

The Role of Strategic Management Accounting on Heterogeneity of Human Capital, Information Technology Capabilities and Value Creation

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This study investigates the effectiveness of strategic management accounting practices (SMA) in enhancing the relationship between the heterogeneity of human capital, information technology capabilities and value creation in Malaysian Government Linked Companies (GLCs). The lack of value creation and structural capabilities creates a gap in talent, execution skills and capabilities, which are the challenges commonly faced by GLCs. At present, studies that emphasise the role of SMA practices in promoting value creation and internal capabilities are not widely available. Through structural equation modelling and analyses of data collected from 215 questionnaires, the findings appear to support the role of SMA practices in enhancing the relationship between heterogeneity of human capital and information technology capabilities on value creation in GLCs. These results extend to the growing body of knowledge on SMA practices, value creation and dynamic capabilities theory, specifically on the heterogeneity of human capital and information technology capabilities. Besides, the research framework contributes to the theoretical and management implications that can be applied to management practices and policy design in organisations and serves as a base for future studies on SMA. In addition, this study highlights the application of SMA practices that promote value creation in GLCs by facilitating competitiveness in the industry, improving financial position, creating opportunities for profitability,

business sustainability and long-term performance. However, this study is subjected to its own limitations such as generalisation, and research design and literature, which could be overcome in future research.

Key words: *Strategic management accounting, value creation, heterogeneity of human capital, information technology capabilities, dynamic capabilities, Government Linked Companies.*

Introduction

Strategic management accounting (SMA) practices play important roles in supporting decision making and strategic plan positioning in a firm. They provide management accounting information used for corporate strategic programs, firm development, strategic planning and strategic control (Cadez & Guilding, 2012; Malleret et al., 2015; Turner et al., 2017). SMA practices comprise a range of useful and relevant techniques to facilitate a firm's value creation. Through these techniques, a firm can achieve a competitive advantage and sustain economic growth, which leads to value creation.

Value creation is an important element in every organisation to achieve business sustainability. It is an element that is crucial in maximising shareholders' wealth and is constantly linked to the strategising process. It is also an essential aspect in achieving sustainable performance, resulting in higher earnings per share, continuous improvement in sales growth and increasing competitiveness (Basso, 2015; Abdullah, 2019; Sulaiman et al., 2006). Value creation can be developed through organisational strategic orientation, such as the usage of SMA techniques and higher-order capabilities. These capabilities include the heterogeneity of human capital and information technology capabilities which reflect dynamic capabilities theory. This theory argues that value creation is highly dependent on a firm's strategies in using the higher order of their capabilities. Thus, the role of SMA techniques in enhancing business performance have become the focus of many studies; unfortunately, short-term business performance is not an indicator of sustainability, especially in government linked companies.

Government linked companies (GLCs) are the quintessence of the Malaysian economy. GLCs refer to government business entities that are privatised. A majority of the shares in these companies are held by the Malaysian Government, and one of their main objectives is to maximise financial performance to increase shareholder's wealth. This endeavour requires a commitment to increase effectiveness as well as to improve efficiency and market-oriented culture (Arumugam et al., 2011; Shamsuddin et al., 2016). Inherently, their presence has a great impact on practically every aspect of the business sector in Malaysia, such as

transportation, energy, telecommunications, construction, oil and gas, and the financial sectors (Abdullah & Said, 2016; Lau & Tong, 2008). Consequently, the government and the public expect GLCs to achieve high returns of investment to benefit them. Over the past year, GLCs have contributed to 54 per cent of the Kuala Lumpur Composite Index (KLCI), and employ 5 per cent of the total national workforce (PCG, 2016).

On the other hand, although it is evident that most GLCs have significantly contributed to the Malaysian economy, some have nevertheless, shown weak performance prior to 2005 (PCG, 2007). Numbers of past studies have highlighted that the factors contributing to this issue include the lack of value creation in such firms (Abdullah, 2018; Ting & Lean, 2012; Zin & Sulaiman, 2011). Besides that, MINDA (2009) described that the lack of structural capabilities, which creates a huge gap in talent, execution skills and capabilities, is a challenge commonly faced by GLCs.

Based on the discussion above, this research aims to examine the effects of the heterogeneity of human capital, information technology capabilities and company size on SMA practices, and simultaneously, the mediating effect of SMA practices on firms' value creation in GLCs. This paper is structured as follows. First, an introduction to the background of the study is presented. The second part is on the literature review and hypotheses development, which consists of the definition of each variable and research framework. This is followed by the methodology adopted in this study and results of the findings. The last part consists of the conclusion and limitation of the study, including the discussion of the results.

Related Literature and Hypothesis Development

SMA Practices

In 1981, Simmonds created the term 'SMA', which refers to the analysis of management accounting data, including information about the business and its competitors, with the purpose of developing and monitoring business strategies (Simmonds, 1981). Meanwhile, Bromwich (1990) defined SMA as the provision and analysis of financial information on the company's product markets, competitors' costs, cost structures and the monitoring of strategies of the enterprise and its competitors over a period of time. Furthermore, it was motioned that SMA extends beyond simply collecting data about the businesses and its competitors. It also seeks to evaluate the organisational competitive advantage or value added, relative to that of the competitors and to evaluate the benefits to the organisation over a long duration of time.

Prior studies highlighting the importance of SMA and benefits derived from the adoption of SMA techniques, such as Guilding et al. (2000), posited that SMA furnishes extensive and pertinent information, usually used for making strategic decisions and this creates value for

the organisation. Moving forward, recent studies on SMA have explored factors that influence SMA practices. For instance, a study by Al-Mawali (2015) has discovered that perceived environmental uncertainty and market orientation have a significant influence on the extent of usage of SMA techniques. Meanwhile, Arunruangsirilert and Chonglertham (2017) revealed that corporate governance characteristics significantly affect SMA in aspects of participation and usage. Turner et al. (2017) contended that the adoption of SMA practices would enhance hotel properties competitiveness and performance by developing and implementing internal policies and procedures. Kalkhouran, Nedaei, and Rasid (2017) indicated that the CEO education and involvement in networks has a significant impact on SMA usage, which reflects firm performance. Thus, SMA practices reflect the consistency of their business strategies, changing competitive demands and profitability.

Past and recent studies showed that SMA practices can be influenced by many factors, such as corporate governance, managers, the CEO, external environment and networking. These studies also provided an indication on the importance of SMA practices in the development of strategies. However, there is a room of empirical studies that relates SMA practices and higher-order capabilities.

Heterogeneity of human capital

According to Hatch and Dyer (2004), capabilities through the process of modifying the service portfolio, the development of services and selecting, developing, and deploying human resources in order to deliver those services, would be dynamic capabilities. Kor and Leblebici (2005) stated that key dynamic capabilities in developing firm-level competencies are systems, processes, and routines. These forms of competencies will provide a potential for diversification through the capabilities of human capital to examine the accumulation and development of these competencies. Feiler and Teece (2014) defined the heterogeneity of human capital under dynamic capabilities as the ability to coordinate human resources comprising the processes that span through the process of recruiting, training and talent deployment, in a timely and efficient manner, into the ventures and projects with the highest economic value. In other words, the right people, in the right seats, doing the right thing, with the right people, at the right time.

Thus, there are challenges surrounding the heterogeneity of human capital in the economy outside the scope of the study. Workers differ in their human capital skills, suggesting heterogeneity of human capital in the economy (United Nations, 2016). Therefore, with the heterogeneity of human capital, the firms expect to have skilled and knowledgeable employees. They are focussed on adaptability and flexibility by describing the ways that employees work together and solve problems.

Information technology capabilities

The rapidly changing business environment in today's world requires dynamically evolving information technology (IT) enabled competencies. IT capabilities have been shown to create competitive advantage as they are rare, valuable and difficult to replicate (Danesh & Yu, 2014). In the meantime, for decades, the business value of information technology has been one of the top concerns of both practitioners and scholars, and numerous studies have documented the positive effects of IT capabilities on organisational performance (Chen et al., 2013). According to Arnold, Benford, Canada, and Sutton (2011), information technology (IT) generates the information environment that assists in integration and flexibility of operation. It also becomes an important factor in delivering accounting information (Granlund, 2011) as technologies are used for digital communications, the internet, software and for database solutions (Dechow, Granlund, & Mouritsen, 2007). Past studies focussed on management accounting have revealed changes in corporate management (Ghani & Said, 2011; Said, Hui, Othman, & Taylor, 2012). For instance, Said et al. (2012) found that IT competencies and the use of SMA affect the performance of customers' service processes.

IT capabilities refer to organisations' adoption of approaches to mobilise and deploy IT-based resources and have been found to be positively related to firm performance (Garrison, Wakefield, & Kim, 2015). In the meantime, studies on IT capabilities and organisational performance have often used financial performance as the indicator variable. Thus, research should also look beyond the conventional productivity, including financial performance, since the inclusion of non-financial information, such as service quality, could provide further understanding in relation to IT development.

Value Creation

Since the mid-nineteen-eighties, value creation has always been related to competitive advantages and sustainability that focus on shareholders' wealth, customers' values and profitability (Abdullah, 2018; Zott & Amit, 2009; Bourguignon, 2005). Past literature on value creation have noted the emergence of holistic, strategic, sustainable and ordonomic value creation paradigms. These paradigms of value creation bridge three important systems that support all life on earth — financial, social and environment. As time evolves, value creation has shifted to a new paradigm that focusses not only on the finances of the business but also the social and environmental sustainability and survival of the business in the long-term (Sulaiman, 2016).

Most past studies on value creation have focussed on generating customers' value, and improving shareholders' wealth and profitability, while some studies emphasised on sustainability, corporate social responsibility and environment in relation to value creation.

However, there are very limited studies that have investigated factors such as the heterogeneity of human capital and information technology capabilities from the perspective of dynamic capabilities theory and relating it to value creation.

Heterogeneity of Human Capital - SMA Practices - Value Creation

Key dynamic capabilities in developing firm-level competencies are systems, processes, and routines. These forms of competencies will create a potential for diversification through the capabilities of human capital (Kor & Leblebici, 2005). Many scholars found that SMA practices mediate the role of accountants, which is connected to diversification of knowledge and performance (Cadez & Guilding, 2012; Cooper & Robson, 2006; Tan & Jusoh, 2012). Thus, only limited support is available for the configurational proposition that heterogeneity of human capital and SMA practices are associated with enhancing value creation. Cooper and Robson (2006) posit that accountants with diversified or wider knowledge will utilise their understanding on the accounting processes' techniques, policies and guideline to develop expertise and create reports, which qualify them as professionals. Past studies contended that heterogeneity of human capital is needed among accountants, therefore they not only provide techniques, but also should be accountable for evaluating, monitoring and providing management information to the strategic planning level, with cross-functional responsibility for execution in the organisation, which will create competitive advantages.

Therefore, it is believed that the greater adoption of the SMA practices would influence a greater heterogeneity of human capital, in which GLCs are expected to have wider skilled and knowledgeable employees, and adaptability and flexibility in supporting the management in initiating changes that in turn enhance value creation in GLCs. However, due to the limited prior empirical findings, the following hypothesis has been motivated mainly via a priori reasoning and consensus view in the normative literature. Therefore, the hypotheses in this study are as follows:

H1a: *Heterogeneity of human capital has a significant and positive effect on SMA practices.*

H1b: *Heterogeneity of human capital has a significant and positive effect on value creation.*

H1c: *SMA practices mediate the relationship between heterogeneity of human capital and value creation.*

Information Technology Capabilities - SMA Practices - Value Creation

Moorthy, Voon, Samsuri, Gopalan, and Yew (2012) discovered the association between IT applications in management accounting and competitive advantage. Firms applied IT to draw attention from customers, which had a significant impact on the growth of firms. Besides, IT

in management accounting enables prompt updates of information on the website to facilitate customers, investors and creditors to have a clear picture of the firm's plans and goals.

Therefore, GLCs can continuously improve performance, which generates value creation through the information provided at a faster rate with the existence of IT capabilities. Here, the greater adoption of SMA practices in GLCs will lead to a high level of IT capabilities and enhanced value creation through its capabilities in processing information and producing timely and accurate data analysis that will affect the management's decision making. Hence, this leads to the following hypotheses:

H2a: *Information technology capabilities have a significant and positive effect on SMA practices.*

H2b: *Information technology capabilities have a significant and positive effect on value creation.*

H2c: *SMA practices mediate the relationship between information technology capabilities and value creation.*

SMA Practices - Value Creation

There are numerous academic studies that have focussed on the utilisation of specific SMA techniques and linked it to firms' performance (Abdul Rahman, Azhar, Abdul Rahman, & Mohd Daud, 2012; Alsoboa et al., 2015; Bromwich & Bhimani, 1994; Guilding et al., 2000; Tan, 2014). Such techniques include activity-based costing and product life cycle costing, benchmarking, and SMA information usage. However, not much research has emphasised the link between SMA adoptions and value creation, although some studies have outlined the effect of management accounting practices on value creation (Bourguignon, 2005; Sulaiman et al., 2006).

SMA practices play a role in providing managers with appropriate, precise and reliable information on the critical success factors within and outside an organisation for long-term periods (Cadez & Guilding, 2008). Abdul Rahman et al. (2012) posited that the use of SMA improved business operations and decision-making functions, which leads to wealth and value creation. Therefore, successful SMA practices will create sustainable competitive advantages and value creation that are a never ending cycle. It is proposed that the use of SMA is positively related to value creation. Hence, the hypothesis is stated as follows:

H3: *SMA practices have a significant and positive effect on value creation.*

Company Size - SMA Practices

Previous studies have discovered that company size is positively related to accounting complexity and larger companies are more willing to use SMA techniques for decision making (Cadez & Guilding, 2008; Guilding, 1999; Tan, 2014). This is consistent with Cinquini and Tenucci (2010) who claim company size is frequently mentioned as a variable influencing accounting system design. It was also pointed out by Libby and Waterhouse (1996) that bureaucratisation may also increase with size and may act as a constraint to change in a management accounting system. Consequently, the following hypothesis is formulated.

H4: *Company size has a significant and positive effect on SMA practices.*

Research Framework

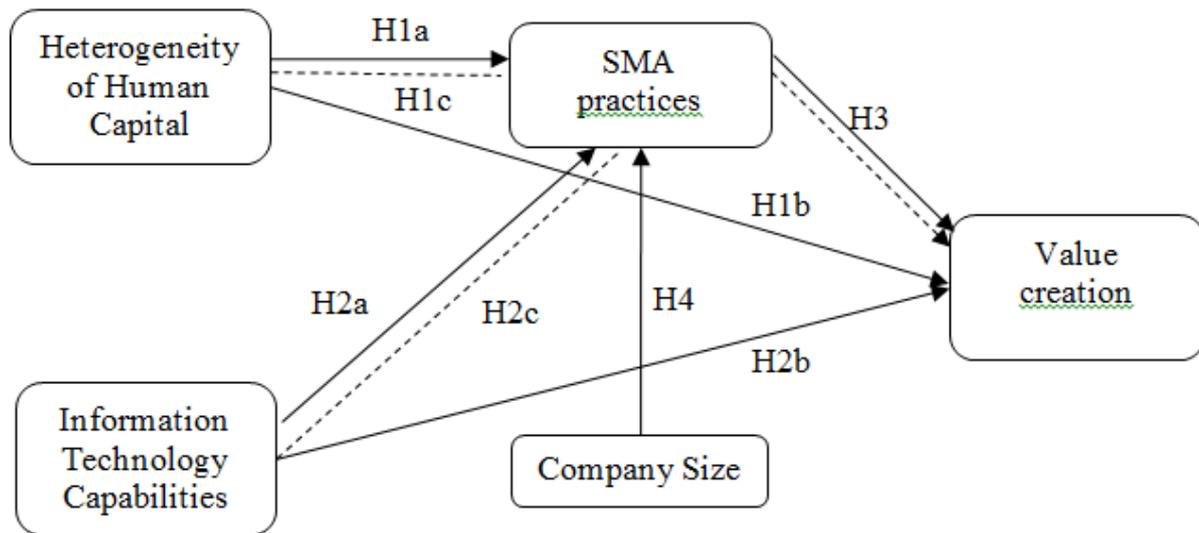
The research framework for this study is constructed as shown in Figure 1; the endogenous construct is value creation and exogenous constructs in this study are the heterogeneity of human capital, information technology capabilities, company size and SMA practices that also play a role as the mediator. The framework below demonstrates how value creation can be enhanced by heterogeneity of human capital and information technology capabilities through the mediation of SMA practices, as well as the effect of company size on SMA practices.

Methodology

Data collection

This study gathers data using a questionnaire survey distributed by mail to 455 GLCs in Malaysia. This study uses the population as a sample distribution to increase the response rate (Arumugam et al., 2011; Kadir, Abidin, Ramli, & Surbaini, 2014). Respondents include the Chief Financial Officer (CFO) and Financial Controller (Cadez & Guilding, 2008; Cinquini & Tenucci, 2010; Spraakman, O'Grady, Askarany, & Akroyd, 2018). Those who hold these positions have a direct impact on all senior managers involved with accounting decisions (Spraakman et al., 2018).

Figure 1. Hypothesised Path Model



The analysis of this unit of study is an organisation. The response rate for the study was 47 per cent, as there were 215 valid and complete questionnaires received from the GLCs (see Table 1). The response rate is within the range of recent mail surveys in the field of academic research (Amir, Ahmad, & Mohamed, 2010). The data analysis was performed using SEM-AMOS (structural equation modelling).

Table 1: Industry classification of the sampled GLCs

Industry	Frequency	Percentage
Agriculture	18	8.3
Banking and Investment	28	13
Construction	35	16.2
Healthcare	29	13.4
Manufacturing	38	17.6
Service	47	21.8
Oil and Gas	7	3.2
Others	14	6.5
Total	215	100

Variables Measurement

SMA practices

As for SMA practices, this study adopted measures by Cadez and Guilding (2008). The measures comprised of 16 techniques. These 16 SMA techniques were listed together accordingly in a Likert scale ranging from ‘1’ (not being practiced at all), to ‘10’ (practiced to a great extent). Then, they were grouped into five categories, namely 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). The respondents were required to indicate the extent of their organisation's use of each of these techniques.

Heterogeneity of Human Capital

This variable was measured using the instrument applied by Doving and Gooderham (2008), and Wei and Lau (2010). The measurements are experience, skilled, knowledge and education level of the managers, how problems are addressed, encouragement and support towards innovation, sharing information, new ideas and changes, achievement of high-performance goals, and understanding of the managers' problems by top management. Using a ten-point scale, ranging from '1' (strongly agree), to '10' (strongly disagree), the respondents were asked to indicate the level of agreement following eight statements describing managerial level staff in their organisation.

Information Technology Capabilities

The measurement for IT capabilities in this study was adopted from Bhatt and Grover (2005), Ghani and Said (2011), and Jurisch and Palka (2014). It comprises of necessary hardware, software and other technologies, IT infrastructure, computing systems and software applications, quality of IT expert, opportunities to the IT staff members, utilisation of IT expert, capabilities in processing information, and producing timely and accuracy of data. Here, the respondents were requested to rate the level of their agreement on the statements based on a ten-point scale, ranging from '1' (strongly disagree), to '10' (strongly agree), to reflect the extent of the IT capabilities in their companies.

Company Size

Similar to the approach used in Guilding (1999) and Gerdin (2005), company size is measured through the number of employees. Such data were gathered from one section in the questionnaire where the respondents were asked to select one of the five categories (below 250 employees, between 251 to 500 employees, between 501 to 750 employees, between 751 to 1,000 employees, and above 1,000 employees). These five categories were then coded into two main groups. The first group was coded as '1' for the category 'small firms' with a number of employees of 500 or less. The second group was coded as '2' for the category

‘large firms’ with a number of employees of 501 and above.

Value Creation

The measurements of value creation were presented according to the financial and non-financial dimensions. The measures for value creation were developed in the GLC context through two rounds of the Delphi technique, which involved three panel experts from the top management level in other GLCs (Abdullah & Said, 2016). By using the Likert scale ranging from ‘1’ (below average), to ‘10’ (above average), the respondents indicated their level of agreement of value creation in their respective organisations for the last three years, compared to similar organisations in the same industry. Measurements under the financial dimensions include stock price, market value, sales growth, price-earnings ratio, market share, return on investment, and market positioning. Meanwhile, non-financial dimensions refer to business risk, business opportunities, workforce, and brand and reputation.

Findings

Validity and Reliability

The validity and reliability of the data were obtained through the confirmatory factor analysis (CFA). Here, the data needed to achieve the Fitness Indexes for the measurement model, the factor loading for every item, and the correlation between constructs. The Fitness Indexes consist of three categories, namely Absolute Fit, Incremental Fit and Parsimonious Fit, which reflect the Construct Validity (see Table 2). The factor loading indicates the importance of the respective item in measuring its construct with a minimum threshold value of 0.6 (Awang, 2014; Henseler, Ringle, & Inkovics, 2009). All constructs have factor loadings of above 0.60, ranging from 0.77 to 0.91. On the other hand, the correlation between the constructs show a value of less than 0.85, which indicates the degree to which one independent variable is explained by the other independent variables (Awang, 2014).

Table 2: The Fitness Indexes (Awang, 2014)

Name of category	Name of index	Value of index	Level of acceptance
Absolute fit	Chisq (Discrepancy Chi Square)	.000	$P > 0.05$
	RMSEA (Root Mean Square of Error Approximation)	.076	$RMSEA < 0.08$
	GFI (Goodness of Fit Index)	.870	$GFI > 0.90$
Incremental fit	CFI (Comparative Fit Index)	.938	$CFI > 0.90$
	TLI (Tucker-Lewis Index)	.926	$TLI > 0.90$
Parsimonious fit	Chisq/df (Chi Square/Degrees of Freedom)	2.245	$Chi\ square/df < 5.0$

The study also computed the value of Average Variance Extracted (AVE) for every construct to assess their Convergent Validity, to compute the Composite Reliability (CR) and Cronbach Alpha for every construct to assess the reliability of items in measuring the construct. The minimum threshold value for AVE is 0.5, while the minimum threshold value for CR and Cronbach Alpha is 0.6 (Awang, 2014; Henseler et al., 2009). The AVE values range from 0.669 to 0.741, while the CR values are from 0.851 to 0.938, and Cronbach Alpha ranges from 0.853 to 0.937. Thus, the study can conclude that the convergent validity and composite reliability for all constructs in the pooled CFA have been achieved.

The Discriminant Validity Index Summary is presented in Table 3. The Discriminant Validity is achieved if the diagonal values (in bold) are higher than any other values in its row and column (Kashif, Samsi, Awang, & Mohamad, 2016). As observed, the study concludes that the Discriminant Validity for all constructs has been achieved.

Table 3: The Assessment of Discriminant Validity among Constructs

Construct	SMA	HHC	ITC	Company Size	VC
SMA	0.828				
HHC	0.70	0.828			
ITC	0.80	0.62	0.818		
Company Size	0.01	0.02	0.12	1	
VC	0.75	0.70	0.79	0.02	0.861

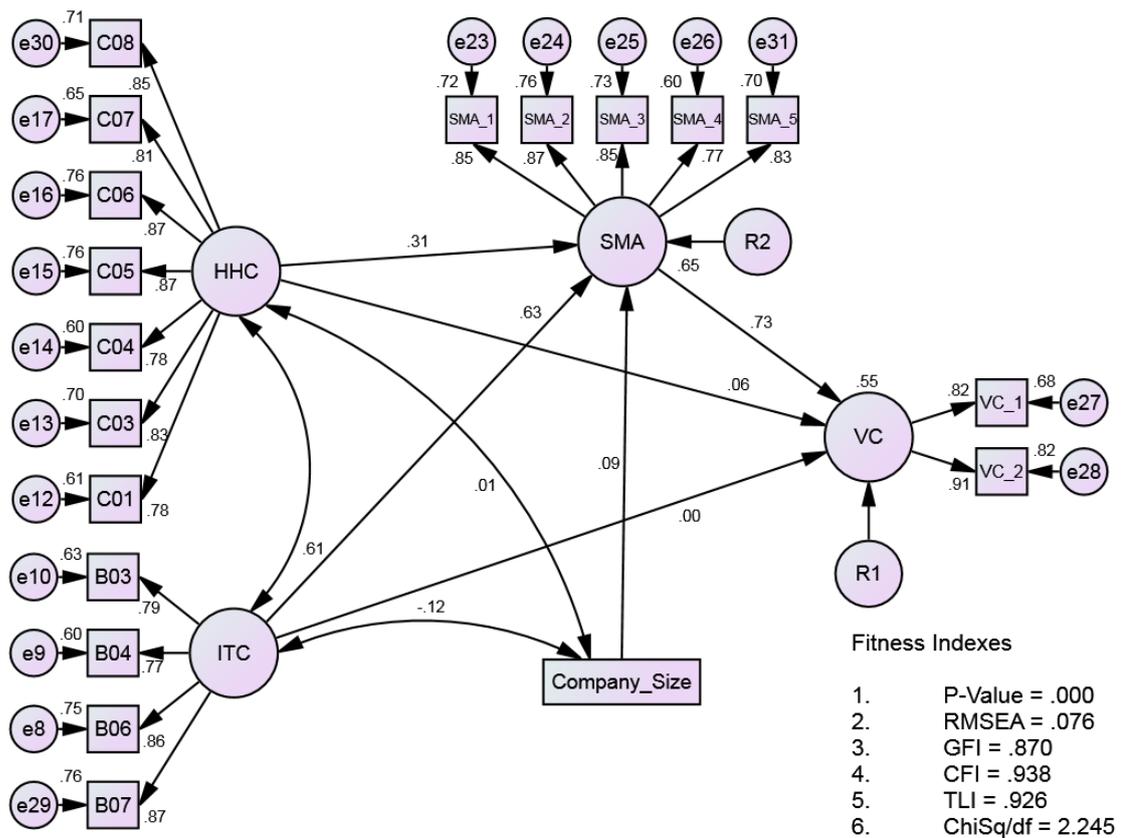
Hypotheses Testing

The AMOS results, as shown in Table 4 and Figure 2, indicate that the heterogeneity of human capital and information technology capabilities have no direct effect on value creation. SMA practices are found to be positively associated with the heterogeneity of human capital and information technology capabilities. SMA practices are also found to have a significant and positive effect on value creation. Thus, H1a, H2a, and H3 are supported, while H1b and H2b are not supported. Hence, SMA practices are deemed to have a “Full Mediation” role on the relationship between the heterogeneity of human capital and value creation (H1c), as well as information technology capabilities on value creation (H2c) with “Full Mediation”. The result also shows that the company size (H4) has a significant effect on SMA practices.

Table 4: Summary of the regression weights

Hypotheses				Estimate	S.E.	C.R.	P	Decision
H1a:	HHC	--->	SMA	.348	.071	4.910	***	Significant
H1b:	HHC	--->	VC	.051	.055	.933	.351	Insignificant
H1c:	HHC	--->	SMA VC					Significant
H2a:	ITC	--->	SMA	.584	.065	8.941	***	Significant
H2b:	ITC	--->	VC	-.002	.063	-.026	.979	Insignificant
H2c:	ITC	--->	SMA VC					Significant
H3:	SMA	--->	VC	.725	.089	8.116	***	Significant
H4:	Size	--->	SMA	.169	.085	1.991	.046	Significant

Figure 2. Structural equation modelling



The results also revealed that the squared multiple correlation (R^2) for the value creation is 0.55. In other words, it is estimated that the predictors of value creation, the heterogeneity of human capital, information technology capabilities and SMA practices, explain 55 per cent of its variance. Hence, the error variance of value creation is approximately 45 per cent of the variance of value creation itself. Meanwhile, the R^2 for SMA practices is 0.65, which shows that the predictors of SMA practices, namely heterogeneity of human capital, information technology capabilities and company size, explain 65 per cent of its variance and the error variance is 35 per cent.

SMA practices are the key element of the overall skills base of managers and accountants, which play a significant role in dynamic organisational operations in GLCs that create value creation. Thus, the higher adoption of SMA practices in GLCs, which comprises of various techniques in costing, planning, control and performance measurement, strategic decision-making, competitor and customer analysis, has motivated GLCs to acquire managers or accountants who have appropriate levels of education with wider knowledge and are skilled in order to adopt and execute these techniques. Consequently, this leads to a greater level of heterogeneity of human capital in GLCs. This will enhance value creation in GLCs by improving operational performance and efficiency and reduce business risk. This is because necessary action can be taken immediately by skilled managers to encounter the issues related to business risks and turn them into opportunities, such as surviving the market downturn that might affect GLCs' stock price and their performance.

Moreover, the greater adoption of SMA techniques in GLCs would also produce staff members with a high level of adaptability and flexibility in the working environment, as the staff members will develop the ability to discuss operational issues or problems openly in a constructive manner. Inherently, encouragement and support given from the management to the staff members will motivate them to innovate new ideas and changes in the organisation. As a result, achieving performance goals may improve the operation and business activities, support management decision-making, improve attraction and reduce the retention of the GLCs' workforce. In turn, GLCs may gain competitive advantages in human capital as well as achieve superior value creation.

This finding is consistent with past research on the impact of SMA practices in mediating the relationship of heterogeneity of human capital and value creation or performance. For instance, studies by Cadez and Guilding (2008, 2012) and Tan and Jusoh (2012) contended that the firms with a high SMA usage will acquire high accountant involvement in strategising, which will in turn, positively affect performance, such as the return on investment and market share. Prior study by Cooper and Robson (2006) conjectured that knowledge intensive firms, particularly managers and accountants, utilise their knowledge on the accounting processes' techniques, policies and guidelines to develop

expertise and create reports that qualify them as professionals, which affects the operational performance and business activities that have an impact on value creation.

The results of hypothesis testing indicate that the greater the adoption of SMA practices in GLCs, lead to a greater relationship between IT capabilities and value creation. In other words, the adoption of SMA practices in GLCs has a significant role in enriching the relationship between IT capabilities and value creation. The greater the adoption of SMA techniques in GLCs has influenced them to possess a higher level of IT capabilities by increasing its storage, improving the speed of data processing, and retrieving information and subsequently, advancing its software and hardware in order to support the processes of the various analyses. Subsequently, this action enhances value creation in GLCs by reducing business risks and increasing stock price, as fast action taken via analysis to respond to market changes will improve their operational performance and efficiency.

In addition, GLCs with a higher adoption of SMA practices acquire a strong internet connection, effective computing systems and software applications that link the departments involved in GLCs, physically or functionally, overseen by IT experts. Therefore, the managers can share the outcomes from the analyses across the department or subsidiaries for the fastest decision-making process and subsequently, it enhances value creation by acquiring more business opportunities and achieving a competitive advantage due to an inimitable characteristic from the software application.

This finding is consistent with past research on the important role of SMA practices or management accounting in mediating the relationship of IT capabilities and value creation. For instance, a study by Dechow, Granlund, and Mouritsen (2007) indicates that IT capabilities support accounting practices through the use of its technologies and processes that create business value. Meanwhile, Moorthy et al. (2012) found that there is a significant relationship between IT applications in management accounting and competitive advantage that generates value creation. The integration of IT capabilities facilitates co-ordination of management accounting, which is related to the building of competitive advantages. This function has enabled the GLCs to fulfil the purposes of accounting practices by acquiring sophisticated uses for technologies, including software, database solutions, the internet and digital communications that lead to greater organisational performance and create value.

The findings of this study also contribute to the debate about the role of SMA practices on value creation. These findings confirm the positive influence of SMA practices on value creation. In other words, SMA practices have an impact in improving stock prices, market value, sales growth, price-earnings ratio, market share, return on investment, market positioning, business risk, business opportunities, workforce, and brand and reputation of the

organisation. It also demonstrates that the heterogeneity of human capital, information technology capabilities and company size influence the adoption of SMA practices in GLCs.

Conclusion

This study provides evidence on the role of SMA practices in enhancing the relationship between dynamic capabilities and value creation. The findings have confirmed the role of SMA practices in improving the relationship between information technology capabilities and the heterogeneity of human capital on value creation. The results of the study will lead towards enriching the understanding of successful SMA practices in Malaysian GLCs, which provide evidence on how to significantly improve value creation through the adoption of SMA techniques. In addition, the research framework contributes to the theoretical and management implications that can be applied to management practices and policy design in organisations.

The contributions from this research involve practitioners and researchers pertaining to the importance of SMA practices in forming value creation through its own capabilities. Thus, the SMA techniques in competitor and customer accounting, costing, strategic decision-making, planning, and control and performance measurement, would enrich value creation by lowering the business risks, enhancing business opportunity, maintaining the workforce through the benchmarking analysis, improving operational performance, and enhancing brand and reputation through brand valuation analysis. In addition, this study has demonstrated the roles of SMA practices in enhancing the relationship between dynamic capabilities and value creation in Malaysian GLCs. The research revealed that the GLCs' top management has a significant knowledge of SMA practices due to the extensive use of SMA techniques which allow them to meet the challenges in global markets and to ensure the sustainability of the companies.

Limitations of the Study

Despite the significant contributions of this study, it also has its own limitations. First, samples were taken from Malaysian GLCs. Therefore, it cannot be ascertained that these findings can be extended to other sectors. Replications will be useful for future research to address the issue of generalisability. Second, this study used a self-report on variables, therefore the use of top management as respondents can minimise the biasness of perceptual measure, and further studies may consider other sources of evidence to address this issue with annual reports and archived data. Notwithstanding the above constraints, the findings of this study provide valuable knowledge of the impact of SMA practices on the relationship between the heterogeneity of human capital, information technology capabilities and value creation.

REFERENCES

- Abdul Rahman, I. K., Azhar, Z., Abdul Rahman, N. H., and Mohd Daud, N. H. (2012). Strategic management accounting and benchmarking practices in Malaysian hospitals. *Journal of Applied Sciences Research*, 8(3), 1665–1671.
- Abdullah, N. H. N., and Said, J. (2016). Value Creation and Government Linked Companies : Towards High Level of Accountability. *Information*, 19(8A), 3125–3130.
- Abdullah, N. H. N. (2018). *The influence of dynamic capabilities on strategic management accounting practices and its effect on value creation in government linked companies*. In: The Doctoral Research Abstracts. IGS Biannual Publication, 13(13). Institute of Graduate Studies, UiTM, Shah Alam.
- Abdullah, N.H.N., Darsono, J.T., Respati, H. and Said, J. (2019). Improving accountability and sustainability through value creation and dynamic capabilities: an empirical study in public interest companies. *Polish Journal of Management Studies*, 19(2), 9-21.
- Al-Mawali, H. (2015). Contingent factors of Strategic Management Accounting. *Research Journal of Finance and Accounting Online*, 6(11), 2222–2847.
- Alsoboa, S. S., Nawaiseh, M. E., Abu Karaki, B., and Al Khattab, S. A. (2015). The Impact of Usage of Strategic Decision Making Techniques on Jordanian Hotels' Performance. *International Journal of Applied Science and Technology*, 5(1), 154–163.
- Amir, A. M., Ahmad, N. N. N., and Mohamed, M. H. S. (2010). An Investigation on PMS Attributes in Service Organizations in Malaysia. *International Journal of Production and Performance Management*, 59(8), 734–756.
- Arnold, V., Benford, T., Canada, J., and Sutton, S. G. (2011). The role of strategic enterprise risk management and organizational flexibility in easing new regulatory compliance. *International Journal of Accounting Information Systems*, 12(3), 171–188.
- Arumugam, G. S., Guptan, V., and Shanmugam, B. (2011). Market orientation in a GLC: Evidence from Malaysia. *Problems and Perspectives in Management*, 9(2), 51–62.
- Arunruangsirilert, T. Chonglertham, S. (2017). Effect of corporate governance characteristics on strategic management accounting in Thailand. *Asian Review of Accounting*, 25(1), 85–105.
- Awang, Z. (2014). *A handbook on SEM for academicians and practitioners: the step by step practical guides for the beginners*. MPWS Rich Resources. Bandar Baru Bangi.



- Basso, L. F. C., de Oliveira, J. A. S., Kimura, H., and Braune, E. S. (2015). The impact of intangibles on value creation: Comparative analysis of the Gu and Lev methodology for the United States software and hardware sector. *Investigaciones Europeas de Direccion y Economia de La Empresa*, 21(2), 73–83.
- Bhatt, G. D., and Grover, V. (2005). Types of Information Technology Capabilities and Their Role in Competitive Advantage: An Empirical Study. *Journal of Management Information Systems*, 22(2), 253–277.
- Bourguignon, A. (2005). *Management accounting and value creation: The profit and loss of reification. Critical Perspectives on Accounting* (Vol. 16).
- Brand, H. (2010). *Accountants for Business : The Value Creation Model for Business 2010 and Beyond*. London: Association of Chartered Certified Accountants.
- Bromwich, M. (1990). The case for strategic management accounting: The role of accounting information for strategy in competitive markets. *Accounting, Organizations and Society*, 15(1–2), 27–46.
- Bromwich, M., and Bhimani, A. (1994). *Management accounting pathways to progress*. London: Chartered Institute of Management Accountants.
- Cadez, S., and Guilding, C. (2008). An exploratory investigation of an integrated contingency model of strategic management accounting. *Accounting, Organizations and Society*, 33(7–8), 836–863.
- Cadez, S., and Guilding, C. (2012). Strategy, strategic management accounting and performance: a configurational analysis. *Industrial Management and Data Systems*, 112(3), 484–501.
- Chen, Y., Wang, Y., Nevo, S., Jin, J., Wang, L., and Chow, W. S. (2013). IT capabilities and organizational performance: the roles of business process agility and environmental factors. *European Journal of Information Systems*, 23(March), 1–2.
- Cinquini, L., and Tenucci, A. (2010). Strategic management accounting and business strategy: a loose coupling? *Journal of Accounting and Organizational Change*, 6(2), 228–259.
- Cooper, D. J., and Robson, K. (2006). Accounting, professions and regulation: Locating the sites of professionalization. *Accounting, Organizations and Society*, 31(4–5), 415–444.
- Danesh, M. H., and Yu, E. (2014). Modeling Enterprise Capabilities with i*: Reasoning on Alternatives.



- Dechow, N., Granlund, M., and Mouritsen, J. (2007). Management control of the complex organization: relationships between management accounting and information technology. In *Chapman C, Hopwood AG, Shields MD, editors. Handbook of management accounting research*.
- Doving, E., and Gooderham, P. N. (2008). Dynamic capabilities as antecedents of the scope of related diversification: the case of small firm accountancy practices. *Strategic Management Journal*, 29, 841–857.
- Feiler, P., and Teece, D. (2014). Case study, dynamic capabilities and upstream strategy: Supermajor EXP. *Energy Strategy Reviews*, 3(C), 14–20.
- Garrison, G., Wakefield, R. L., and Kim, S. (2015). The effects of IT capabilities and delivery model on cloud computing success and firm performance for cloud supported processes and operations. *International Journal of Information Management*, 35(4), 377–393.
- Gerdin, J. (2005). Management accounting system design in manufacturing departments: An empirical investigation using a multiple contingencies approach. *Accounting, Organizations and Society*, 30, 99–126.
- Ghani, E. K., and Said, J. (2011). Effect of Information Technology Capabilities on E-Services Among Malaysian Local Authorities. *International Journal of Public Information Systems*, 2, 65–78. Retrieved from www.ijpis.net
- Granlund, M. (2011). Extending AIS research to management accounting and control issues: A research note. *International Journal of Accounting Information Systems*, 12(1), 3–19.
- Guilding, C. (1999). Competitor-focused accounting: an exploratory note. *Accounting, Organizations and Society*, 24, 583–595.
- Guilding, C., Cravens, K. S., and Tayles, M. (2000). An international comparison of strategic management accounting practices. *Management Accounting Research*, 11(1), 113–135.
- Hatch, N. W., and Dyer, J. H. (2004). Human capital and learning as a source of sustainable competitive advantage. *Strategic Management Journal*, 25(12), 1155–1178.
- Henseler, J., Ringle, C. M., and Inkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. *Advances in International Marketing*, 20, 277–320.
- Jurisch, M., and Palka, W. (2014). Which capabilities matter for successful business process change? *Business Process ...*, 20(1), 47–67.



- Kalkhouran, A. A. N., Nedaei, B. H. N., and Rasid, S. Z. A. (2017). The indirect effect of strategic management accounting in the relationship between CEO characteristics and their networking activities, and company performance. *Journal of Accounting and Organizational Change, In press.*
- Kashif, M., Samsi, S. Z. M., Awang, Z., and Mohamad, M. (2016). EXQ: measurement of healthcare experience quality in Malaysian settings: A contextualist perspective. *International Journal of Pharmaceutical and Healthcare Marketing, 10(1)*, 27–47.
- Kor, Y. Y., and Leblebici, H. (2005). How do interdependencies among human-capital deployment, development, and diversification strategies affect firms' financial performance? *Strategic Management Journal, 26(10)*, 967–985.
- Lau, Y. W., and Tong, C. Q. (2008). Are Malaysian Government-Linked Companies (GLCs) Creating Value ? *International Applied Economics and Management Letters, 1(1)*, 9–12.
- Libby, T., and Waterhouse, J. H. (1996). Predicting change in management accounting systems. *Journal of Management Accounting Research, 8*, 137–150.
- Malleret, V. C., Villarmois, O. D. La, and Levant, Y. (2015). Revisiting 30 years of SMA literature : What can we say , think and do ? Revisiting 30 years of SMA literature : What can we say , think and do ?, (August).
- MINDA (Malaysian Directors Academy). (2009). Mid-Term Progress Review: GLCs are Much More Resilient and Focused on Catalysing Growth and Realising the Programme's 2015 Aspirations, *July(2)*.
- Moorthy, M. K., Voon, O. O., Samsuri, C. A. S. B., Gopalan, and Yew, K.-T. (2012). Application of Information Technology in Management Accounting Decision Making. *International Journal of Academic Research in Business and Social Sciences, 2(3)*, 1–16.
- Said, J., Hui, W. S., Othman, R., and Taylor, D. (2012). Strategic Management accounting and Information Technology Competency on Customer Service Process Performance in Local Government Agencies. *Malaysian Accounting Review, 11(1)*, 91–122.
- Shamsuddin, A., Ibrahim, M.I.M. and Ridzwan, I.U.B. (2016). 'The Impacts of spiritual capital towards corporate governance practices: A case study of the Government Linked Companies (GLCs) In Malaysia'. *International Journal of Business, Economics, and Law, 9(5)*, 1-9.
- Simmonds, K. (1981). Strategic management accounting. *Management Accounting, 5(April)*,



26–29.

- Spraakman, G., O’Grady, W., Askarany, D., and Akroyd, C. (2018). ERP systems and management accounting: New understandings through “nudging” in qualitative research. *Journal of Accounting and Organizational Change*, 14(2), 120–137.
- Sulaiman, S. (2016). *From Mere Managing Cost to Future Business Sustainability: Management Accounting Approach*. UiTM Press.
- Sulaiman, S., Omar, N., and Rahman, I. K. A. (2006). Assessing value creation through Nafma: selected case studies of Malaysian firms. *Asia-Pacific Management Accounting Journal*, 1(1), 99–111.
- Tan, A. L. (2014). Effects of Strategy, Competition , Decentralization and Organizational Capabilities on Firm Performance : the Mediating Role of Strategic Management Accounting, (April).
- Tan, A. L., and Jusoh, R. (2012). Business Strategy, Strategic Role of Accountant, Strategic Management Accounting and Their Links To Firm Performance: an Exploratory Study of Manufacturing Companies in Malaysia. *Asia-Pacific Management Accounting Journal*, 7(1), 59–94.
- The Putrajaya Committee GLC High Performance (PCG). (2007). News. Retrieved from <http://www.pcg.gov.my/news.asp>
- The Putrajaya Committee GLC High Performance (PCG). (2016). Overview.
- Ting, I. W. K., and Lean, H. H. (2012). Capital structure of government-linked companies in Malaysia. *Asian Academy of Management Journal of Accounting and Finance*, 7(2), 137–156.
- Turner, M. J., Way, S. A., Hodari, D., and Witteman, W. (2017). Hotel property performance: The role of strategic management accounting. *International Journal of Hospitality Management*, 63, 33–43.
- United Nations. (2016). *Guide on Measuring Human Capital. Economic Commission for Europe, Conference of Europe Statisticians*. Retrieved from <https://unstats.un.org/unsd/nationalaccount/consultationDocs/HumanCapitalGuideGlobalConsultation-v1.pdf>
- Wei, L.-Q., and Lau, C.-M. (2010). High performance work systems and performance: The role of adaptive capabilities. *Human Relations*, 63(10), 1487–1511.



- Zin, N. M., and Sulaiman, S. (2011). Government-linked Companies Blue Book (GLCs Blue Book) as a complement to Balanced Scorecard (BSC) in the Government-Linked Companies transformation program. *International Conference on Business and Economics Research 2010, 1*, 294–297.
- Zott, C., and Amit, R. (2009). Business Model Innovation: Creating Value In Times Of Change. *Universia Business Review*, 3, 108–121.