A CONTINGENCY-BASED FRAMEWORK OF STRATEGIC MANAGEMENT ACCOUNTING, SOPHISTICATED BUDGETING AND COSTING TECHNIQUES IN MALAYSIAN SMALL AND MEDIUM ENTERPRISES

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I dedicate this thesis to
My dear and loving wife, Bahareh, My beloved daughter, Elsa,
My father, Reza and mommy
For their constant support and unconditional love.
I love you all dearly.
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ABSTRACT

Survival in the current competitive business environment requires updated and accurate accounting information through adoption of appropriate management accounting practices (MAPs). However, improving organizational performance may require businesses including small and medium enterprises (SMEs) to not merely adopt those practices but also to observe the fit between MAPs and the contextual variables that determine performance. Knowledge regarding MAPs in SMEs is still scarce; hence, the need for further understanding of factors affecting the adoption of MAPs and how appropriate the fit between those factors and practices enhances SMEs’ performance. This study aims to examine the effect of perceived environmental uncertainty (PEU), advanced manufacturing technology (AMT) and chief executive officers’ (CEOs) involvement in networks and characteristics on advanced MAPs including strategic management accounting (SMA), advanced budgeting and sophisticated costing techniques. The study also explores the mediating effect of advanced MAPs on performance. An online survey was conducted among 1470 manufacturing SMEs in Malaysia which produced 186 useable responses. The Partial Least Squares-Structural Equation Modeling (PLS-SEM) was used and the data was analysed using SmartPLS 3. The results provide evidence of the positive relationship between the contingency factors and almost all MAPs as well as between MAPs (with the exception of costing techniques) and performance. In addition, the main result suggested that in a situation of high PEU or when CEOs are highly educated and experienced, the increased use of budgeting practices will yield higher performance. Moreover, when CEOs are more educated, using more SMA can have similar effect to firm performance. This study elucidates the appropriate MAPs for SMEs by offering empirical evidence based on the integration of the theory of contingency and upper echelon theory. This model helps SMEs adopt suitable advanced MAPs for better response to particular circumstances that their firm faces.
ABSTRAK

Daya tahan dalam persekitaran perniagaan semasa yang kompetitif memerlukan maklumat perakaunan terkini dan tepat melalui penggunaan amalan perakaunan pengurusan (MAPs) yang sesuai. Walau bagaimanapun, meningkatkan prestasi organisasi mungkin memerlukan perniagaan termasuk perusahaan kecil dan sederhana (SMEs) bukan hanya menerima pakai amalan tersebut namun turut melihat kesesuaian antara MAPs dan pemboleh ubah kontekstual yang menentukan prestasi. Pengetahuan tentang MAPs dalam SMEs masih terhad, oleh itu terdapat keperluan untuk memahami lebih lanjut faktor yang memberi kesan kepada penggunaan MAPs dan bagaimana kesesuaian padan antara faktor ini dan amalan meningkatkan prestasi SMEs. Kajian ini bertujuan untuk menyelidik kesan persepsi ketidakpastian persekitaran (PEU), teknologi pembuatan termaju (AMT) dan penglibatan Ketua Pegawai Eksekutif (CEOs) dalam rangkaian dan ciri-ciri terhadap MAPs lanjutan termasuk perakaunan pengurusan strategik (SMA), pembelanjawanan lanjutan dan teknik pengekosan tercanggih. Kajian ini juga meninjau kesan pengantara MAPs lanjutan terhadap prestasi. Satu tinjauan dalam talian telah dijalankan dalam kalangan 1470 SMEs bidang pembuatan di Malaysia yang menghasilkan 186 respons yang sah digunakan. Model Persamaan Struktur-Kuasa Dua Terkecil Separa (PLS-SEM) telah digunakan dan data dianalisis menggunakan SmartPLS 3. Keputusan menunjukkan bukti hubungan positif antara faktor-faktor luar jangka dan hampir semua MAPs serta antara MAPs (kecuali teknik pengekosan) dan prestasi. Selain itu, keputusan utama mencadangkan bahawa dalam situasi PEU tinggi atau apabila CEOs berpendidikan tinggi dan berpengalaman, peningkatan penggunaan amalan pembelanjawanan akan menghasilkan prestasi lebih tinggi. Tambahan pula, apabila CEOs lebih berpendidikan tinggi, menggunakan lebih SMA boleh menghasilkan kesan yang sama ke atas prestasi firma. Kajian ini memberikan gambaran jelas MAPs yang sesuai untuk SMEs dengan menawarkan bukti empirikal berdasarkan integrasi teori kontingensi dan teori echelon atasan. Model ini membantu SMEs menggunakan MAPs lanjutan yang sesuai untuk respons yang lebih baik kepada keadaan tertentu yang dihadapi oleh firma mereka.
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<tr>
<td>CIMA</td>
<td>Charted Institute of Management Accounting</td>
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<td>COSO</td>
<td>Committee of Sponsoring Organizations of the Treadway Commission</td>
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<td>ERM</td>
<td>Enterprise risk management</td>
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<td>FERMA</td>
<td>Federation of European Risk Management Association</td>
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<td>IRM</td>
<td>Institute of Risk Management</td>
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<td>ISO</td>
<td>International Standards Organisation</td>
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<td>MCS</td>
<td>Management control system</td>
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<td>PEU</td>
<td>Perceived environmental uncertainty</td>
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<td>PLC</td>
<td>Public Listed Companies</td>
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<td>ROA</td>
<td>Return on Assets</td>
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<td>ROS</td>
<td>Return on Sales</td>
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CHAPTER 1

INTRODUCTION

1.1 Overview

Malaysia is one of the largest economies in the Southeast Asia. Its economy continues to expand by strong domestic activities. Small and medium enterprises (SMEs) have played an important role in the local economic actions and in the overall economic growth in Malaysia (Aris, 2006; Khalique et al., 2012). Based on the Malaysian Economic Census’s study carried out in 2011, manufacturing SMEs recorded the greatest contribution in terms of employment, productivity and value added. However, there is a dearth of research related to the use of management accounting practices (MAPs) among SMEs in Malaysia especially about the more advanced practices (e.g., Ahmad, 2013). Accordingly, the objective of this study is to examine the effect of perceived environmental uncertainty (PEU), advanced manufacturing technology (AMT), CEO involvement in networks and CEO characteristics as the contingency factors on advanced MAPs usage which include strategic management accounting (SMA), advanced budgeting and sophisticated costing techniques and in turn, the mediating effect of advanced MAPs on firm performance.

This chapter is organized into four main sections. The first section briefly describes the background of MAPs. Section two discusses the problem statement followed by the research questions and research objectives. Subsequently, the scope and significance of this research are explained. The chapter ends with definitions of key terms and organization of the study.
1.2 Background

Business environment is becoming increasingly complex and difficult for firms to stay competitive (Haron et al., 2013). Within firms, the advancement in technology, stiff competition, and more complex organizational structure have also had significant effects on the nature of management accounting (MA) (see for example, Baldvinsdottir et al., 2010; Burns and Scapens, 2000; Mohd-Jamal et al., 2007). Furthermore, management accounting practices have been progressing well because of limitations linked to the more conventional MAPs, for instance, too short-term orientation, manipulation of financial measures and timeliness and aggregation of information (Brouthers and Roozen, 1999; Ezzamel and Liley, 1997; Burns and Vaivio, 2001). From the mid-1980s, however, newer and modern MAPs have been suggested (Chenhall and Langfield-Smith, 1998). Modern practices frequently have an overtly strategic concentration while conventional practices have a tendency to be internally-based and focused mostly on financial data. Modern practices also use non-financial and financial data which is both future and past focused and is gathered from sources that are external as well as internal to the business (Ngoc Phi Anh et al., 2011).

Many scholars have studied the record of forty two MAPs proposed by Chenhall and Langfield-Smith (1998) to examine MAP usage rates in transition and developing countries (e.g., Joshi, 2001; Wu and Drury, 2007; Wu et al., 2007). Other researchers examined the similar objective by adopting their own cataloguing arrangements (El-Ebaishi et al., 2003; Szychta, 2002; Waweru et al., 2005). Joshi (2001), Luther and Longden (2001), Wu and Drury (2007), and Wu et al. (2007) have also examined the specified advantages of MAP usage in these countries. While there are studies about adoption of MAPs around the world, few studies have addressed the usage of MA among SMEs (e.g., Jarvis et al., 2000; Sousa et al., 2006). Traditionally it was believed that such firms do not need and use MAPs due to their simple structures and limited resources. However, recent findings in both developed and developing countries have shown the importance of MAPs usage in SMEs (e.g., Ahmad, 2013; Armitage et al., 2013; Hopper et al., 1999; Rufino, 2014). Most of these studies are related to developed countries (e.g. Armitage et al., 2013; Hopper et al., 1999; Lucas et al., 2013) and less on the developing countries (e.g., Arora, 2006; Zheng, 2012; Rufino, 2014) including Malaysia (e.g, Ahmad, 2013).
Looking into the Malaysian context, small and medium enterprise (SMEs) comprises of 97 percent of all enterprises based on the economic census conducted in 2011 (the latest version available at the time this research was carried out) and they contribute significantly to the nation’s economy (DOS, 2011). The figure for manufacturing sector shows that SMEs constituted 96.6 percent (37,866) of the total number of establishment, contributed 35.0 per cent (RM192 billion) to the total manufacturing output. According to the Department of Statistics (2011), these SMEs are mostly involved in textiles and apparel (23.2 percent), metal and non-metallic mineral products (16.7 percent) and food and beverages (15.0 per cent). As there have been many developments since 2005 in Malaysian economy such as price inflation, structural changes and change in business trends, a review of the definition was undertaken in 2013 by the National SME Development Council and a new definition of SME was endorsed. Accordingly, manufacturing SMEs was defined as enterprises which have sales turnover not exceeding RM50 million or full-time employees not exceeding 200 workers (NSDC, 2013).

These Malaysian SMEs, like other enterprises around the world, needs to make appropriate decisions in response to this intense competition. This is more important when globalization brings new technology and makes a developing country such as Malaysia open to stiffer competition (Kassim et al., 2003). The intense competition has put notable pressure on business management to make more sound business decisions. It is also important that under this competitive situation, corporations continuously increase their profit position, manage their costs, and maintain better quality products that meet customers’ changing desires and needs. Full support of appropriate MAPs can help organizations to make all these possible (Ramli et al., 2012). The accounting data provided by MAPs is not only important in large organization but is also significant from the SMEs perspective. Its significance for the survival of SMEs have been mentioned by several scholars like Marriot and Marriot (2000), McMahon (2001), Perren and Grant (2000) and Son et al. (2006). It can aid companies in handling their short-term issues in areas such as costing, expenditure and cash flow by preparing information to support control and monitoring (Mitchell et al., 2000; Son et al., 2006). Furthermore, it can assist them by combining operational creativities with long-term strategic tactics in a competitive and dynamic environment (Ismail and King, 2005). Despite the importance of accounting data and therefore MAPs among SMEs, there is a concern about dearth of studies on MAPs among these enterprises especially in Malaysia. This limitation is also more significant in relation to the usage of advanced MAPs (Ahmad, 2013). Thus, it is important to enhance
awareness and knowledge of advanced MAPs among SMEs in Malaysia so that the companies may utilize benefits that have been emphasized above.

1.3 Problem Statement

To survive in today competitive business environment, owners and managers of SMEs need updated, accurate and timely accounting information (Lohman, 2000). This information can be obtained by adopting an appropriate management accounting system. Nandan (2010) argued that like large companies, SMEs’ need satisfactory and advanced MAS and techniques to better handle scarce resources and improve owner/manager and customer values. These set of MA techniques should be determined and applied to accomplish company’s goals (Strumickas and Valanciene, 2010). Thus, it can be proposed that MAPs can prevent SMEs from failing.

Despite the importance of MAPs, conventional MAPs have been criticized for losing their relevance to the modern business environment and for their inability to deal with contemporary business activities and the maintenance of competitive advantage (Bhimani and Bromwich, 1992; Drury, 1992; Čadež, 2006; Cravens and Guilding, 2001; Hoffjan and Wompener, 2005; Hoque, 2001; Kaplan and Norton, 1992; Roslender and Hart, 2003). As a result, management accounting has changed and new techniques and computation methods have been formulated to reflect the changes (Abdel-Maksoud et al., 2012; Fuad Ahmad and Norfian Alifiah, 2009; Mclellan and Moustafa, 2013). The usefulness of modern management accounting practices and sophisticated systems for small businesses is also supported by Hicks (1999), Laitinen (1996) and Mitchell and Reid (2000). Review of the literatures shows that there is also some promising empirical evidence, for example, on the possibilities of Balanced Scorecard (BSC) as a sophisticated and efficient management tool for SMEs as well (e.g., Kaplan & Norton 2001). Moreover, evidence from studies in SMEs’ context showed that advanced MAPs were adopted by these enterprises (e.g., Ahmad, 2013; Armitage et al., 2013). Thus, this study considers advanced MAPs to better understand how these practices help provide relevant, accurate and appropriate information for managers of small businesses.
In order to derive a broad insight into the application of advanced MAPs practices in SMEs context, this study adopts a contingency perspective. The perspective postulates that a best MCS for all companies does not exist but that system should be contingent to the circumstances a company faces (Otley 1980). The ultimate goal of contingent accounting research should be to develop and test a comprehensive model that includes multiple elements of accounting systems and multiple contingent variables (Fisher, 1995). Choice of contingency factors and concept of fit are two main important issues related to contingency theory in order to develop a comprehensive contingency model. Based on the contingency theory which has been commonly used in accounting-based research (King et al., 2010; Santini, 2013; Cescon et al., 2013; McLellan and Moustafa, 2013), different circumstances of the organization such as size, environment and technology can affect the choice of a particular set of management accounting techniques used by businesses (Abdel-Kader and Luther, 2008; O’Connor et al., 2004). However, the contingency factors that should be considered in SMEs differ significantly with respect to specific features and natures of SMEs (Flacke and Segbers, 2005).

There are several studies which investigate how organizational contingency factors affect the choice of a particular set of management accounting techniques by businesses (see for example, Abdel-Kader and Luther, 2008; Alleyne and Weekes-Marshall, 2011; Messier, 2013; Hoque and James, 2000; Luther and Longden, 2001; McLellan, 2011; O’Connor et al., 2004; Tayles and Drury, 1994). From the literatures, many contingency factors have been examined including organizational structure, strategy, size, environment, culture and technology (Chenhall, 2003). Moreover, a major part of contingency theory based surveys has focused on large-scale enterprises (for example Cescon et al., 2013; Haedr, 2012; Haldma and Lääts, 2002). Though SMEs have experienced the similar environmental adjustments of technological developments, globalization etc. like their larger counterparts during current years, contingent studies in SMEs and contextual variables which have an effect in this context are limited (Jankala, 2007).

In SMEs, the decision making process normally is highly centralised and main decisions such as adopting different practices are strongly influenced by the chief executive officers (CEOs) (Ahn et al., 2014). In this regard, upper echelons theory with the central premise that administrators' personalities, experiences and values significantly affect their interpretations of the situations they face and, in turn, affect their choices (Hambrick, 2007), can be used in parallel to the contingency theory to explain the
influence of SMEs’ CEOs on the choice of management accounting techniques used. Therefore, applying the upper echelons theory, this research attempts to consider two important factors related to CEO, which explains executive behaviour in SMEs including CEO characteristics and involvement in networks as well as to determine how these factors influence the adoption of advanced MAPs. Based on the researcher’s knowledge, there are limited studies about how these factors affect the usage of MAPs in SMEs (e.g., Jorissen et al., 2002).

It was also found that limited studies on contingency factors related to the SMEs have used external environment and internal factors as factors that affect MAPs usage (Ahmad, 2012; Jankala, 2007; Collis and Jarvis, 2002; O’Regan et al., 2008; McChlery et al., 2004; Sousa et al., 2006). In this regard, businesses facing greater uncertainty in the external environment (PEU) and businesses which adopted AMT, face hostile and turbulent environment needs to implement more sophisticated management control systems in order to gain competitive advantages (e.g., Gordon and Miller, 1976; Khandwalla, 1972; Ismail and Isa, 2011). In addition, it is not easy to extract a complete picture of the state of AMT adoption in SMEs from existing literature. Studies do not use the same list of technologies which makes it difficult to compare their results. However, in spite of this limitation, a consistent conclusion stems from previous studies showed that SMEs adopted to some extent different types of AMT (e.g., Koc and Bozdag, 2009; Raymond, 2005). Therefore, this study combines environmental and internal factors with upper echelon characteristics i.e. CEO involvement in networks and characteristics can be expected to help increase the explanatory power of management accounting research in SMEs context. This will yield a focus on an inclusive set of contingent factors which affect significantly the adoption of advanced MAPs in SMEs.

Chenhall and Langfield-Smith (1998) and Chenhall (2003) contend that contingency-based management accounting research should employ organizational performance as the dependent variable (Cadez and Guilding, 2008). MAPs are aimed to ease decision-making process by communicating, collecting and processing information that help administrators improve performance (Ajibolade et al., 2010; Rashid et al. 2011; Wang and Huynh, 2012; Wang and Huynh, 2013; Williams and Seaman 2002). Studies on MAPs have seen many researchers investigating the relationship between MAPs and performance. While some researches support a positive link between the variables (Hoque and James, 2000; Selto, 2001; Pavlov and Bourne, 2011; Shields, 1995), others discovered either no association or a negative link (Gordon and Silvester, 1999; Ittner and Larcker,
1998b; Ittner et al., 2002). However, there are limited studies which examine the relationship between MAPs and performance in SMEs context (e.g., Ahmad and Zabri 2013; Efendioglu and Karabulut 2010; King et al., 2010).

Another important issue related to the contingency theory is the concept of fit. The vital idea in contingency theory is that if an appropriate fit exists between the management accounting and control system and the context variables (e.g. PEU, business strategy, market orientation and firm size), the organization performance will increase (Chenhall, 2003). This approach asserts that neither the MAPs nor the organizational configuration will affect performance; it is the fit between MAPs and its contextual variables that determines performance (Jermias and Gani, 2002).

Most researches offer some support for the idea that higher MA usage is positively linked to performance (Baines and Langfield-Smith, 2003; Cravens and Guilding, 2001; Hoque and James, 2000; Ittner et al., 2003; Mia and Chenhall, 1994; Mia and Clarke, 1999) but in many of these studies this relationship is inconclusive and context dependent. It refers to mediating role of MAPs. This role has been investigated in limited contingency studies. Hence this study focused on three advanced MAPs which are SMA, advanced budgeting practices and sophisticated costing.

First, reviewing literatures related to SMA showed that there are only limited studies related to mediating role of SMA. Cadez and Guilding (2008) investigated mediating role of SMA by considering strategy, size and market orientation as contingency factors in large Slovenian companies. In the same way, Santini (2013) investigated mediating role of SMA by considering size and complexity as contingency factors in SMEs in Italy. Both of these studies considered only some SMA practices and circumstances. The present research fills these gaps by investigating the mediating effect of SMA in different circumstance related to perceived environmental uncertainty, advanced manufacturing technology, involvement in networks and CEO characteristics related to nature of SMEs. Moreover, this study adds two new practices (value stream costing and customer segment profitability analysis) to extend the other 16 SMA techniques considered by Čadež and Guilding (2012). Furthermore, since a vast review of SMA literatures shows that SMA techniques have not been investigated widely, nor is the term SMA generally understood or used (Cuganesan et al., 2012; Langfield-Smith, 2008; Nixon and Burns, 2012; Woods et al., 2012), this study considers this practice as one of
the advanced MAPs to create deeper understanding about SMA techniques and their usage.

In addition, reviewing literatures related to advanced budgeting practices showed that there is a limited studies related to mediating role of advanced budgeting practices. King et al. (2010) examined the relationship between contextual factors (structure, strategy, size and PEU), budgeting practices (cash flow budget, flexible budget, rolling budget) and business performance in Australian small healthcare businesses. The study considered only some advanced budgeting practices and circumstances hence the present research fills these gaps by investigating the mediating effect of Advanced Budgeting Practices in different circumstance related to perceived environmental uncertainty, advanced manufacturing technology, involvement in networks and CEO characteristics related to the nature of SMEs. Additionally, this study investigates five types of budgeting practices (Zero-Based Budgeting Activity-Based Budgeting, Beyond Budgeting (BB), Rolling budgets and Forecasts, and Balanced Scorecard) to further extend the list of practices.

Finally, reviewing literatures on sophisticated costing techniques showed that studies related to mediating role of sophisticated costing techniques are still limited. Sanford (2009) investigated mediating role of ABC by considering strategy and structure as contingency factors in large companies. This study considered only a sophisticated costing practice and circumstances. The present research contributes to the body of knowledge by examining the mediating effect of Sophisticated Costing techniques in different circumstance related to perceived environmental uncertainty, advanced manufacturing technology, involvement in networks and CEO characteristics related to nature of SMEs. Besides this study adds five types of costing practices (Activity-based costing, Throughput Accounting, Kaizen Costing, Lean Accounting, Back Flush Accounting) to the existing list of practices.

It is found that most of the previous related literatures use only one of these practices as a mediator variable. In order to have a better contingency view of MAPs, this study adopts the three contemporary MAPs i.e. SMA, advanced budgeting and sophisticated costing techniques simultaneously. In doing so, this study investigates not only the effect of multiple contingency variables on MAPs but also examines the most effective MAPs in different circumstance. Hence, this study adopts the three contemporary
MAPs simultaneously as the mediator variables to find suitable fit between the uses of MAPs and contextual variable for improving performance.

1.4 Research Questions

Based on the problem statement, the main research question of this study is whether advanced MAPs mediate the relationship between contingency factors and firm performance. The research questions can be expressed as follows:

RQ1: Are there any significant influences of contingency factors on advanced MAPs among manufacturing SMEs in Malaysia?
RQ2: Are there any significant influences of advanced MAPs on the firm performance among manufacturing SMEs in Malaysia?
RQ3: Do advanced MAPs mediate the relationship between contingency variables and performance among manufacturing SMEs in Malaysia?

1.5 Research Objectives

The overall aim of this study is to develop a comprehensive contingency model which examines the effect of contingency factors on advanced MAPs in turn, the mediating effect of advanced MAPs on performance. Based on problems discussed above, this study breaks down the objectives as follows:

RO1: To examine the influence of contingency factors on SMA techniques (advanced MAPs) among manufacturing SMEs in Malaysia.
RO2: To investigate the influence of contingency factors on advanced budgeting techniques (advanced MAPs) among manufacturing SMEs in Malaysia.
RO3: To examine the influence of contingency factors on advanced costing techniques (advanced MAPs) among manufacturing SMEs in Malaysia.
RO4: To investigate the influence of SMA techniques on the firm performance among manufacturing SMEs in Malaysia.
RO5: To assess the influence of advanced budgeting techniques on the firm performance among manufacturing SMEs in Malaysia.

RO6: To examine the influence of sophisticated costing techniques on the firm performance among manufacturing SMEs in Malaysia.

RO7: To investigate whether SMA techniques mediate the relationship between contingency variables and performance among manufacturing SMEs in Malaysia.

RO8: To examine whether advanced budgeting techniques mediate the relationship between contingency variables and performance among manufacturing SMEs in Malaysia.

RO9: To investigate whether sophisticated costing techniques mediate the relationship between contingency variables and performance among manufacturing SMEs in Malaysia.

1.6 Scope of the Study

The purpose of this study is to examine the effect of perceived environmental uncertainty (PEU), advanced manufacturing technology (AMT), involvement in networks and CEO characteristics on the usage of advanced MAPs techniques and in turn, the mediating effect of advanced MAPs on company performance. In order to examine the effect of the hypothesized factors, the population of this study is manufacturing SMEs in Malaysia. The reason for choosing manufacturing SMEs for this study is because the manufacturing sector is the main contributor in SMEs in Malaysia as it creates the greatest average employment per establishment, productivity and value added (Department of Statistics, 2011).

Micro-sized firms are excluded from the target population as they are less likely to have administration systems that depend on advanced MAPs (Ahmed, 2012; Hoque, 2004; Ismail and King 2007). Searching the latest edition of FMM directory (2013), 2470 manufacturing companies are identified. Based on the latest definition of Manufacturing SMEs in year 2013 by the National SME Development Council (NSDC), 1470 companies with employees numbering 21-200 were grouped as SMEs. The primary data were gathered using online survey questionnaire during five months from May to September 2014. The respondents included managers and directors from accounting and finance
related posts such as finance managers and senior accountants. They are anticipated to have a good knowledge of the procedures comprised in MA and the different practices used in companies.

1.7 Significance of the Study

This study is important in several ways. First, it integrates both contingency theory and upper echelons theory into a new framework and testing it empirically. Taking into consideration possible contingency factors, integrating with characteristics of top managers of firms (independent variables), the newly created model provide insights into mediating role of advanced MAPs in the relationship between these factors and firm performance (dependent variable). In doing so, this study establishes the importance of appropriate use of different advanced MAPs that can lead to better outcomes in different circumstances.

Second, this study focuses on the mediating roles of three advanced MAPs include SMA, advanced budgeting practices and sophisticated costing techniques simultaneously to get a better contingency perspective. More specifically a comprehensive review of the SMA literatures shows that SMA techniques have not been adopted widely nor is the term SMA widely understood or used (Cuganesan et al., 2012; Langfield-Smith, 2008; Nixon and Burns, 2012; Woods et al., 2012), this study considers this practice as one of the advanced MAPs to create deeper understanding of SMA techniques and their usage. Also, it investigates the mediating effect of SMA in different circumstance and adds two new practices (Value stream costing, customer segment profitability analysis) to the existing 16 SMA techniques.

In addition, this study considers the mediating effect of advanced budgeting practices in different circumstances. It also adds five types of budgeting practices (Zero-Based Budgeting Activity-Based Budgeting, Beyond Budgeting, Rolling budgets and Forecasts, and Balanced Scorecard) to the current list of practices. Lastly, focusing on the mediating effect of sophisticated costing techniques in different circumstances and adding five types of costing practices (Activity-based costing, Throughput Accounting, Kaizen Costing, Lean Accounting, Back Flush Accounting) to further extend the list of practices.
Third, the current study combines environmental and internal factors with upper echelon characteristics i.e. CEO involvement in networks and characteristics can be expected to affect significantly the usage of advanced MAPs and help increase the explanatory power of management accounting research especially in SMEs context. Finally, the study incorporates prior studies on special factors, building these into a unique contingency framework. While there are numerous contingency frameworks linked to the MAPs in large firms (Aver and Čadež, 2009; Čadež and Guilding, 2008; Cinquini and Tenucci, 2010; Tillmann and Goddard, 2008), to date, a contingency framework has not been used to investigate the mediating effect of the advanced MAPs simultaneously in SMEs.

Benefits for practice will also be obtained for professionals, decision makers, and particularly for the SMEs. It provides a valuable insight into the appropriate use of advanced MAPs under uncertain environment, when AMT is adopted, and also for SMEs, with well-educated and experienced CEOs as well as for SMEs which their CEOs’ are highly involved in different networks. In addition, by examining the potentials of each of advanced MAPs in improving performance, it could assist managers in deciding which of these practices could bring greater benefit to their firms. The results of current study also provide useful information for SMEs owners or managers about how MAPs should be adapted for better response to particular circumstances to enhance their organizational performance.

Finally, in addition to the theoretical and practical implications, this study also contributes to the literatures methodologically. The data in this study was analysed via latent variable structural modelling using Partial Least Squares (PLS-SEM) path analysis. The PLS method used in this study offers a more comprehensive view of the relationships in the framework and allows testing causal models with multiple independent, mediating and dependent variables as well as with multiple indicators or measures per variable (Hair et al., 2011; 2012; 2013). As such, it contributes to the methodological development in the advanced MAPs research field.
1.8 Definition of Key Terms

In this section, the operational definitions of key terms of the study are provided. This study will concentrate on perceived environmental uncertainty (PEU), advanced manufacturing technology (AMT), involvement in networks and CEO education, advanced MAPs and firm performance.

1.8.1 Perceived Environmental Uncertainty

PEU has been defined as the uncertainty increasing in the external environment of a company, referring to “the instability in the activities of regulatory groups, customers, competitors and suppliers that include in the external environment of the business unit” (Govindarajan, 1984).

1.8.2 Advanced Manufacturing Technology

Numerous definitions for AMT have been presented. AMT is generally described as “tools, an automated production system of people and machines for the control and planning of the production procedure, comprising the procurement of raw materials, parts and components and the shipment and service of finished products” (Pennings, 1987). In line with this definition, AMT comprises both hard and soft technologies which are being employed to improve manufacturing competencies (Chung et al., 2009).

1.8.3 Involvement in Networks

The degree of involvement in a network is defined as the degree to which an actor’s network contacts are connected to one another, has significant effects for exercising social influence and producing new thinking (Burt, 2005).
1.8.4 CEO Characteristics

The firm’s CEO characteristics is measured simply by referring to the type of qualifications and years of experience. The ‘degree’ attempted to measure the level of education attainment using a five level ordinal scale, where 1 corresponds to secondary school graduate to 5 to PhD degree. The years of experience was measured by the length of work experience using a five level ordinal scale, where 1 corresponded to less than five years work experience to 5 to more than 20 years (Ahn et al., 2014).

1.8.5 Advanced MAPs

Advanced MAPs are defined as accounting practices which have been progressing because of limitations and problems linked to the more conventional MAPs (Ngoc Phi Anh et al., 2011).

1.8.5.1 Strategic Management Accounting

SMA is defined as a set of strategically oriented accounting techniques (Cadez and Guilding, 2008).

1.8.5.2 Advanced Budgeting Techniques

Horngren et al. (2006) explains that budget is not only a quantitative statement of a planned scheme of action by administration for a particular time, but also it is a support for organising the prerequisites that should be done to apply that plan. While advocates mention that budgeting is satisfactorily in place and, thus, should be sustained, adversaries argue about removing it completely or altering it to new budgeting methods for example beyond budgeting and better budgeting methods (Bishop, 2004; De Waal, 2005; Libby and Lindsay, 2007; Rickards, 2006; Uyar, 2009). Thus, advanced budgeting practices in this
study is defined as practices, which are developed in response to limitation of traditional budgeting practices.

1.8.5.3 Sophisticated Costing Techniques

Sophisticated costing techniques are defined as techniques developed in solving problems related to traditional costing methods (Rof, 2012).

1.8.6 Firm Performance

As Mia and Clarke (1999) mentioned that the performance of an organization maybe considered as the degree to which it has been successful in achieving its planned goals. This study used instrument adopted by Jusoh et al. (2008) for measuring firm performance. The selection is based on the resemblance of the context of research which should enable comparison of the outcomes. Jusoh et al.’s (2008) study was conducted among manufacturing companies in Malaysia and used both financial and non-financial measures as the researcher proposed for the current study. As has been mentioned, combining financial and non-financial information is important to give a more well-adjusted sense of the general firm performance of the corporation (Hoque and James, 2000; Laitinen, 2002).

1.9 Structure of the Thesis

This study is organized into five chapters:

Chapter One - Introduction
This chapter has introduced the thesis. Specifically, it provided the background of the study, outlined the motivations and the significance of the study, described the objectives of the research, and formulated research questions. Subsequently, the scope, significance, limitation and definition of key terms of this research are discussed.
Chapter Two – Literature Review

This chapter reviewed the literature related to the development and significance of management accounting. The chapter continues with a discussion on why this study focused on advanced MAPs and practices which are considered as advanced MAPs. This is followed by an explanation of specific advanced MAPs’ definitions and measurements. The next section reviewed the context of SMEs and provided a definition of SMEs in Malaysia followed by an explanation of the importance of SME in the manufacturing industry based on the Malaysian Economic Census conducted in 2011. This study uses contingency theory and upper echelon theory to recognize factors and their measurement, which express differences in the usage of advanced MAPs. Thus, the literature review will find series of contingent factors that have been used by researchers in MA. Review of literature continued by explaining performance and its measurement based on MA studies. Finally, a conceptual framework and the hypotheses development of this study is explained.

Chapter Three – Research Methodology

This chapter explained the research methodology used and the methods adopted to collect data. It will also present the statistical method selected to analyse the data and test the hypotheses. First, the literature on methodological issues in undertaking studies such as the current one will be reviewed, which will offer the basis for the particular research methods used in this study. Next, the methods followed and steps taken to develop the survey instrument will be described. It will moreover detail the procedure of the survey administration. Finally, the statistical method selected to test the hypotheses will be presented. Partial least squares structural modelling (PLS-SEM) is the main statistical instrument adopted to test the reliability and validity of the indicators and test the hypotheses.

Chapter Four- Data Analysis

This chapter provides descriptive analysis of the sample and the measures. The chapter initially presents the profile of respondents and the participating companies,
followed by the descriptive statistics of advanced MAPs, contingency factors and performance. SPSS version 21 was employed, as appropriate, in the data screening and descriptive statistics analysis. This study used the two-step procedure for validation of measurement models and the structural model in PLS-SEM. Further, this chapter arranged for a complete description of the items used in evaluating the latent variables, the development of the measurement (outer) model, and the procedures adopted to evaluate the outer model. This chapter also offered the processes used to evaluate the structural (inner) model and the results of testing hypotheses. Finally, this study used two advanced analysis related to SEM-PLS including Multi-Group Analysis (MGA) and Importance-Performance Matrix Analysis (IPMA) which are used to extend the conclusion of this research.

Chapter Five – Discussion and Conclusion

This chapter presented the main findings of the study. In particular, it will draw the main conclusions of the study in reference to the research questions. The limitations of the study will be discussed and areas suggested for future research.
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