facilitate strategic decision making and develop organizational competitive advantages. Contrarily, SMA can create considerable value by providing more relevant information required for the success of modern organizations (Guilding, Cravens, & Tayes, 2000). SMA could also improve company profitability and efficiency as shown when Kaplan introduced Activity Based Costing (ABC) and Activity Based Management (ABM); both techniques attempt to determine actual product costs and eliminate non-value added activities (Roslender & Hart, 2002).

Strategy is an important contextual variable in management accounting research using the contingency approach (Chenhall, 2003). Chenhall and Langfield-Smith (1998) indicate that strategic priority is an important factor in implementing management accounting techniques. Cadez and Guilding (2008) use the two dimensions of SMA, strategically oriented management accounting techniques and strategic orientation of accountants

who participate in the decision-making process, to examine the mediation effect of SMAs on the relationship between business strategy and firm performance. Langfield-Smith (2007) indicates that management control is still dominated by financial accounting and innovative management tools are minimally adapted, even by large companies. Thus, we must examine the extent of business strategies implemented and adopted by GLCs.

Information technology (IT) is changing continuously because of the dynamic environment. Changes in IT have lead manufactures to consider it an important element in deriving information for decision making (Dechow, Granlund, & Mouritsen, 2007). Many companies have developed strategies, including investing heavily in IT, to enhance performance (Tippins & Sohi, 2003). Tippins and Sohi (2003) showed that IT competency positive influences firm performance. Organizations whose information systems are not aligned with their strategic objectives are less successful than organizations whose systems are (Zahra & Covin, 1993). Baines and Langfield-Smith (2003) and Chenhall (2003) showed that firms facing a more competitive environment and technology advancement veer toward differentiation strategies. Companies Commission of Malaysia (CCM) also considers effective IT use and business analytics as essential to raising productivity and achieving excellence in business operations. IT use is sufficient to support the delivery of efficient customer focus and value adding activities, which support long-term strategies and goals.

Most Malaysian empirical research look into management accounting practices of PLCs. Tuanmat and Smith (2011) indicate that the level of changes in management accounting practices increased over a five-year period from 2003 to 2007. Lau and Tong (2008) investigate the effect of government intervention on 15 GLCs over six years from 2000 to 2005 and found preliminary evidence on the effectiveness of the ownership and control structure of Malaysian GLCs in creating firm value. Nordin et al. (2009) performed an exploratory study on Electrical and Electronics (E&E) companies in Malaysia to explore the extent of their usage of SMA information elements usage and found that the companies use such information extensively and extend management accounting information toward more externally focused and strategic materials. Norlaila and Suzana (2011), who investigated the utilization of the GLC Blue Book, suggested that the Balanced Scorecard (BSC) is a tool that supports GLC Blue Book

implementation; they opined that both the GLC Blue Book and the BSC should be used together to help GLCs improve their performance.

Summarily, no Malaysian studies have examined SMA usage among GLCs. Prior research indicates that the relationship of business strategy to SMA usage has also been ignored. Investigations into the relationship between IT and SMA usage have also not been conducted. Some researchers found a positive relationship between SMA and firm performance (Ghamdi, 2005; Guilding et al., 2001; Guilding, Cravens, & Tayes, 2000; Otley, 2001), but the samples used are different from the present study. The present study is unique from prior research because it determines the extent of SMA usage among Malaysian GLCs and examines the relationship between business strategy and IT toward SMA usage. Finally, the present study examines the relationship between SMA usage and firm performance.

## **GLCs**

The Malaysian government assumed a proactive entrepreneurial role on its post-independence industrialization plans by establishing state enterprises or GLCs. GLC formation was executed progressively through privatization and corporatization. Many government departments were privatized and later transformed into separate wholly owned government companies (Lau & Tong, 2008). The privatization policy aims to relieve the administrative and financial burden of the government, improve the effectiveness and quality of public services, encourage the spread of private entrepreneurship in the public sector, and contribute to the attainment New Economic Policy goals. Additionally, privatization would reduce the government burden of providing essential services to the public, such as infrastructure, health, energy, and power. Thus, the government will have more time and funds for other national issues and agenda. Many privatized companies were corporatized issuing shares on Bursa Malaysia; as the government maintained substantial ownership in these companies, they became known as GLCs (Ministry of Finance, 1993).

In 2014, the Putrajaya Committee on GLC High Performance (PCG) reported that GLCs have significantly improved in most key financial performance areas. Market capitalization increased to RM425 billion in

2014. Total shareholder returns increased by 13.4% per annum since 2004. Market capitalization increased to RM256billion in 2013, 189% higher than in 2009, at 49% market capitalization of the Bursa Malaysia, when GLCs constituted 36% of the Malaysian Stock Market(Norlaila & Suzana, 2011). Aggregate earnings also grew 12% per annum from RM9.7billion in 2004, to RM20.1billion in 2011, to RM25.8billion in 2012. Return on equity was 13% in 2012 compared with 12% in 2011. Total shareholder returns also increased to 15% per annum since 2004. The total shareholder returns also increased to 15% per annum since 2004. PCG also reported that total shareholder return on FBM KLCI outperformed non-G20 by 0.8%, with a growth of 13.7% per annum(Star, 2012). Market capitalization more than doubled to RM319billion from RM140billion over the same period and delivered a return on equity of 11.8% in 2011, up from 10.6% in 2010 (Star, 2012).

The performance of Malaysian GLCs indicates that they play a significant role in the Malaysian economy and should be exemplary to other Malaysian corporations in all aspects (Mokhtar, 2005). Aside from investment, the Malaysian Government intends to transform GLCs into high-performing entities by 2015 to spur economic development. Thus, the Malaysian Prime Minister introduced the GLC Transformation Program in 2011. However, despite the several efforts taken by the government to improve GLC performance, many GLC failed to improve. According to the Overview of the 2011 National Audit Report Initiatives & Updates Related to State Owned Corporations, 28.6% of GLC experienced losses totaling RM1.720 billion. The National Audit Department indicates that 11 GLCs suffered losses from 2008 to 2010 because of several factors, including an unsuccessful business strategy (Lau & Tong, 2008). Other studies argued that these problems occurred because deficient business acumen caused investment decisions that were not economically sound(Mokhtar, 2005; Ting & Lean, 2011). Thus, GLCs fail to achieve their target objectives.

Improving GLC performance cannot rely solely on the government. Despite government initiatives such as the establishment of the PCG, GLCs themselves should strengthen their business strategies and upgrade their IT to implement SMA properly. Better understanding and management of the organization and its environment is important to ensure that GLCs are capable of maintaining performance and increasing market capitalization in

Bursa Malaysia. If GLCs continue to underperform, the 2020 vision would be jeopardized and public trust in the government ability to manage public funds would be impaired. By 2020, Malaysia aims to be a progressive and high-income nation that can compete on a regional and global stage, attract investment, and drive productivity and innovation in tandem with the Tenth Malaysia Plan 2011–2015. Hence, cooperation between and contribution from the private and public sectors are very important. The government will provide funding to maintain its authority to intervene in GLC management. However, poorly performing GLCs tarnish the public perception of the government and GLC's ability to manage public money (Lau & Tong, 2008). Thus, government investments must be managed properly to ensure profitability and fulfill the administration goals.

SMA is one technique to encourage the positive performance of companies. SMA helps organizations obtain reliable management accounting information to make better decisions for their performance and competitiveness (Bromwich & Bhimani, 1989). SMA capabilities focus both on quantitative and qualitative aspects, are future-oriented, include external factors in analysis (Bromwich & Bhimani, 1989), and create value through the effective use of resources (R. S. Kaplan & Norton, 1996). Empirical research have found that SMA usage could influence firm performance (Chenhall, 2003; Cinquini & Tenucci, 2007; Guilding et al., 2001; Nordin, Zainuddin, & Tayles, 2009; Otley, 2001; Tillmann & Goddard, 2008). Baines and Langfield-Smith (2003) discovered the positive effects of SMAs in enterprise manufacturing and production. Robert S. Kaplan (1990) indicated that JIT manufacturing systems have a dramatic effect on the expectations on firm logistics information system. R. S. Kaplan and Norton (1996) also indicate that using the BSC could improve business position and enhance performance.

## **Literature Review and Hypotheses Development**

### **Business Strategy and SMA Usage**

The first SMA research objective examines the relationship between business strategies and SMA usage in Malaysian GLCs. Previous studies indicate a relationship between business strategy and SMA

usage. Organizational strategy is established in response to competitive environment, and the appropriate matching of strategy and environment can enhance firm performance (Baines & Langfield-Smith, 2003; Chenhall, 2003). Chenhall and Langfield-Smith (1998) find that strategy has to be supported by appropriate control systems, organizational structure, and management information systems to achieve competitive advantage and ensure high organizational performance. A proper link between strategy and manufacturing operations is key to developing sustainable competitive advantage, thus enhancing firm performance (Dixon, 1998; Porter, 1980).

Management Control System (MCS) is an SMA dimension that relates SMA with strategy and performance (Bromwich, 1990; Chenhall & Langfield-Smith, 1998). Kumar et al. (2002) find that the strategy is important for SMA implementation; they discovered relationships between market orientation and firm performance for low-cost and differentiation strategies in 159 American hospitals. Cadez and Guilding (2008) examine the effect of strategic choices, market orientation, and company size on two distinct SMA dimensions of SMA and the mediating effect of SMA on company performance. The study findings supported the contingency theory tenet of absence of universally appropriate SMA system, which include factors such as company size and strategy with significant bearing on successful SMA application. Thus, prior empirical research leads to the following hypothesis:

*Hypothesis 1:* Business strategy and SMA usage have a significant relationship.

### **Information Technology and SMA Usage**

Studies that examine the relationship between IT and SMA usage are limited. Dechow Neils et al. (2007) conduct a study entitled, Management Control of the Complex Organization: Relationships between Management Accounting and Information Technology; they found that Management accounting/control can easily be seen to be dependent on information technology. Baines and Langfield-Smith (2003) examine the linkage between competitive environment, advanced technology and strategy and found that firms facing a more competitive environment, and technology advancement in management accounting (MA).

Baines and Langfield-Smith (2003) stress that the technology used in pursuing firm performance should support relevant SMA techniques. Baines and Langfield-Smith, Tippins and Sohi (2003) conceptualized IT as the intent to form knowledgeable and effectively utilize IT to manage information within the firm. They indicate that IT could help the companies perform better to achieve competitive advantages, provided that the firm must also possess and integrate the IT components such as software, hardware, and IT personnel. Limited studies have examined the relationship between information technology and SMA usages, but IT could still influence the SMA usage because of the extent of SMA which include some of the technology capability (Dechow et al., 2007; Tippins & Sohi, 2003; Zahra & Covin, 1993). Thus, prior empirical research leads to the following hypothesis:

*Hypothesis 2:* IT and SMA usage have a significant relationship.

### **SMA Usage and Firm Performance**

Chenhall and Langfield-Smith (1998) found a positive correlation between SMA usage and firm performance by examining how the combination of management techniques and management accounting practices enhance organizational performance. Cadez and Guilding (2008) examined the effect of strategic choices, market orientation, and company size on two distinct SMA dimensions and the mediating effect of SMA on company performance. They found that SMA usage contributes to positive financial and non-financial organizational performance. Baines and Langfield-Smith (2003) found that SMA usage has positive effects on manufacturing enterprises.

SMA could influence firm performance because their focus involves quantitative and qualitative factors (Bromwich & Bhimani, 1989), is future-oriented, and externally focused to the competitor, environment, and economy, among others (Roslender & Hart, 2002). Sari's (2005) study on companies listed in the Jakarta Stock Exchange indicated that SMA usage and strategy lead to better organizational performance. Tillmann and Goddard (2008) investigated SMA in a large multinational company in Germany and found that the extensive use of SMA improves organizational performance. Guilding, Cravens, and Tayes (2000) investigate large

companies in New Zealand, UK, and US and found that some practices are more utilized in New Zealand and less in other countries. Thus, prior empirical research leads to the following hypothesis:

*Hypothesis 3:* A significance relationship exists between SMA usage and firm performance.

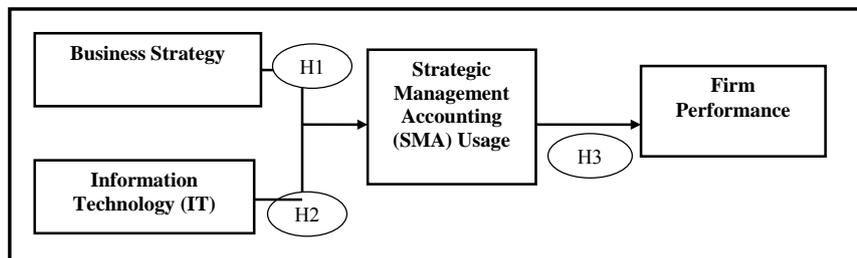


Figure 1: Conceptual Framework of Factors Influencing the Firm Performance

## Methodology

### Sample

This study was conducted among Malaysian 462 federal and state-owned GLCs listed in the database formed from information available on the website. Before sending out questionnaires, numerous telephone calls were made to confirm the addresses and names of relevant GLC personnel. A questionnaire delivered through mail and email was used for data collection. The questionnaire was pre-tested and refined for content validity to improve its quality and was distributed based on randomly selected sample. A total of 200 sets were distributed to accountants or financial managers of GLCs. As highlighted by Bontis, Nick, Crossan, Mary, and Hulland (2002) the perceptions of an accountant or financial manager were considered appropriate because they are the most familiar with the management accountant practices of the company and its business issues. The questionnaires were also emailed to GLCs upon request as a backup to the mail questionnaires. A follow-up letter was sent to all respondents three weeks after reminding them about the questionnaire and seeking their

cooperation in completing the survey and forwarding it using the prepaid envelope provided or through email. Thank you letters were issued to the 70 out of 200 respondents who returned the questionnaires, which contributed to a 35% response rate. Baines and Langfield-Smith (2003) indicate that such response rates (i.e., 25%) is now common in accounting research and is considered sufficient for statistical analysis and inferences.

### **Data Collection**

The questionnaire is divided into two sections. Section A is about company demographic information, such as a firm category, number of employees, firm ownership, structure, and type of industry. Section B is about SMAs practiced by GLCs and is measured based on an eight-point Likert scale ranging from 1 (never used) to 7 (extensively used), including 0 (not applicable). Section C examines the business strategy of GLCs and is measured based on a seven-point Likert scale ranging from 1 (much lower) to 7 (much higher). Section D examines the IT of GLCs and is measured based on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Finally, the fifth section examines the firm performance and is measured based on a seven-point Likert scale ranging from 1 (below average) to 7 (above average).

### **Measurement**

#### **SMA usage**

Thirteen items that were used to measure the SMA usage are adopted from Guilding et al. (2001) and Guilding, Cravens, and Tayes (2000). The measurement including attribute costing, brand value budgeting, brand value monitoring, competitor cost assessment, competitive position monitoring, competitor appraisal based on published financial statements, life cycle costing, quality costing, strategic costing, SMA, strategic pricing, target costing and value chain costing. A list of thirteen SMA usages formed the foundation of the survey for this study. This list was provided to the participants to report the use, if any, of these SMA usages as they applied it to their own firms. Each of the thirteen SMA Usage was specifically and clearly defined in the survey to ensure participants had a common understanding of what they were being asked to rank. The SMA usage in the GLCs was measured as a separate item on eight point Likert-type scales ranging from 1 (never used) to 7 (extensively used), including 0 (not applicable).

### **Business Strategy**

Thirteen items measure the business strategy of GLCs. The items are: uniqueness of products, targeting a clearly identified segment, offering products suitable for high price segments, offering specialty products, intensity of advertising, intensity of marketing efforts, building strong brand identification, level of capacity utilization, level of operating efficiency, efficiency in securing raw materials, offering competitive prices, emphasis on finding ways to reduce cost of production, and efficiency of distribution channels. The items are adopted from Zahra and Covin (1993). This section measures Business Strategy in GLCs based on a seven-point Likert scales ranging from 1 (much lower) to 7 (much higher).

### **IT**

Fifteen items measure the IT of GLCs. The items are divided into three categories, namely, IT knowledge, IT operations, and IT objects. The items, adopted from Tippins and Sohi (2003), are below:

#### 1. IT Knowledge

- (a) Overall, our technical support staff is knowledgeable when it comes to computer-based systems.
- (b) Our firm possesses a high degree of computer-based technical expertise.
- (c) We are very knowledgeable about new computer-based innovations.
- (d) We have the knowledge to develop and maintain computer-based communication links with our customers.

#### 2. IT Operations

- (a) Our firm is skilled at collecting and analyzing market information about our customers via computer-based systems.
- (b) We routinely utilize computer-based systems to access market information from outside databases.
- (c) We have set procedures for collecting customer information from online sources.

*FACTORS THAT INFLUENCE THE USE OF STRATEGIC MANAGEMENT ACCOUNTING (SMA)*

- (d) We use computer-based systems to analyze customer and market information.
- (e) We utilize decision-support systems frequently when it comes to managing customer information.

3. IT Objects

- (a) Our company has a formal Management Information System (MIS) department.
- (b) Our firm employs a manager whose main duties include the management of our information technology.
- (c) Every year we budget a significant amount of funds for new information technology hardware and software.
- (d) Our firm creates customized software applications when the need arises.
- (e) The members of our firm are linked by a computer network.

**Firm Performance**

Seven items measure the firm performance of GLCs: return on investment, customer satisfaction, customer retention, development of new products, firm growth, profitability, and sales growth. The items are adopted from Tippins and Sohi (2003).

## Findings

### Descriptive Findings

Table 1: Demographic Information

Type of Firm	Frequency	Percentage
Medium	44	62.9
Large	26	37.1
Total	70	100.0
Total number of employees	Frequency	Percentage
Below 100	2	2.9
Between 100 to 500	27	38.6
More than 500	41	58.6
Total	70	100.0
Firm ownership	Frequency	Percentage
Federal ownership	33	47.1
State ownership	37	52.9
Total	70	100.0
Type of industry	Frequency	Percentage
Manufacturing	25	35.7
Property and constructions	20	28.6
Trading and services	16	22.9
Others	9	12.9
Total	70	100.0

Table 1 shows the company demographic profile consisting of firm category, total number of employees, firm ownership, and type of industry. Medium and large-sized companies refer to private and public companies, respectively. From 70 respondents, 44 (62.9%) come from medium companies and 26 (37.1%) represent large companies. Most companies have more than 500 employees (41 or 58.6%), followed by below 100 employees and between 100 to 500 employees with 2 (2.9%) and 27 (38.6%) respectively. Ownership type is whether the firms are federal or state-owned based on the total shares invested by either federal or state government. Table 1 indicates that 33 (47.1%) respondent firms are federally owned, whereas 37 (52.9%) are

state-owned. Table 1 also shows the business orientation of the company. Among the respondents, 25 are from the manufacturing industry (35.7%), followed by property and constructions (20 or 28.6%), trade and services (16 or 22.9%). The remainder comprises other industries, such as plantation and agriculture.

## Correlation

Table 2: Summary of the Correlation Results of the Analysis

	SMA	BS	IT	FP
SMA	1	.438**	.550**	.594**
BS		1	.306**	.438**
IT			1	.300**
FP				1

\*\* Correlation is significant at the 0.01 level (2-tailed)

SMA Strategic Management Accounting

BS Business Strategy

IT Information Technology

FP Firm Performance

Correlation with SMA shows a medium level of positive correlation for business strategy ( $r = 0.438$ ), firm performance ( $r = 0.550$ ), and IT ( $r = 0.594$ ); IT shows the largest correlation. Correlation with business strategies shows a medium level of positive correlation with SMA usage ( $r = 0.438$ ), IT ( $r = 0.306$ ), and firm performance ( $r = 0.438$ ). Relationship with IT shows a medium level of positive correlation to SMA usage ( $r = 0.550$ ), business strategy ( $r = 0.306$ ), and firm performance ( $r = 0.300$ ). Firm performance shows a medium level of positive correlation to SMA usage ( $r = 0.594$ ), business strategy ( $r = 0.438$ ), and IT ( $r = 0.300$ ); SMA usage shows the largest correlation. Summarily, correlation among the independent variables provides preliminary proof that they are likely to have an effect on dependent variables.

## Regression Analysis

Regression test examines the linear relationship between the dependent variable and two or more independent variables. The regression test for the present study is separated in two. In the first test, the dependent variable is SMA usage and the independent variables are business strategy and IT. Table 3a shows the regression result for hypothesis testing. In the second test, the dependent variable is firm performance and the independent variable is SMA usage. Table 3b shows the regression result.

The F-Test result for overall model significance statistically shows significant regression at 5% (21.576,  $p = 0.000$ ), which suggests a linear relationship between all X variables considered together and Y. Additionally, there is evidence that at least one independent variable affects the dependent variable. The  $R^2$  value of 39.2% indicates that the variance in firm performance in firm was explained by variations in SMA, BS, and IT. Adjusted  $R^2$  is 37.4%, meaning 37.4% of firm performance is explained by variation in SMA, BS, and IT, considering sample size and the number of independent variables. The VIF values in the study are all below 10 (1.237, 1.237) and the tolerance statistics are all above 0.2 (0.808, 0.808). Therefore, collinearity does not exist within the data.

Hypothesis 1 proposed a significant relationship between business strategy and SMA usage in Malaysian GLCs. Table 3a exhibited that coefficient = 0.287,  $t=2.078$ , and  $p=0.042$  because the p-value is less than 0.05 of the rejection area. Hence, Hypothesis 1 was accepted. Business strategy contributes significantly to SMA usage and GLCs that focus on uniqueness of products, targeting a clearly identified segment, offering products suitable for high price segments, offering specialty products, intensity of advertising, intensity of marketing efforts, emphasis on building strong brand identification, level of capacity utilization, level of operating efficiency, efficiency in securing raw materials, offering competitive prices, emphasis on finding ways to reduce cost of production, and efficiency of distribution channels in their business strategy outperform GLCs that do not practice business strategies.

Hypothesis 2 proposed a significant relationship between IT and SMA usage in Malaysian GLCs. Table 4.3a exhibited that the coefficient = 0.538,  $t=$

4.694, and  $p = 0.000$  because the  $p$ -value is less than 0.05 of the rejection area. Hence, Hypothesis 2 was accepted. IT contributes significantly to SMA usage and GLCs that have technical support staff knowledgeable in computer-based systems, have a high degree of computer-based technical expertise, knowledgeable about new computer-based innovations, have the knowledge to develop and maintain computer-based communication links with customers, are skilled at collecting and analyzing market information about customers via computer-based systems, routinely utilize computer-based systems to access market information from outside databases, have set procedures for collecting customer information from online sources, use computer-based systems to analyze customer and market information, utilize decision-support systems frequently to manage customer information, rely on computer-based systems to acquire, store, and process information about customers, has a formal MIS department, employ managers to handle IT, budget funds for new IT hardware and software, create customized software applications when the need arises, and are linked by a computer network in their IT, outperform GLCs that do not practice IT. The finding is consistent with the results of Tippins and Sohi (2003) who found that IT influences and supports SMA implementation.

Table 3a: Regression Results of SMA Usage in Firm

Variables	Coefficients	Std Error	t-stat	p-value	VIF	Tolerance
(Constant)	1.127	0.740	1.524	0.000		
BS	0.287	0.138	2.078	0.042	1.237	0.808
IT	0.538	0.115	4.694	0.000	1.237	0.808
R				0.626		
R <sup>2</sup>				0.392		
AdjustedR <sup>2</sup>				0.374		
F-statistic (p-value)				0.000		

\*\* Significant at 5% level

The second regression test uses firm performance as the dependent variable and SMA usage as the independent variable. Table 3b shows the regression result for hypothesis testing. Based on the F-Test results for overall model significance, the regression was statistically significant at 5% (29.419,  $p = 0.000$ ) and shows a linear relationship between all X variables considered

together and Y. Additionally, there is evidence that at least one independent variable affects the dependent variable. The  $R^2$  value of 30.2% means that the variance in the financial performance of the organization was explained by SMA. Adjusted  $R^2$  means that 30.2% of firm performance is explained by SMA, considering sample size and the number of independent variables. The VIF values in the study are all below 10 (1.000, 1.000) and tolerance statistics are all above 0.2 (0.265, 0.265). Therefore, collinearity does not exist within the data.

Hypothesis 3 proposed a significant relationship between SMA usage and firm performance. Table 3b shows that coefficient = 0.438,  $t=5.424$  and  $p=0.0000$  because the p-value is less than 0.05 of the rejection area. Hence, Hypothesis 3 was accepted. SMA usage contributes significantly to firm performance. Malaysian GLCs that practice attribute costing, brand value budgeting, brand value monitoring, competitor cost assessment, competitive position monitoring, competitor appraisal based on published financial statements, life cycle costing, quality costing, strategic costing, SMA, strategic pricing, target costing, and value chain costing outperform GLCs that do not practice it. The finding is consistent with the results of Chenhall and Langfield-Smith (1998), as well as with Jermias and Gani (2004), Malina and Selto (2001), and Chenhall and Langfield-Smith (1998), who found that SMA usage has a significant effect on firm performance.

Table 3b: Regression Results Firm Performance in Firm

Variables	Coefficients	Std Error	t-stat	p-value	VIF	Tolerance
(Constant)	3.120	0.520	6.217	0.000		
SMA	0.438	0.089	5.424	0.000	1.000	0.265
R				0.550		
$R^2$				0.302		
Adjusted $R^2$				0.292		
F-statistic (p-value)				0.000		

\*\* Significant at 5% level

## **Conclusion**

This study examined whether business strategy and IT capability contribute to the use of SMA techniques among Malaysian GLCs. The study also attempts to assess whether SMA techniques lead to their better performance. The sample of GLCs make the study unique compared with previous empirical research that focused more on PLCs (Nordin et al., 2009; Tuanmat & Smith, 2011). GLCs were chosen as samples because many issues have recently arisen from the bad performance of GLCs though they constitute 49% of market capitalization in 2009 (Norlaila & Suzana, 2011) and contribute approximately 9% to 10% of Malaysian GDP. However, several GLCs are still not performing well. The study contributes to managerial implications especially in GLC settings.

The findings could be used by GLCs, especially in Malaysia, for factors deemed important to enhance firm performance and SMA usage. GLCs need to establish and implement a good business strategy and support IT improvement either on IT objects, IT knowledge, and IT operation. SMA usage enhances the performance of GLCs and enhances management. GLCs that perform well encourage public trust in the management of public funds of the government. Regression results proved that SMA usage has a significant effect on GLC firm performance. Business strategy and IT also have a significant effect on SMA usage in Malaysian GLCs.

The study is not without limitations. First, to measure the extent of SMA usage, respondents were asked to rate subjectively on a seven-point Likert scale all variables listed in the questionnaire. Such evaluations are subject to personal bias and judgment errors. Thus, future research should include data collection from multiple sources, such as annual reports and financial statements of Malaysian GLCs. Second, the study provides a cross-sectional picture at a single point in time. The recommendations are applicable only if external variables remain unchanged. Future research could increase the sample size to include federal or state GLCs and produce better and accurate results.

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