Effect of corporate governance characteristics on strategic management accounting in Thailand

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Abstract

Purpose – The purpose of this paper is to explore relationships between corporate governance characteristics and strategic management accounting (SMA). The relationships provide insight into a debatable issue of whether corporate governance characteristics affect applications of SMA in Thailand. SMA is supporting tools for an organization to effectively execute its management strategies aiming for business success.

Design/methodology/approach – This study analyzes primary data from survey and corporate governance data from year 2011 to 2013 of companies listed on the Stock Exchange of Thailand.

Findings – Results show that corporate governance characteristics significantly affect SMA in two aspects, namely, participation and usage. This study finds some results that, on the one hand, separation of CEO's role and chairmanship, size of independent board, and frequency of audit committee meetings positively affect both participation and usage. On the other hand, an independent chairman and board size negatively affect both participation and usage.

Originality/value – Findings confirm framework of enterprise governance issued by the International Federation of Accountants that not only does corporate governance provides assurance control, but it also provides strategic governance through behavioral applications of SMA tools and supports.

Keywords Corporate governance, Management accounting, Strategic management accounting, Strategic governance

Paper type Research paper

1. Introduction

Companies highly invest in corporate governance and expect that it be panacea for business success, however it often fails to deliver desirable results to stakeholders. This false expectation occurs because corporate governance itself does not aim to provide tools for business success. Instead, it provides assurance and compliance for business operation. This discrepancy between corporate governance deliverables and stakeholders' expectation from it gives rise to the International Federation of Accountants (IFAC) newly defined "enterprise governance." In 2004, IFAC broadens corporate governance and sets forth a framework of "enterprise governance" so as to provide tools for successful business results and value creation. The IFAC's framework expands to strategic governance that includes strategic management accounting (SMA) tools which play an important role in management support for both control and strategy perspectives.

Under the IFAC's framework, SMA is designated to support corporate governance but the literature has yet to show direct evidence of relationships between corporate governance and SMA. Rather, related literature studies and provides evidence with respect to

relationships between corporate governance and management accounting. Collier *et al.* (2007) demonstrate that corporate governance marginalizes management accountants. Ratnatunga and Alam (2007) report that management accounting is extensively applied to support the policy-management interface between corporate governance and business operation because the board of directors cannot handle all management tasks such as day-to-day guidance and oversight of all operations of an organization. The board also has to depend upon others – management and other stakeholders – to comprehensively collaborate in governance accountability. The authors also report that management accounting plays a vital role in integration of corporate governance and enterprise risk management. In addition, Seal (2006) argues that management accounting can provide non-executives board members with sufficient information to assess risk, check on strategy, and monitor the behavior of executive board members.

Most of the literature that studies SMA aims to study relationships between strategy and firm performance instead of governance. For example, Cadez and Guilding (2008) study the effect of SMA on company performance under contingency model including strategic variables. Mohamed and Jones (2014) study a comprehensive strategic model which includes SMA concepts to manage profitability. Cinquini and Tenucci (2010), Cuganesan *et al.* (2012), and Pavlatos (2015) study the relationship of strategic factors and SMA usage.

Because of the deficiency of literature in the area of corporate governance and SMA, this research has an objective to study relationships and implications between corporate governance characteristics and SMA. This study also provides managers with more understanding of SMA application for each corporate governance characteristic. This objective arises because linkage between corporate governance and strategic governance in the enterprise governance framework, which has SMA as a significant tool, has been rarely studied before.

This study uses multiple regression to analyze SMA data from survey and corporate governance data from secondary sources of companies listed on the Stock Exchange of Thailand from 2011 to 2013. This study also analyzes total effects of corporate governance characteristics on SMA in order to enhance understandability and explore robust evidence. It observes SMA in two aspects – participation of accountants in strategic management process (SMAP) and usage of strategic management accounting techniques (SMAU) – and corporate governance through board characteristics and activities such as separation of CEO's role and chairmanship, independence of a chairman, frequency of board meetings, and directors' attendance.

The results show significant effects of corporate governance on both SMAP and SMAU. On the one hand, separation of CEO's role and chairmanship, independent board size, and frequency of audit committee meetings positively affect both SMAP and SMAU. On the other hand, an independent chairman and board size negatively affect both SMAP and SMAU. It also finds that kinship of CEO and chairman has a positive effect on SMAU, while joint business ownership of a CEO and a chairman shows negative effect on SMAU. Moreover, higher proportion of independent directors negatively affects SMAP but positively affects SMAU. These findings support the framework of enterprise governance by providing insight into an implication of SMA application through governance characteristics. This study concludes that SMA is a strategic supporting tool for corporate governance in strategic governance. The results from this study add to the literature by providing new and direct evidence of the relationships between SMA and corporate governance and by providing guideline for how an organization might appropriately adopt SMA to serve its corporate governance structure and strategy.

2. Literature review and hypothesis development
Various scandals of corporate governance failure such as Enron, HIH, Tyco, Vivendi, Royal Ahold, and Parmalat have led corporate governance to the top agenda for both practitioners

and academicians alike (IFAC, 2004). Although there are enormous resources invested in corporate governance in practice, researchers still question and study its benefits for stakeholders. Some studies show benefits of corporate governance for organizations. For examples, Sami *et al.* (2011) and Qu *et al.* (2015) find that good governance positively affects firm performance and the precision choice of sales forecasts disclosure. Rechner and Dalton (1991) show that CEO duality firms have significantly lesser ROI, ROE, and profit margin than non-CEO-duality firms. In some studies, corporate governance shows no or even negative effect on firms. For example, Mak and Kusnadi (2005) demonstrate that relationship between CEO duality and firm value is insignificant. Brickley *et al.* (1997) demonstrates that separation between CEO and chairmanship raises additional operating cost for firms. IFAC (2004) recognizes inconsistent evidence from the literature and governance ineffectiveness and, thus, proposes that issues in corporate governance arise from conflicting and unbalancing demands from boards of directors to ensure both conformance and performance. Since corporations attain assurance and control for stakeholders through governance and achieve business target through strategies, the IFAC launches "enterprise governance" framework to promote balancing between corporate governance and business governance.

2.1 Enterprise governance framework and SMA
IFAC (2004) delivers a framework of enterprise governance so as to close a gap between corporate governance and business governance. Enterprise governance provides a whole accountability guideline for organizations to balance two distinctive branches of governance; namely, corporate governance and business governance. While corporate governance is a historical approach and aims to provide assurance and control of business operation (conformance), business governance is a forward looking approach and aims to enhance value of business through strategic operation (performance). Under the enterprise governance framework, corporate governance is represented by characteristics and activities of boards of directors and CEOs and business governance is represented by strategic governance supported by SMA. The framework suggests that the balancing of corporate governance and business governance would result in sound conformance and great performance.

SMA has initially appeared to play an important role in governane since the era of industry modernization by providing control for operation (Tuomela, 2005) which can maintain an organization's competitiveness. SMA also remains significant for a company's strategic operation (Wickramasinghe and Alawattage, 2007). SMA provides investors with a set of tools that labor processes can be observed at a distance by setting cost accounting systems (Hopwood, 1987) which can lead to efficient cost control. The significant role of SMA in strategic operation also appears in various seminal studies. For example, Whittington (1993) finds that management's choice has a positive association with the use of a SMA-related system, namely an organizational control system. In additon, Haron *et al.* (2013) demonstrate that management accounting practices have a significant role in improving performance for a company. As the literature suggests, SMA has a significant role in the enterprise governance framework as a supporting tool for strategic operation.

2.2 SMA concept
SMA is an integrative and comprehensive concept that comes from various perspectives (Shah *et al.*, 2011) such as marketing focus (Simmonds, 1981; Roslender and Hart, 2002), future orientation (Wilson, 1995), competitors' perspective (Bromwich, 1990; Guilding, 1999), non-financial aspects (Chenhall and Langfield-Smith, 2003; Kaplan and Norton, 1992), and total quality management (Khan and Jain, 2007). In summary, it can be defined into two aspects, namely, the use of SMAU and the participation of accountants in SMAP (Cadez and Guilding, 2008, 2012).

SMAU have to meet two conditions of the strategy implication: a long-term and future-oriented time frame and an externally focused perspective (Guilding *et al.*, 2000). Follow from these conditions, there are 16 SMAU arranged in five broad categories (Guilding *et al.*, 2000; Cravens and Guilding, 2001; Cadez and Guilding, 2008) comprising costing; planning, control, and performance measurement; decision making; competitor accounting; and customer accounting. Table I demonstrates SMAU classified into each approach.

In the participation aspect, accountant involvement is an important factor of strategic management. Strategic management accountants are no longer seen merely as information providers, they are active actors in a SMAP (Cadez and Guilding, 2012). In a customer-orientation strategy, the accountants have to act across in the value chain of the horizontal organization so as to efficiently react to high competition (Baines and Langfield-Smith, 2003; Chenhall and Langfield-Smith, 2003; Chenhall, 2008). The accountants respond to the need of management's satisfaction in multiple and potentially competing goals (Chenhall, 2003).

In contingency framework study, Cadez and Guilding (2008) demonstrates that SMAP positively affects SMAU because the accountants involving with SMAP might be expected to play a vital role in shaping accounting techniques (Chapman, 1998). Greater involvement in strategic decision making by accountants can be expected to inculcate accountants with an appreciation of information needed by strategic management (Abernethy and Bouwens, 2005).

2.3 SMA and corporate governance

The role of SMA in governance can be conceptualized in various theories such as agency theory, resource dependency theory, and stewardship theory (Ratnatunga and Alam, 2011). In the view of agency theory (Jensen and Meckling, 1976), management accounting is less emphazised because management is perceived as a self-interest agency who has adverse selection and moral hazard; thus, the governance in this worldveiw is to reduce the excessive concentration of power of top management. The paradigms of resource dependency theory (Pfeffer and Salancik, 1977) and stewardship theory (Donaldson and Davis, 1991) demonstrate a prominent role of SMA in governance. They show that SMA can

Categories	SMA techniques	SMA approach
Costing	1. Attribute costing	Competitive strategy
		Operations strategy
	2. Life-cycle costing	Competitive strategy
	3. Quality costing	Operations strategy
	4. Target costing	Operations strategy
	5. Value-chain costing	Competitive strategy
		Operations strategy
Planning, control, and performance measurement	6. Benchmarking	Corporate strategy
		Competitive strategy
		Operations strategy
	7. Integrated performance measurement	Corporate strategy
Strategic decision making	8. Strategic costing (strategic cost management)	Competitive strategy
	9. Strategic pricing	Competitive strategy
	10. Brand valuation	Competitive strategy
Competitor accounting	11. Competitor cost assessment	Competitive strategy
	12. Competitive position monitoring	Competitive strategy
	13. Competitor performance appraisal	Competitive strategy
Customer accounting	14. Customer profitability analysis	Competitive strategy
	15. Lifetime customer profitability analysis	Competitive strategy
	16. Valuation of customers as assets	Competitive strategy

Sources: Cadez and Guilding (2008) and Wickramasinghe and Alawattage (2007)

Table I.
Types of strategic management accounting techniques

support business governance such as control of resource generation and utilization through SMAU such as budgeting and balanced scorecard. Those paradigms also demonstrate that SMA can support corporate governance as a tool in both formulation and execution of strategy policy.

The evidence of SMA application in governance appears in the framework of enterprise governance. SMA plays a vital role that it can effectively provide tools and support throughout the strategic governance. For example, CEO can employ SMAU as information supporting tools for any strategic decision-making process. In addition, independent directors and audit committees can effectively oversee their business in both conformance and performance views through a strategic scorecard (IFAC, 2004) which has to be supported by management accountants.

2.4 Hypothesis development
This research studies corporate governance and SMA by means of corporate governance characteristics and SMA application (SMAP and SMAU). Follow from a frmework of enterprise governance (IFAC, 2004), corporate governance characteristics are mainly represented by independence and activeness of corporate governance characteristics of a CEO, a chairman, a board of directors, and an audit committee. Agency theory (Jensen and Meckling, 1976) and stewardship theory (Donaldson and Davis, 1991) imply that a firm has more application of SMA when it has more independence and activeness of corporate governance characteristics.

For independence of corporate governance characteristics, follow from agency theory paradigm (Jensen and Meckling, 1976), independence of corporate governance controls management (agents) to perform in line with shareholders (owners)' interests including firm performance. While Cadez and Guilding (2008) demonstrates that SMA provides higher firm performance so that independence of corporate governance gives rise to high application of SMA. Based on this concept, this study expects that higher independence brings about more requisiton of strategic information from SMA for a chairman, a board of directors, and an audit committee in order to sufficiently understand, effectively monitor, and make any decision. A firm has to sufficiently provide tools and supports of SMA for requriements of independent corporate governance mechanisms. Thus, a firm which has more independent characteristics of a chairman such as separation between CEO role and chairmanship (Ceosep) and independence of a chairman (Chairind) should lead to more SMAP and SMAU; while less independent characteristics of a chairman such as kinship between a CEO and a chairman (Ceosep) and joint ownership between a CEO and a chairman (CeoJoi) should negatively affect SMAP and SMAU. The hypothesis related to a CEO and a chairman is raised as follows:

> *H1.* The higher independent chairman and CEO a firm has, the more SMAP and SMAU a firm implements.

This study also expects effect of independence of a board of directors and an audit committee on SMA based on agency theory paradigm. Bigger independent board size (Bind), higher proportion of independent directors (Bindper), bigger board size (Bsize), and bigger audit committee's size (Acind) should positively affect SMAP and SMAU. From agency theory (Jensen and Meckling, 1976), the bigger size of a board of directors, an independent board, and an audit committee gives rise to higher demand of strategic information so that they can efficiently and effectively oversee their organization. As a result, this study also proposes a hypothesis related to independent characteristics of a board of directors and an audit committee as follows:

> *H2.* The higher independent board of directors, board of independent directors, and audit committee a firm has, the more SMAP and SMAU a firm implements.

For activeness of corporate governance characteristics, this study develops hypotheses relating to effects of activeness of corporate governance characteristics on SMA from both stewardship theory and agency theory paradigms. The stewardship theory (Donaldson and Davis, 1991) implies that higher activeness of a board of directors such as high frequency of board's meetings (Bmeet), high board's attendance (Bmeetper), active board in the aspect of frequency of meetings (Bmeetmed), and active board in the aspect of attendance (Bmeetmedper) demand more strategic information for decision making to pursue good performance to meet expectation of stakeholders including shareholders. SMA plays an important role in providing strategic information for a board of directors following the enterprise governance framework (IFAC, 2004). From these implications, this study raises a hypothesis related to activeness of a board of directors as follows:

> *H3.* The more active board of directors a firm has, the more SMAP and SMAU a firm implements.

In addition, the agency theory (Jensen and Meckling, 1976) implies that higher activeness of an audit committee such as high frequency of audit committee's meetings (Acmeet), high audit committee's attendance (Acmeetper), active audit committee in the aspect of frequency of meetings (Acmeetmed), and active audit committee in the aspect of attendance (Acmeetmedper) causes higher firm's controls such as operational risk assessment and internal control reviews. These characteristics, therefore, demand more information supported by SMAP and SMAU to perform those controls. Hence, these implications raise a hypothesis related to activeness of an audit committee as follows:

> *H4.* The more active audit committee a firm has, the more SMAP and SMAU a firm implements.

The association between corporate governance characteristics and SMA can be demonstrated as a conceptual framework in Figure 1.

3. Research method
This study uses multiple regression analysis and then calculates total effect of corporate governance characteristics on SMA to analyze data of listed companies in Thailand's capital markets between years 2011 and 2013. Sample size of this study is 103 firms. This study does not include firms in financial industry, funds, rehabilitating, and suspending status firms because they have significantly different governance structures and are subject to different regulations. For example, firms in financial industry or funds have their corporate governance structure regulated by the Bank of Thailand. Rehabilitating and suspending status firms are overseen by the Stock Exchange of Thailand.

3.1 Sampling procedure and data collection
This study uses data from both primary and secondary sources. SMA application and its related data are gathered from survey, while corporate governance data is collected from secondary sources such as annual reports, SETSMART[1], and 56-1 reports[2]. Questionnaires for data collection of SMA application are sent to finance or accounting middle management in each of 437 targeted firms because they are the most suitable persons to complete the survey (Cadez and Guilding, 2008; Wooldridge and Floyd, 1990).

The questionnaire is carefully developed. Initially, this study adopts questionnaire and applies the seven-point Likert-type scale (Likert, 1932) from previous studies of Cadez and Guilding (2008), Cravens and Guilding (2001), and Guilding and McManus (2002). A draft of the questionnaire is, then, sent to experts for review and recommendation. This study performs 30-sample pilot test for reliability. It shows high consistency (Cronbach's $\alpha = 0.938$). In addition, the study reduces social desirability bias by proclaiming in the
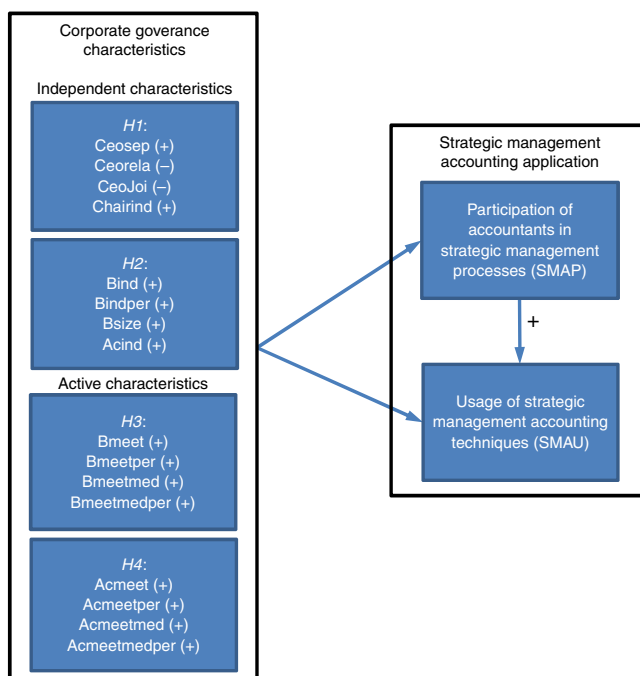
Figure 1.
Research framework
of effect of corporate
governance
characteristics on
strategic management
accounting application

questionnaire that all information responses are treated as confidentiality and are analyzed at aggregated level so as to appropriately prevent revelation of any identification.

The questionnaires had been sent since April 1, 2014 and the following up activities took around two months. Follow from the literature, all questionnaires were coded beforehand so as to track any non-respondents. The coding also provides identification for matching between primary data and secondary data of each firm. Non-respondents, at time, were reminded by the second mails in the third week and postcards about one month after the second mails. The overall valid response rate is 23.57 percent and all responded data shows high consistency (Cronbach's $\alpha = 0.940$). Table II demonstrates validly responded informants in each industry.

The study investigates non-response bias by applying a subjective method (Brown, 1969) and an extrapolation method (Pace, 1939). For the subjective method, 10 percent of the non-response is randomly selected, contacted, and encouraged by telephone to participate in

Industry	Number of firms	% of sample
Agro and food industry	10	9.7
Consumer products	10	9.7
Industrials	19	18.4
MAI industry	15	14.6
Property and construction	18	17.5
Resources	6	5.8
Services	17	16.5
Technology	8	7.8
Total	103	100.0

Table II.
Classification
of industry in
the samples

the survey. The main reasons of the non-responding firms are that finance or accounting managers are busy, not willing to answer, and their accounting practice is confidential. As for the extrapolation method, the first and last 25 percent responses are tested with Mann-Whitney U-statistic and Kolmogorov-Smirnoff tests to investigate any differences in the early and late responses. Overall, there are no significant differences ($p < 0.05$).

3.2 Variable measurement

This study measures corporate governance characteristics in the aspect of board governance mechanism and SMA in both SMAP and SMAU. Board governance mechanism comprises the role of CEO and chairman, board of directors, and audit committee. The study measures them in the aspects of independency, size, and activity in the aspects of frequency of meetings and attendance.

SMA variables are composed of SMAU and SMAP. This study measures SMAU variables by using the same approach as that of Cadez and Guilding (2008), Guilding and McManus (2002), and Cravens and Guilding (2001) which inquire the intensity of SMAU. The question is "To what extent does your organization has used the following strategic management accounting techniques for the recent three years: from 2011 to 2013?" which followed by the list of 16 SMAU and their Likert scale assessment ranging between "1" (not used) and "7" (extremely used). In order to prevent misunderstanding of each technique, the document provides a glossary containing a definition of each technique.

To measure SMAP, the study employs an instrument of Cadez and Guilding (2008) and Wooldridge and Floyd (1990). The survey assesses a respondent's involvement by using a Likert scale ranging between "1" (not at all involved) and "7" (fully involved). The involvement's aspects comprise identifying problems and proposing objectives, generating options, evaluating options, developing details about options, and taking the necessary actions to put changes in to place.

This research also collects data for control variables studied in literature. Monks and Minow (2004) report that a big-four audit firm positively affect quality of corporate governance mechanism. Coad *et al.* (2013) demonstrate that a firm's age affects its strategy. Dewatripont and Tirole (1994) show that a firm's leverage affects its corporate governance structure. Shleifer and Vishny (1997), and Holderness (2003) report that institutional share ownerships and block ownerships significantly affect corporate governance characteristics. Cadez and Guilding (2008) demonstrate that prospector business strategy orientation, deliberate strategy formulation, market orientation, and firm size affect SMA application. Big-four audit firm, firm size, firm age, financial leverage, institutional share ownerships, and block ownerships can be collected from secondary sources, while the data of prospector business strategy orientation, deliberate strategy formulation, and market orientation have to be collected from survey by assessing an overall strategy of an organization via a Likert scale ranging between "1" (strongly disagree) and "7" (strongly agree).

3.3 Data analysis and model specification

This study uses multiple regression analysis to examine and analyze relationships between corporate governance characteristics and SMA application. It employs the following models and, then, calculates total effects by applying path analysis to observe comprehensive impacts:

$$Smap_{i,t} = \beta_0 + \beta_1 Ceosep_{i,t} + \beta_2 Ceorela_{i,t} + \beta_3 CeoJoibiz_{i,t}$$

$$+ \beta_4 Chairind_{i,t} + \beta_5 Bind_{i,t} + \beta_6 Bindper_{i,t} + \beta_7 Bsize_{i,t}$$

$$+ \beta_8 Bmeet_{i,t} + \beta_9 Bmeetper_{i,t} + \beta_{10} Bmeetmed_{i,t}$$

$$+ \beta_{11}Bmeetmedper_{i,t} + \beta_{12}Acind_{i,t} + \beta_{13}Acmeet_{i,t}$$
$$+ \beta_{14}Acmeetper_{i,t} + \beta_{15}Acmeetmed_{i,t}$$
$$+ \beta_{16}Acmeetmedper_{i,t} + \sum \delta Control\ Variables_{i,t} + \varepsilon_{i,t}. \tag{1}$$

$$Smau_{i,t} = \beta_{17} + \beta_{18}Ceosep_{i,t} + \beta_{19}Ceorela_{i,t} + \beta_{20}CeoJoibiz_{i,t}$$
$$+ \beta_{21}Chairind_{i,t} + \beta_{22}Bind_{i,t} + \beta_{23}Bindper_{i,t} + \beta_{24}Bsize_{i,t}$$
$$+ \beta_{25}Bmeet_{i,t} + \beta_{26}Bmeetper_{i,t} + \beta_{27}Bmeetmed_{i,t}$$
$$+ \beta_{28}Bmeetmedper_{i,t} + \beta_{29}Acind_{i,t} + \beta_{30}Acmeet_{i,t}$$
$$+ \beta_{31}Acmeetper_{i,t} + \beta_{32}Acmeetmed_{i,t}$$
$$+ \beta_{33}Acmeetmedper_{i,t} + \beta_{34}Smap_{i,t}$$
$$+ \sum \delta Control\ Variables_{i,t} + \varepsilon_{i,t}. \tag{2}$$

$$Total\ effect = Direct\ effect + Indirect\ effect^{*}. \tag{3}$$

*Indirect effect is the product of standardized coefficients in each indirect path.

The definitions of all variables are demonstrated in Table III.

4. Findings
The sample size of this study is 103 companies. Each sample company provides three years of data between years 2011 and 2013 so that total samples are 309 firm-year observations. There are 33 variables used in this study. Table IV shows correlation matrix and descriptive statistics. Almost all of the correlations are below 0.7 (Hair *et al.*, 2010); there are three correlations between 0.7 and 0.8 which is a generally acceptable rule of thumb for multicollinearity test. The two of three correlations' tolerance and VIF show non-problematic signs of multicollinearity (tolerance > 0.1 and VIF < 10). Although the correlation between the number of board independent members and board size shows sign of multicollinearity, these variables are not discarded because the study need to observe them.

Table V shows the results of the relationships between corporate governance characteristics and SMA application. The information shows regression analysis of corporate governance characteristics toward SMAP and SMAU. It also presents analysis in each SMAU. The following sections demonstrate results of this study in details.

4.1 Findings of corporate governance and the participation of accountants in SMAP
All independent variables can describe variation of SMAP for 54.4 percent. In the 16 observed independent variables (not include control variables), there are seven variables which statistically affect SMAP ($P < 0.1$). CEO-chairman separation, independent board size, and frequency of audit committee meetings positively affect SMAP, while independence of chairman, proportion of independent board members, board size, and audit committee's size negatively affect SMAP.

The separation of CEO's role and chairmanship, 1 percent changed in the number of independent directors, and 1 percent changed in the number of audit committee meetings bring about additional degrees of SMAP at 0.43, 0.06, and 0.003, respectively; whereas an independent chairman, 1 percent changed in the proportion of independent directors, 1 percent changed in the number of board members, and 1 percent changed in the number of audit committee members have negative effects on SMAP at 0.48, 0.15, 0.07, and 0.008, respectively.

Variables	Definition
Dependent variable	
$Smau_{i,t}$	The usage of strategic management accounting techniques for firm i in year t. This variable score comes from average score of each type of the techniques including costing (SmauCos), planning (SmauPla), strategic decision making (SmauStr), competitor accounting (SmauCom), and customer accounting (SmauCus) whose sores come from composite scores
$Smap_{i,t}$	The participation of accountants in strategic decision making for firm i in year t. This variable score comes from a composite score
Independent variable	
$Ceosep_{i,t}$	An indicator variable equal to 1 if the CEO is not a chairman of board of directors for firm i in year t and 0 otherwise
$Ceorela_{i,t}$	An indicator variable equal to 1 if the CEO is a relative with a chairman of board of directors for firm i in year t and 0 otherwise
$CeoJoi_{i,t}$	An indicator variable equal to 1 if the CEO and a chairman of board of directors have joint business ownership for firm i in year t and 0 otherwise
$Chairind_{i,t}$	An indicator variable equal to 1 if the chairman of board of directors is an independent director for firm i in year t and 0 otherwise
$Bind_{i,t}$	A natural logarithm of the number of independent directors in the board for firm i in year t
$Bindper_{i,t}$	A proportion of independent directors in the board of directors for firm i in year t, which is equaled to the number of independent directors to the number of board of directors
$Bsize_{i,t}$	A natural logarithm of the number of board members for firm i in year t
$Bmeet_{i,t}$	A natural logarithm of the number of meetings held by the board of directors for firm i in year t
$Bmeetper_{i,t}$	The percentage of attendance on meetings held by the board of directors for firm i in year t, which is equaled to the number of directors' attendance on meetings to the total number of board of directors' meetings
$Bmeetmed_{i,t}$	An indicator variable equal to 1 distinguishing active board for firm i in year t and 0 otherwise – active board means that the number of meetings is greater or equal to median value among firms in the same sector
$Bmeetmedper_{i,t}$	An indicator variable equal to 1 distinguishing active board for firm i in year t and 0 otherwise – active board means that the percentage of attendance on meetings are greater or equal to median value among firms in the same sector
$Acind_{i,t}$	A natural logarithm of number of independent directors in the audit committee for firm i in year t
$Acmeet_{i,t}$	A natural logarithm of number of meetings held by the audit committee for firm i in year t
$Acmeetper_{i,t}$	The percentage of attendance on meetings held by the audit committee for firm i in year t, which is equaled to number of audit committee's attendance on meetings to the total number of audit committee's meetings
$Acmeetmed_{i,t}$	An indicator variable equal to 1 distinguishing active committee for firm i in year t and 0 otherwise – active committee means that the number of meetings is greater or equal to median value among firms in the same sector
$Acmeetmedper_{i,t}$	An indicator variable equal to 1 distinguishing active committee for firm i in year t and 0 otherwise – active committee means that percentage of attendance on meetings are greater or equal to median value among firms in the same sector
Control variable	
$Bigaudit_{i,t}$	An indicator variable equal to 1 if an auditor is Big-four for firm i in year t and 0 otherwise
$Size_{i,t}$	A natural logarithm of total assets at the beginning of the year for firm i in year t
$Age_{i,t}$	An indicator variable equal to 1 if a firm age is more than 15 years for firm i in year t and 0 otherwise
$Lev_{i,t}$	Total debt divided by total assets at the beginning of the year for firm i in year t
$Bloc_{i,t}$	Percentage of common shares owned by shareholders whose shareholdings are greater than 5% for shares at the beginning of the year of firm i in year t. This type of control variable comprises individual block holders (IndBloc), financial institutional block holders (FNBloc), and non-financial institutional block holders (NFNBloc)
$Prosbs_{i,t}$	Prospector/defender business strategy for firm i in year t
$Delstr_{i,t}$	Deliberate strategy formulation orientation for firm i in year t
$Mo_{i,t}$	Market orientation for firm i in year t

Table III.
The definition
of all variables
used in the study

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Dependent variables																	
1 SmauCos																	
2 SmauPla																	
3 SmauStr																	
4 SmauCom																	
5 SmauCus																	
6 SMAU																	
Independent variables																	
7 SMAP	0.436**	0.504**	0.546**	0.590**	0.591**	0.643**	1										
8 Ceosep	0.049	0.090	-0.012	0.117*	0.154***	0.097	0.176**	1									
9 Ceorela	0.108	0.121*	0.111	0.085	0.132*	0.133*	0.180**	0.165**	1								
10 Ceojoi	-0.112*	-0.066	-0.015	0.012	0.094	-0.017	0.203**	0.290**	0.488**	1							
11 Chairind	0.057	0.053	-0.056	-0.034	-0.028	-0.004	-0.188**	0.326**	-0.198**	-0.297**	1						
12 Bind	0.126*	0.211**	0.223**	0.238**	0.098	0.214**	0.067	0.214**	0.043	0.009	0.129*	1					
13 Bindper	0.042	0.124*	0.036	0.036	0.021	0.060	-0.113*	-0.016	0.004	-0.167**	0.220**	0.468**	1				
14 Bsize	0.093	0.120*	0.211**	0.224**	0.076	0.175**	0.137*	0.246**	0.027	0.130*	-0.038	0.707**	-0.282**	1			
15 Bmeet	0.005	0.021	0.058	0.073	-0.085	0.016	0.088	0.159**	-0.065	-0.018	0.065	0.450**	0.307**	0.251**	1		
16 Bmeetper	-0.013	-0.100	0.076	0.080	-0.078	-0.006	0.042	-0.122*	-0.082	-0.030	0.081	0.044	0.085	-0.022	0.074	1	
17 Bmeetmed	0.005	0.052	0.048	0.096	-0.041	0.038	0.063	0.136*	-0.049	0.005	0.012	0.279**	0.139*	0.194**	0.749**	-0.050	1
18 Bmeetmedper	0.002	-0.027	0.119*	0.072	0.012	0.044	0.066	-0.075	-0.095	-0.010	0.071	0.022	0.045	-0.009	0.054	0.775**	-0.049
19 Acind	-0.015	0.035	0.035	0.080	-0.018	0.028	0.001	-0.054	0.091	0.083	-0.096	0.219**	-0.046	0.264**	0.142*	0.108	0.024
20 Acmeet	-0.077	0.143*	0.130*	0.208**	0.083	0.118*	0.200**	0.134*	-0.006	-0.010	0.008	0.442**	0.253**	0.276**	0.442**	-0.025	0.406**
21 Acmeetper	0.124*	0.029	0.118*	0.141*	.065	0.116*	0.086	-0.013	0.050	-0.057	0.078	0.099	0.039	0.076	0.023	0.187**	0.034
22 Acmeetmed	-0.163**	-0.048	-0.062	0.010	-0.012	-0.064	-0.073	0.026	0.037	0.019	-0.041	0.009	0.120*	-0.081	0.094	-0.103	0.189**
23 Acmeetmedper	0.031	0.002	0.087	0.108	0.091	0.079	0.060	0.082	-0.009	-0.006	0.058	0.021	0.008	0.014	-0.023	0.189**	-0.033
24 Bigaudit	0.065	0.035	0.067	.051	-0.102	0.026	0.100	0.280**	0.090	0.024	0.082	0.111	-0.075	0.175**	0.125*	-0.073	0.182**
25 Size	0.205**	0.303**	0.240**	0.293**	0.054	0.260**	0.268**	0.257**	0.131*	-0.098	0.038	0.582**	0.132*	0.519**	0.468**	-0.019	0.378**
26 Age	-0.058	0.090	0.063	-0.007	-0.026	0.013	0.014	-0.043	-0.007	0.110	-0.102	0.174**	-0.031	0.224**	0.074	0.071	0.021
27 Lev	-0.053	0.015	-0.024	0.035	-0.052	-0.019	0.107	-0.018	0.173**	0.164**	-0.047	0.004	0.007	-0.008	0.153**	-0.005	0.130*

(*continued*)

Table IV.
Correlation matrix and
descriptive statistical
information of all
studied variables

Top block — rows 28–33 × columns 1–17

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
28 Ind Bloc	-0.109	-0.279**	-0.163**	-0.165**	-0.103	-0.193**	-0.306**	-0.215**	-0.014	0.113*	0.095	-0.279**	0.036	-0.352**	-0.295**	0.155**	-0.249**
29 FN Bloc	0.011	-0.018	0.037	-0.066	-0.023	-0.016	0.050	0.055	-0.012	-0.062	0.023	0.210**	0.206**	0.069	0.098	0.128*	-0.020
30 NFN Bloc	0.099	0.248**	0.180**	0.229**	0.157**	0.218**	0.293**	0.173**	0.017	-0.159**	-0.179**	0.180**	-0.057	0.272**	0.155**	-0.253**	0.164**
31 Prosbs	0.195**	0.203**	0.275**	0.370**	0.236**	0.310**	0.367**	-0.103	0.067	0.158**	-0.024	0.128*	0.094	0.069	0.065	0.030	0.082
32 Delstr	0.210**	0.010	-0.037	-0.173**	-0.029	-0.008	0.053	-0.014	0.038	-0.096	-0.013	-0.050	-0.120*	0.059	-0.035	-0.005	-0.102
33 Mo	0.332**	0.475**	0.561**	0.696**	0.601**	0.645**	0.555**	0.129*	0.012	0.115*	-0.003	0.145*	-0.039	0.177**	0.057	0.016	0.063
Mean	4.13	4.89	4.46	4.34	4.07	4.38	4.58	0.79	0.09	0.24	0.28	1.44	0.41	2.36	1.91	0.92	0.61
SD	1.33	1.22	1.44	1.44	1.42	1.12	1.25	0.41	0.29	0.43	0.45	0.29	0.10	0.27	0.45	0.08	0.49
Min	1.00	1.00	1.00	1.00	1.00	1.63	1.00	0.00	0.00	0.00	0.00	1.10	0.20	1.61	1.39	0.64	0.00
Max	7.00	7.00	7.00	7.00	7.00	6.80	7.00	1.00	1.00	1.00	1.00	2.40	0.88	3.04	3.14	1.00	1.00

Bottom block — rows 18–33 × columns 18–33

	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
18 Bmeetmedper	1															
19 Acind	0.056	1														
20 Acmeet	0.012	0.010	1													
21 Acmeetper	0.174**	-0.086	0.105	1												
22 Acmeetmed	-0.035	0.013	0.372**	0.018	1											
23 Acmeetmedper	0.199**	-0.193**	-0.011	0.690**	-0.008	1										
24 Bigaudit	-0.055	-0.028	0.216**	0.145*	0.037	0.015	1									
25 Size	-0.047	0.094	0.549**	0.156**	0.027	0.035	0.357**	1								
26 Age	0.065	0.134*	0.120*	-0.062	-0.140*	-0.061	0.026	0.135*	1							
27 Lev	-0.075	-0.017	0.082	0.032	-0.157**	0.001	0.145*	0.239**	-0.003	1						
28 Ind Bloc	0.122*	-0.108	-0.300**	-0.086	-0.107	-0.030	-0.215**	-0.464**	-0.126*	-0.010	1					
29 FN Bloc	0.140*	-0.129*	0.143*	0.099	-0.138*	0.105	0.062	0.228**	-0.030	0.034	-0.187**	1				
30 NFN Bloc	-0.175**	0.056	0.259**	0.056	0.157**	0.019	0.217**	0.307**	0.067	-0.118*	-0.784**	-0.053	1			
31 Prosbs	0.011	-0.015	0.101	0.203**	-0.065	0.120*	0.025	0.068	-0.060	0.153**	0.003	0.039	0.037	1		
32 Delstr	0.034	-0.052	-0.133*	-0.002	-0.091	-0.038	-0.074	-0.009	0.036	-0.055	-0.067	-0.008	0.032	-0.124*	1	
33 Mo	0.051	0.113*	0.144*	0.105	0.105	0.082	0.061	0.172**	0.067	0.047	-0.197**	-0.013	0.244**	0.520**	-0.232**	1
Mean	0.61	1.16	1.77	0.95	0.85	0.62	0.65	8.85	0.90	0.53	0.24	0.25	0.34	0.02	4.50	4.95
SD	0.49	0.14	0.45	0.08	0.36	0.49	0.48	1.82	0.30	0.31	0.25	0.05	0.26	0.05	0.96	1.11
Min	0.00	1.10	1.10	0.25	0.00	0.00	0.00	5.30	0.00	0.04	0.00	0.00	0.00	0.00	1.50	2.50
Max	1.00	1.61	3.04	1.00	1.00	1.00	1.00	14.30	1.00	3.56	0.78	0.24	0.96	0.24	7.00	7.00

Table IV.

Notes: *, **Significant correlation at 0.05 and 0.01 level, respectively

			Dependent variables				
	SMAP	SMAU	SmauCos	SmauPla	SmauStr	SmauCom	SmauCus
Independent variables							
Constant	12.008***	−3.658	−1.786	3.068	−7.141**	−11.501***	−0.930
Ceosep	0.426**	−0.188	−0.205	−0.281	−0.688***	0.062	0.172
Ceorela	0.214	0.567***	0.559**	0.508**	0.746***	0.428*	0.592**
CeoJoi	0.238	−0.482***	−0.576**	−0.356*	−0.458**	−0.632***	−0.389*
Chairind	−0.484***	0.076	0.132	0.303 *	0.067	−0.140	0.017
Bind	5.919***	−2.087*	−0.748	−1.004	−3.659**	−3.737**	−1.287
Bindper	−14.671***	7.177***	4.102	5.389	10.419***	10.323***	5.651
Bsize	−6.540***	2.787**	1.211	1.217	4.774***	4.618***	2.115
Bmeet	0.142	−0.423***	−0.222	−0.696***	−0.166	−0.443**	−0.586***
Bmeetper	1.332	−1.590*	−1.578	−3.663***	−0.931	1.813	−3.594***
Bmeetmed	−0.224	0.226 *	0.226	0.283	0.142	0.243	0.235
Bmeetmedper	0.144	0.149	0.048	0.332*	0.227	−0.106	0.243
Acind	−0.777*	−0.295	−0.379	−0.055	−0.603	−0.045	−0.391
Acmeet	0.331**	−0.272**	−0.822***	−0.208	−0.266	−0.095	0.031
Acmeetper	−0.097	0.141	1.672	−0.849	−0.401	0.072	0.214
Acmeetmed	−0.243	0.100	−0.151	−0.041	0.141	0.331*	0.220
Acmeetmedper	−0.090	0.059	−0.187	0.064	0.153	0.108	0.156
Mediating variable							
SMAP		0.464***	0.439***	0.393***	0.483***	0.451***	0.556***
Control variables							
Bigaudit	−0.110	−0.061	0.148	−0.120	0.182	−0.115	−0.399***
Size	0.101**	0.059	0.140 **	0.141***	0.028	0.095*	−0.108**
Age	−0.215	−0.087	−0.266	0.215	0.001	−0.253	−0.134
Lev	−0.005	−0.249*	−0.592**	−0.173	−0.347*	−0.022	−0.109
Ind Bloc	−0.740*	0.052	0.011	−0.953**	0.227	0.705*	0.272
FN Bloc	−0.432	−1.899**	−1.647	−3.078**	−0.691	−3.447***	−0.632
NFN Bloc	0.443	−0.519*	−0.738	−0.677*	−0.518	−0.161	−0.503
Prosbs	0.143***	−0.097***	−0.036	−0.083*	−0.132***	−0.052	−0.184***
Delstr	0.222***	0.038	0.262***	0.032	−0.013	−0.135**	0.042
Mo	0.449***	0.489***	0.273***	0.343***	0.527***	0.667***	0.634***
Year control	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.544	0.651	0.418	0.490	0.515	0.652	0.593
Adjusted R^2	0.498	0.615	0.358	0.437	0.465	0.615	0.550
SEE	0.884	0.696	1.062	0.914	0.970	0.892	0.952
F	11.917	17.977	6.920	9.234	10.220	17.987	14.000
Sig. of F	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Notes: *,**,***Statistical significance at 0.1, 0.05, and 0.01, respectively

Table V.
Regression analysis of
corporate governance
characteristics and
strategic management
accounting
applications

The results of control variables show that firm size, prospector-type of business strategy, deliberate strategy formulation, and market orientation have statistically positive relationships with SMAP, while individual block holders show a negative effect on SMAP.

4.2 Findings of corporate governance and the usage of SMAU

The studied variables can describe the variation of overall and each type of SMAU – costing (SmauCos), planning, control, and performance measurement (SmauPla), strategic decision making (SmauStr), competitor accounting (SmauCom), and customer accounting (SmauCus) – at 65.1 percent for overall SMAU and at 41.8, 49.0, 51.5, 65.2, and 59.3 percent for each type of SMAU, respectively.

There are 12 from 17 observed variables having a statistical effect ($p < 0.1$) on overall and each type of SMAU. Kinship of a CEO and a chairman has a positive effect on overall

SMAU at 0.57 and it also has a positive effect on SmauCos, SmauPla, SmauStr, SmauCom, and SmauCus at 0.56, 0.51, 0.75, 0.43, and 0.59, respectively. Changing 1 percent in proportion of independent directors positively affects a degree of overall SMAU, SmauStr, and SmauCom at 0.07, 0.10, and 0.10 as well as changing 1 percent in the number of board members positively affects degree of SMAU, SmauStr, and SmauCom at 0.03, 0.05, and 0.05. An active board in the aspect of frequency of meetings positively affects degree of SMAU at 0.23. An active board in the aspect of attendance positively affects SmauPla at 0.33. Independency of a chairman positively affects SmauPla at 0.30 and an active audit committee in the aspect of frequency of meetings positively affects SmauCom at 0.33.

CEO-chairman separation negatively affects SmauStr at 0.69. Joint ownership has negative effects on SMAu, SmauCos, SmauPla, SmauStr, SmauCom, and SmauCus at 0.48, 0.58, 0.36, 0.46, 0.63, and 0.39, respectively. Changing 1 percent in the number of independent directors negatively affects degree of SMAU, SmauStr, and SmauCom at 0.02, 0.04, and 0.04 as well as 1 percent changed in the number of board meetings negatively affects degree of SMAU, SmauPla, SmauCom, and SmauCus at 0.04, 0.07, 0.04, and 0.06, respectively. Changing 1 percent in proportion of board attendance negatively affects SMAU, SmauPla, and SmauCus at 0.16, 0.37, and 0.36. Changing 1 percent in the number of audit committee meetings negatively affect degrees of SMAU and SmauCos at 0.03 and 0.08.

There are five control variables which negatively affect overall SMAU. They comprise firm leverage (Lev), financial institution block holder (FN Bloc), non-financial institution block holder (NFN Bloc), prospector business strategy (Prosbs), and market orientation (Mo). All control variables, except for firm age (Age), variously affect each type of SMAU. Big audit firm (Bigaudit) negatively affects SmauCus. Firm size (Size) shows inverse effects on SmauCos, SmauPla, SmauCom, and SmauCus as well as Lev shows negative effects on SmauCos and SmauStr. Individual block holder (Ind Bloc) negatively affects SmauPla while it positively affects SmauCom. FN Bloc negatively affects both SmauPla and SmauCom, but NFN Bloc affects SmauPla only. Prosbs negatively affects SmauPla, SmauStr, and SmauCus. Deliberate strategy formulation (Delstr) positively affects SmauCos but negatively affects SmauCom. In addition, Mo positively affects all type of SMAU.

4.3 Findings of corporate governance, the participation of accountants in SMAP, and the usage of SMAU

This study also observes total effects of corporate governance characteristics on SMA by applying path analysis in order to comprehensively analyze overall impact. Table VI demonstrates total effects of corporate governance characteristics on SMAU which has SMAP as a partial mediator. The analysis shows that SMAP has positively total effects on overall and each type of SMAU at 0.52, 0.41, 0.40, 0.46, 0.39, and 0.49, respectively. There are nine corporate governance characteristics affecting overall SMAU, SmauPla, and SmauCus (explaining the variation at 65, 49, and 59 percent); while there are eight variables affecting SmauCos, SmauStr, and SmauCom (explaining 42, 52, and 65 percent of the variation in each type).

5. Discussion

This study shows empirical evidence that corporate governance characteristics significantly affect both SMAP and SMAU. The findings show significant relationships between corporate governance characteristics and SMA in both participation and usage. These relationships can complement the framework of enterprise governance. The results demonstrate the important role of SMA in governance explained by the paradigms of resource dependency theory (Pfeffer and Salancik, 1977), stewardship theory

Standardized coefficients which are statistically significant at 0.05 and 0.01

	SMAU			SmauCos			SmauPla			SmauStr			SmauCom			SmauCus		
	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total
Independent variables																		
Ceosep	–	0.072	0.072	–	0.058	0.058	–	0.056	0.056	-0.213	0.064	-0.149	–	0.055	0.055	–	0.069	0.069
Ceorela	0.145	–	0.145	0.121	–	0.121	0.120	–	0.120	0.162	–	0.162				0.120	–	0.120
Ceojoi	-0.183	–	-0.183	-0.185	–	-0.185				-0.147	–	-0.147	-0.187	–	-0.187			
Chairind	–	-0.090	-0.090	–	-0.072	-0.072	–	-0.070	-0.070	–	-0.080	-0.080	–	-0.068	-0.068	–	-0.085	-0.085
Bind	–	0.702	0.702	–	0.562	0.562	–	0.546	0.546	-0.790	0.618	-0.172	-0.744	0.531	-0.213	–	0.664	0.664
Bindper	0.614	-0.583	0.031	–	-0.467	-0.467	–	-0.454	-0.454	0.754	-0.513	0.241	0.689	-0.441	0.248	–	-0.552	-0.552
Bsize	0.677	-0.738	-0.061	–	-0.591	-0.591	–	-0.575	-0.575	0.982	-0.650	0.332	0.876	-0.559	0.317	–	-0.699	-0.699
Bmeet	-0.168	–	-0.168	-0.256	–	-0.256	-0.256	–	-0.256				-0.138	–	-0.138	-0.185	–	-0.185
Bmeetper				-0.229	–	-0.229	-0.229	–	-0.229							-0.193	–	-0.193
Bmeetmed																		
Bmeetmedper																		
Acind																		
Acmeet	-0.109	0.062	-0.048	-0.280	0.050	-0.230	—	0.048	0.048	–	0.054	0.054	–	0.047	0.047	–	0.059	0.059
Acmeetper																		
Acmeetmed																		
Acmeetmedper																		
Mediating variable																		
SMAP	0.517	–	0.517	0.414	–	0.414	0.402	–	0.402	0.455	–	0.455	0.391	–	0.391	0.489	–	0.489
R^2			0.651			0.418			0.490			0.515			0.652			0.593

Table VI.
Total effects of corporate governance characteristics on the usage of strategic management accounting techniques

(Donaldson and Davis, 1991), and agency theory (Jensen and Meckling, 1976). They demonstrate a significant role of SMA supporting in a process of resource generation, resource utilization, and policy formulation and execution through various behaviors of SMA application for each corporate governance characteristic.

Table VII (A) shows a summary of total effects of corporate governance characteristics on SMA application. The table demonstrates that there are five independent characteristics of corporate governance including separation between CEO role and chairmanship, an independent chairman, independent board size, proportion of independent directors, and board size significantly affect SMAP. Almost all of the independent characteristics of corporate governance, except for audit committee's size, significantly affect SMAU. For activeness of corporate governance characterisitics, only frequency of audit committee's meetings significantly affects SMAP and only frequency of meetings of a board of directors and an audit committee significantly affects SMAU.

For independent corporate governance characteristics of a CEO and a chairman, this study partially confirms *H1* that separation between CEO role and chairmanship brings about higher SMAP and SMAU, while independence of a chairman leads to less SMAP and SMAU. This inverse effect reflects an implication of resource dependency theory (Pfeffer and Salancik, 1977) that a firm which has a non-independent chairman (a main shareholder,

(A) Summary of total effects of corporate governance characteristics on SMA applications

Independent variables	SMAP	SMAU	SmauCos	SmauPla	SmauStr	SmauCom	SmauCus
				Dependent variables			
Independent characteristics							
Ceosep	0.140	0.072	0.058	0.056	−0.149	0.055	0.069
Ceorela		0.145	0.121	0.120	0.162		0.120
CeoJoi		−0.183	−0.185		−0.147	−0.187	
Chairind	−0.175	−0.090	−0.072	−0.070	−0.080	−0.068	−0.085
Bind	1.358	0.702	0.562	0.546	−0.172	−0.213	0.664
Bindper	−1.128	0.031	−0.467	−0.454	0.241	0.248	−0.552
Bsize	−1.429	−0.061	−0.591	−0.575	0.332	0.317	−0.699
Acind							
Active characteristics							
Bmeet		−0.168		−0.256		−0.138	−0.185
Bmeetper				−0.229			−0.193
Bmeetmed							
Bmeetmedper							
Acmeet	0.120	−0.048	−0.230	0.048	0.054	0.047	0.059
Acmeetper							
Acmeetmed							
Acmeetmedper							

(B) Summary of behavioral patterns of effects of corporate governance characteristics on SMA

Effect	Same-effect direction on SMAP and SMAU			Different-effect direction on SMAP and SMAU			Effect only on SMAU	
	Independent variables	Total effect		Independent variables	Total effect		Independent variables	Total effect
		SMAP	SMAU		SMAP	SMAU		
Positive	Bind	1.358	0.702	Acmeet	0.120	−	Ceorela	0.145
	Ceosep	0.140	0.072	Bindper		0.031		
Negative	Bsize	1.429	0.061	Bindper	1.128		CeoJoi	0.183
	Chairind	0.175	0.090	Acmeet	−	0.048	Bmeet	0.168

Notes: The table summarizes total effects of corporate governance characteristics on SMA application (significant at < 0.05)

Table VII.
Summary of total effects of corporate governance characteristics on strategic management accounting application and their behavioral patterns

a main creditor, or a representative of them) tries to meet expectation of a capital provider so that it needs more support from both SMAP and SMAU.

Kinship between a CEO and a chairman positively affects SMAU, while joint ownership between a CEO and a chairman negatively affects SMAU. Both CEO-chairman kinship and joint ownership do not affect SMAP. The results show that a chairman who does not have any share in a firm can independently oversee a firm so that the chairman tends to require more strategic information from SMAU to support his or her duty. This finding is consistent with the agency theory paradigm (Jensen and Meckling, 1976). Additionally, when a CEO is a cousin of a chairman, a CEO would be supported by a board of directors to perform more strategic decision so that a firm need more support from SMAU to serve this characteristic.

As for independent corporate governance characteristics of a board of directors and an audit committee, the results confirm *H2* and show evidence of an agency theory paradigm (Jensen and Meckling, 1976) that the greater the number of independent directors a firm has, the more SMAP and SMAU a firm implements. The results also reflect predominant effect of stewardship paradigm (Donaldson and Davis, 1991) that a firm with bigger board size tends to implement less SMAP and SMAU. A board of directors of smaller size, composed of a firm's executives, is more efficient in managing strategic operation because it makes decision faster in strategic operation than does a board of directors of bigger size. As a result, a firm with greater number of independent directors but smaller board size inclines to more SMAP and SMAU.

For active corporate governance characteristics of a board of directors and an audit committee, this study demonstrates that high meeting frequency of a board of directors and an audit committee results less SMAU. This inverse results do not confirm *H3* and *H4*. The higher frequency of meetings a board of directors and an audit committe have, the more time consumption a firm consumes. These discrepancies arise from management being too busy to repond to more meetings of a board of directors and an audit committee so that the mangement has less time to sufficiently focus on strategy as a result of less SMAU.

Although the results do not show a significant effect of audit committee's size on SMA in *H2*, they show a significant effect of activeness of an audit committee on SMAP in *H4*. The results show evidence of an agency theory paradigm (Jensen and Meckling, 1976) in an active audit committee that high frequency of audit committee's meetings brings about more SMAP. The higher frequency of meetings an audit committee has, the more participation of accountants a firm requires. These results conform to (Cadez and Guilding, 2012) that an audit committee monitors firm's operation in order to provide business assurance especailly in financial and accounting figures so that the participation of accountants is highly required to support management for this highly active audit committee.

In additon, all results can be represented and explained in three behavioral patterns of effects of corporate governance characteristics on SMA (see Table VII B). The first pattern, same-effect direction on SMAP and SMAU, shows that both SMAP and SMAU are either increased or decreased through corporate governance characteristics. The second pattern, different-effect direction on SMAP and SMAU, means that SMAP is increased while SMAU is decreased, or vice versa. The last pattern, effect only on SMAU, demonstrates that corporate governance characteristic affects SMAU only.

CEO-chairmen separation, independent board size, independence of a chairman, and board size are in the first pattern. The company would have more of both SMAP and SMAU when it has a CEO who is not a chairman and bigger independent board size. These results demonstrate evidence of resource dependency (Pfeffer and Salancik, 1977). For example, when a chairman is not a CEO, he or she is normally a representative of major shareholders. As a result, a company certainly needs almost all of the strategic information supporting a chairman to oversee business on behalf of major shareholders. To do so, the company has to serve the chairman by providing more accountant participation for supporting and more

SMAU in all types; except for SmauStr which is highly focused by management rather than the chairman. In addition, bigger independent board size needs more supports from both SMAP and SMAU. As a result, a firm provides SMAP and allocates its resources to support the board in all types of SMAU; except for SmauStr and SmauCom which are the tools for management rather than the board.

A firm with a non-independent chairman and smaller board size has more of both SMAP and SMAU. These behaviors represent stewardship theory (Donaldson and Davis, 1991). In these characteristics, the board comprises more executive directors who want to perform as responsible stewards of the assets they control. Thus, the organization needs more supports from both accountant participation and SMAU to serve those directors' responsibility.

The second pattern of the SMA application, the different-effect direction on SMAP and SMAU, appears in proportion of independent directors and frequency of audit committee's meetings. For the board of directors which has higher proportion of independent directors, the independent directors by themselves normally pay attention to strategy so that the board needs less SMAP but needs more SMAU, especially SmauStr and SmauCom. The behavioral application of SMA through the frequency of audit committee meetings shows evidence of the agency theory (Jensen and Meckling, 1976). More meetings of an audit committee imply that a firm may face some problems needed to be solved. In this event, a firm certainly needs more support from SMA application except for SmauCos. The reason of less SmauCos is that a firm has to use its resource for other SMAU rather than costing techniques which are really involved by management instead of an audit committee.

For the last pattern of the relationships, kinship of a CEO and a chairman, joint business ownership between a CEO and a chairman, and frequency of board meetings have an effect on SMAU only. The kinship of a CEO and a chairman leads to more SMAU following the resource dependency theory (Pfeffer and Salancik, 1977) and the stewardship theory (Donaldson and Davis, 1991). This characteristic can be found in family businesses whose major shareholders are in CEO's family. These businesses adopt almost all of the SMAU to emphasize strategic governance in order to increase firm value or family wealth.

In additon, when a CEO has joint business ownership with a chairman, a chairman or a CEO is normally not a major shareholder (by observing the data). Hence, such firm emphasizes on assurance rather than firm strategy (follow from agency theory). As a result, a firm puts more effort on compliance and control so as to use less in SMAU. In the same way, more frequency of board meetings and high attendance of board members reflect higher assurance. As a result, a firm allocates more resources for controlling system rather than strategy so that it use less SMAU as well.

The results provide empirical evidence that corporate governance characteristics significantly affect SMA. This evidence supports the framework of enterprise governance (IFAC, 2004). Not only does corporate governance provide assurance control, but it also provides strategic governance through the behavioral application of SMA, involvement, and tools.

6. Conclusion

This study shows significant evidence of relationships between corporate governance characteristics and SMA of firms listed in Thailand's capital markets. It explores the application of SMA through corporate governance mechanism. The analyses show that SMA is a strategic supporting tool for corporate governance in strategic governance. The study provides significant contributions in both theoretical and practical aspects. In theoretical perspective, it demonstrates new empirical evidence in corporate governance characteristics and SMA that their relationships support the relationships between corporate governance and strategic governance under enterprise governance framework (IFAC, 2004). In addition, it shows the application of SMA through corporate governance mechanism in Thailand. These results enhance understanding of corporate governance mechanism in the

context of strategic governance. For practical benefit, the results provide guideline to managers for SMA implementation so that they can appropriately prepare and design their organizations' corporate governance mechanism in order to support their firms' strategy.

Though the findings of the study are explicit, their implication is limited for only firms in capital market of Thailand. In the future, a study should extend to cover firms outside capital market to improve generalization.

Notes

1. A capital market database of the Stock Exchange of Thailand.

2. An additionally compulsory report apart from financial statements having to be submitted to the Stock Exchange of Thailand by listed companies.

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