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Corporate Governance as A Moderator Between Strategic Management Accounting and Firm Performance: Empirical Evidence

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Abstract
This study aims to shed light on the moderating role of corporate governance in the link between the strategic management accounting and firm performance, which suffers from paucity in prior works. The study sample consists of 139 Out of 185 Saudi public companies from twenty sectors listed in Saudi Stock Exchange by the end of 2017. The data used in this study was collected from Tadawul database for the period of 2013 to 2016 and from a mailed questionnaire survey. The study found that corporate governance index was 74.3% for listed companies in Saudi Stock Exchange. The results of the study indicate that corporate governance plays a moderating role in the link between strategic management accounting and firm performance. The adoption of strategic management accounting in company will improve corporate governance practices which in turn lead to enhance company performance. The theoretical and practical contributions of the study and recommendations for company managers are identified.
Keywords: Corporate governance, Strategic management accounting, Firm performance, Saudi stock exchange.

1. Introduction

Corporate governance (CG), by its own principles, rules and procedures, considers the consequent of separation between ownership and management emerged by the agency theory. Therefore, CG is far from being a reaction to financial crises here or there (Liu etal., 2016). Despite of this argument, the concept of CG was linked to the emergence of financial crises experienced by some major international companies, and the subsequent demands for a set of controls, customs and ethical, professional principles in order to achieve confidence and credibility in the information presented in the financial statements. By improving the legal and regulatory framework of firms, CG can guide the economic activity both at the local and international community level. Adequate CG affects the firm's strategic decisions, guides the practices of corporate accountants, enhances the external auditors' independence and improves their performance, and improves investors' decision-making process by enhancing and restoring confidence in financial statements (Appuhami & Bhuyan, 2015). Accordingly, this will optimize the utilization of economic resources and help governments shape future policies for social welfare and economic growth (Gurbuz et al., 2010).

In response to contemporary business environments that have become increasingly dynamic, competitive, and uncertain, it has become increasingly important for management accounting to adopt a strategy-oriented approach. In the new era of globalization, the direction and scope of management accounting have dramatically changed to be more coherent and consistent with organizational strategies, and to have techniques and tools supporting the strategic decision-making, planning and control (Cadez & Guilding, 2012), adding value to their organizations, and ensuring sustainable growth (Ahid & Augustine, 2012). However, in the intense global and technologically competitive atmosphere, contemporary firms have started paying more attention to practicing management accounting from a strategic point of view, which has been labeled "Strategic Management Accounting" (SMA). Most contemporary firms have forsaken the traditional management accounting because it has failed to provide the information required for their strategic decision making process (Ah Lay & Jusoh, 2011), competitiveness, and future-oriented performance (Ahid & Augustine, 2012).

The relationship between CG, SMA, and firm performance has been the focus of many researchers. Some previous studies indicate a positive relationship between CG and firm performance (e.g. Akbar et al., 2016; Ammann et al., 2011; Chung et al., 2011; Gurbuz et al., 2010; Haβ et al., 2016; Khamis, et al., 2015; Mishra & Mohanty, 2014; Shammari & Al-Sultan, 2010; Tang & Wang, 2011). Other studies also indicate an association between SMA and firm performance (e.g. Ah Lay & Jusoh, 2011; Ahid & Augustine, 2012; Cadez & Guilding, 2012; Hammad et al., 2010; Trkman, 2010). However, the causal relationships among these three variables in one model is still not investigated, despite a number of studies have suggested such causal relationship (Christine et al., 2011; Kaplan & Norton 2006; Kaymak & Bektas 2008; Nicholson & Kiel 2007; Salvato & Melin 2008; Seal 2006). Accordingly, the above suggestions allow the researcher of this study to suggest that CG as controlling mechanisms may influence the relationship between of SMA and firm performance. However, this role of CG in the relationship between the SMA and firm performance has been investigated yet by previous

empirical work except the study conducted by Wang and Huynh (2014). Although Wang's and Huynh (2014) study has been focused on the adoption of traditional and advanced management accounting techniques only as indicators for adopting management accounting system, the present study will expand this adoption factor by taking the strategic perspective of management accounting practice. However, this gap in investigation limits our current understanding of the role of CG in contemporary firms. To help in addressing this gap, the objective of the current study is primarily to discuss the expected moderating role of CG between SMA and firm performance and then examine how and whether this role statistically significant. Hopefully, this attempt can make contemporary firms in developed and developing countries more aware about the role of CG on enhancing performance outcomes. In particular, the current study addresses the following question: "*Does corporate governance moderate the link between strategic management accounting and firm performance*?"

The importance of the current study also stems from the financial market strength of Saudi Arabia, as the place of conducting the current study. According to financial analysts, investors and researchers, Saudi Arabia is considered one of the most active Arab financial markets, and the least affected by the repercussions of the global financial crisis compared to the rest of the world (Al-Shammari & Al-Sultan, 2010). In December, 2017, 185 companies were voluntary listed on Saudi stock exchange (TADAUWL). Capital Market Authority (CMA) issued CG regulations, procedures and rules that must be implemented by all listed companies in TADAUWL. Recent study conducted by Buallay et al. (2017) found that the CG level in Saudi stock exchange was in good condition (61.4%). This good level of CG gives us important indicators regarding the nature and quality of financial information that affect the nature of future investment decisions in Saudi Arabia. The current study aims also to shed light on SMA as a new trend in practicing management accounting in Saudi business environment. It is noticeable that there is no one piece of empirical research dealing with SMA in Saudi business environment. In the same time, this study also investigates the relationship between CG and this new trend "SMA". In sum, this attempt of investigation provides us with better understanding about the impact of CG on SMA and therefore in firms performance.

The current study also tries to make some contribution to the practice. The findings may contribute in drawing managers' attention in contemporary firms about the importance of these vital issues (i.e CG and SMA) in enhancing performance, and help them choosing appropriate management accounting approach to their CG practices or mechanisms, which in turns may enhance their firm performance. The findings of this study may also be of benefit to firms' investors by showing the impact of CG on the link between SMA and firm performance. The findings may help those investors to identify some factors that may influence firm performance positively or negatively, and can identify firm's success or failure in the light of these factors.

2. Literature Review and Hypotheses development

In the light of the agency theory, CG, as mechanism or way through which firm is managed and monitored (MacMillan & Downing, 1999), aims to ensure that managers are controlled and monitored by the board of director (Ueng, 2016). Accordingly, CG can lessen the agency problems that arise when ownership and management separation takes place. This separation leads to a conflict of interests between the principal (shareholders) and the managers (agents), which ultimately influences firm performance negatively (Larcker & Tayan, 2013). In addition, Mayer (1997) considers CG as the appropriate way to bridge the gap between the interests of shareholders and managers and make them move into the same line with the emphasis on the benefit of shareholders. As CG is considered a tool for distributing and integrating of powers and responsibilities, guaranteeing the rights of different shareholders within the firm, it will reduce the conflict of interest, and attract different types of investments, whether individual or institutional (Chung & Zhang, 2011). Moreover, CG besides the nature of its policies can affect the level and the quality of disclosure levels (Beekes et al., 2014). Klai's and Omri, (2011) study found that if family ownership is reduced and supervisory control increases, the quality of the financial reports increases and the degree of confidence in these reports increases. This can be explained in the light of some previous studies findings in which CG improves the work of the external auditors, increases the degree of confidence in their work, and enhances their independence (e.g. Gao & Kling, 2012; Talebnia et al., 2017). However, this impact of CG is not limited to external auditing, but may extend to the work of the internal auditors through increasing their commitments to the internal auditing profession code of ethics and standardization, and improving their practices and methods (Zaman & Sarens, 2013). In addition, a good level of CG can enhance the ability of the firm to survive and continue (Kocmanova, et al., 2011) since it is an important tool in confronting and managing risks. This may be due to the role of CG in building and defining powers, activating the internal control system, and protecting shareholders' rights by preserving firm resources.

In this millennium, managers need a high quality and reliable information to manage their firms, especially under the interlocking factors of their surrounding environment, therefore, adopting SMA considers as precondition for success and survival (Cadez & Guilding, 2012). Hoque (2001) defined SMA as "a process of identifying, gathering, choosing and analyzing accounting data for helping the management team to make strategic decisions and to assess organizational effectiveness." (p. 2). Furthermore, The Chartered Institute of

Management Accountants' official terminology defines SMA as "a form of management accounting in which emphasis is placed on information which relates to factors external to the entity, as well as non-financial information and internally generated information." (Jack, 2009: 1). Therefore, SMA is a generic approach of accounting with external and prospective orientation for strategic positioning (Carmen & Corina, 2009) and control activities (Groot & Selto, 2013). Previous studies have been conceptualized SMA into two dimensions. These are (Cadez & Guilding, 2008): (1) the adoption of SMA techniques and tools (2) accountant's involvement and participation in strategic making process. Traditional management accounting techniques (i.e. cost analysis, variance analysis, and budgeting), which focus on historical and internal information, are no longer considered as effective ways to provide reliable information that help mangers to plan and control their business processes and activities in this era (Cravens & Guilding, 2001; Kırlı & Gümüş, 2011).

According to Kaplan and Nagel (2004), management accounting systems play a significant role in enhancing CG practices. This due to the role of management accounting system in providing the directory board with useful and significant information in order to cope with the firm environment, and run it effectively, efficiently, and economically. However, the adoption of contemporary management accounting techniques in firm will improve the CG practices or mechanisms. Wang and Huynh (2014) found that higher adoption of traditional management accounting techniques (i.e. variance analysis, traditional budgeting, and cost volume profit analysis) and advanced management accounting techniques (i.e. balanced scorecard, total quality management, and activity based costing) leads to better CG. Moreover, Seal's (2006) study indicates that firms that adapted effective management accounting techniques embedding better CG, since good CG can be formulated by supportive and useful information derived from effective management accounting system. According to Larcker and Tayan (2013) and Lenard et al. (2014), internal and external auditing, monitoring of the board of directors, and risk management and inventory systems can be effective tools to deal with the principal-agent problems and consequently reduce the agency costs. The role of theses control systems is found to be improved by the adoption of management accounting system both traditional and strategic (see Soin & Collier; 2013; Wang and Huynh, 2014). Moreover, Huynh (2015) investigated the relationship between CG and management accounting among the publicly listed firms in Vietnam. The findings confirm that CG structure is affected and strengthened by the adoption of management accounting techniques. Additionally, Sam et al. (2012) found that the adoption of management accounting systems in firms has been influenced by the characteristics of CEOs. Based on the above arguments and findings, the researcher of this study can formulate the following hypothesis.

H1: The adoption of SMA in firm likely affects CG.

As mentioned earlier, CG has affected the firm in different aspects, which is in turn reflected on its performance indicators and the improvement in decision-making process in the firm (see Judge & Talaulicar, 2017). In a number of empirical studies, it is found that firms with good CG perform better than firms with weak CG (e.g. Akbar et al., 2016; Ammann et al., 2011; Chung et al., 2011; Gurbuz et al., 2010; Haβ et al., 2016; Khamis, et al., 2015; Mishra & Mohanty, 2014; Shammari & Al-Sultan, 2010; Tang & Wang, 2011). For example, in their study, Ibrahim and Abdul Samad (2011) found that family firms achieve a better rate of equity than non-family firm. However, CG mechanisms such as board size, dual roles, and board members' autonomy have an important impact on performance in non-family firm. Gurbuz et al. (2010) found that the existence of some CG mechanisms such as institutional investors, the good characteristics of the board of directors and the audit committees have a positive impact on the financial and operating performance of the firm and on the performance of its shares. Moreover, Shammari and Al-Sultan (2010) pointed out in their study that the CG applied in Kuwaiti firms does not only affect the firm's performance indicators, but also drives these firms to improve different work areas that aim to gain the trust of users of their financial reports by providing them with appropriate information for decision-making in fair manner. These findings indicate that firms adhered in implementing CG will be more willing to disclosure voluntarily and be more explicit in this direction. Ammann et al. (2011) investigated the relationship between CG and firm performance in 22 countries. The results of their study indicated that there was a positive association between the two variables. In Bahrain setting, Khamis, et al. (2015) found that CG was significantly impact the firm performance for the period from 2007 to 2011. In the same vein, Najjar (2012) confirmed this positive impact between CG and firm performance for the period from 2005 to 2010 on the Bahrain stock exchange, specifically in insurance companies. Moving to Saudi Arabia, Fallatah and Dickins (2012) found that CG and firm value were positively related. Moreover, Al-Ghamdi and Rhodes, (2015) investigated the impact of family ownership on CG in Saudi listed companies (2006-2013). The results found that family ownership had a significant positive impact on performance. In addition, many researchers in the field of CG have indicated a set of relationships between CG and the financial analysis ratios of the firm. It has been demonstrated by Tang and Wang (2011) and Chung et al. (2011) studies that proper application of CG contributes in increasing and improving the firm's liquidity and therefore enhancing its ability to meet any future financial requirements. Furthermore, Kang and Kim (2011) found that firms with established CG have been less inclined to profit management practices. The above previous findings and discussions allow

the researcher of this study to formulate the following hypothesis.

H2: Good CG likely affects firm performance.

SMA is a generic approach of accounting with external and prospective orientation for strategic positioning (Carmen & Corina, 2009) and control activities (Groot & Selto, 2013). As mentioned earlier, some previous studies have confirmed the significant impact of SMA on firm performance (e.g. Ah Lay & Jusoh, 2011; Ahid & Augustine, 2012; Cadez & Guilding, 2012; Hammad et al., 2010; Trkman, 2010). However, SMA is the future of contemporary management that able to collect information about the competitors, product, and market, reduce costs and gain competitive advantages (Shah et al., 2011). Additionally, in Jordan, Al-Khadash and Feridun (2006) investigated the association between three SMA techniques (i.e. just-in-time, activity based costing, and total quality management) and the financial performance. Sixty-five industrial shareholding companies were investigated. Their study findings show that the use of these three SMA techniques affects positively the financial performance of sample companies. According to Sgroi et al. (2014), the adoption of new and advanced techniques in business can lead to achieve competitive advantages, which in turn leads to enhanced performance. Overall, based on the above finding and arguments, it is expected that adoption SMA can provide managers with necessary information that might in turn improves the way in which managers implementing in running the firm and consequently this may enhance the firm performance. Consequently, the researcher of this study suggests the following hypothesis.

H3: *The adoption of SMA likely affects firm performance.*

As mentioned above, good CG practices may result in enhanced firm performance; on the other hand it may influence the level of adopting of SMA in firms. A study by Wang & Huynh, (2014) reported that CG affects performance both directly and in interaction with the adoption of management accounting techniques. According to Cromie et al. (1995) the firm has to report its results to shareholders; therefore, it needs effective management accounting tools and techniques to monitor and control its activities. In addition, Christine et al. (2011) concluded that firms need to establish a separate management accounting unit equipped with formal and effective management accounting tools to enhance the role of outside independent directors. Christine et al. (2011) also found that professional outside independent directors strive to adopt and use of advanced management accounting systems. Moreover, in their study, Agrawal and Chadha (2005) found that firms with professional outside independent directors tend to have a more formalized management accounting systems which in turn creates more fair financial reports. However, CG matter is not universal (Conyon & He, 2016; O'Connor & Byrne, 2015), and it is not correct to generalize the mechanisms of CG and its impact on firm performance regardless of institutional and operational setting in each firm. O'Connor and Byrne, (2015) found that firm's settings (e.g. resources, functions, culture, characteristics, systems, etc.) lead to differences in CG level of practices, and therefore, differences in performance level. This result may explain the mixed results regarding the impact of CG on firm performance (Al-Saidi & Al-Shammari, 2015). For example, Buallay et al. (2017) investigated the impact of CG on firm performance of listed companies in Saudi stock exchange (N=171) for the period from 2012 to 2014. The results indicated that there was no significant impact for CG on firm's operational and financial performance in the firms under consideration. Accordingly, the researcher of this study can suggest that CG may interact with other variables or systems (e.g. SMA as advanced management accounting system), and this interaction may have a significant impact on firm performance. Since CG and SMA have a significant impacts on firm performance as proposed in H2 and H3, CG may moderate the relationship between SMA and firm performance. To the best researcher knowledge of this study, there is no evidence on this moderating relationship in the related literature; hence the researcher of this study would like to undertake attempt to investigate if CG plays a moderating role in the association between the adoption of SMA and firm performance. This attempt is also based on the suggestion of Baron and Kenny (1986), in which the association between independent variable(s) and dependent variable(s) (causal relationship) in research model is often not a simple bivariate. Sometimes, other variable(s) may moderate or mediate this association between an independent variable and a dependent variable. Rather, the majority of previous studies in the related fields of the present study deploy causal relationship between a predicting variable (CG or management accounting system) and a predicted variable (firm performance), where variable(s) is/are used as an antecedent of another variable(s) (Otley, 2016). In this type of causal model, variables are treated as "competing in explaining variation in outcomes rather than showing how variables combine to create outcomes" (Cadez & Guilding, 2012: 485). To overcome this limitation in previous work, and based on earlier discussion, the following hypothesis is formulated.

H4: CG may moderate the relationship between the adoption of SMA and firm performance.

Based on the above-mentioned hypotheses, the study model given in Figure 1 is developed.

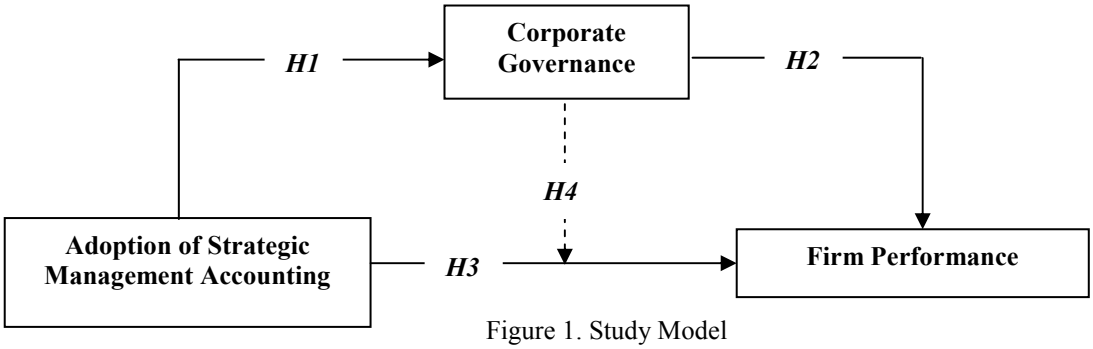

Figure 1. Study Model

3. Research Methodology

3.1. Study population sample and Data collection

The study population consists of 185 Saudi public companies from twenty one sectors which are listed at Saudi Stock Exchange by the end of 2017. The data used in this study was collected from Tadawul database for the period of 2013 to 2016 and from a mailed questionnaire survey. The criteria for inclusion in the study sample were that the data is available for the selected study period, companies have not been encountered the case of shut down, merge or acquisition during this period, and companies have a well-established accounting department and have been conducted their operations at least five years ago. After conducting final screening, the total number of companies included was 157 out of 185, and the study sample consisted of diverse listed companies from twenty sectors. After a phone call with each selected company, the name and email of the key-information providers was identified. Fortunately, all of the selected companies (N=157) agreed to participate, and the study questionnaires were delivered to their higher-level accounting managers, as key-information providers, by email. The responses in the first mailing were 109; however, one month later, the usable responses in the second mailing resulted in an additional 32 responses. Having investigated the responses, the researcher removed two responses with incomplete information. Thus, the study final sample consists of the 139 usable responses with an overall response rate of 88.5%.

Table 1 presents a sector distribution of the companies included in the sample for the period of 2013 to 2016. Table 1 shows that there are 24.46% of Saudi listed companies from Material sector, 13.67% from Insurance sector, 7.2% from Food and Beverages sector, 6.47% from Funds sector, 17.28% is distributed equally between Capital Goods, Banks and Real Estate Management and Development, and 30.92% from the other sectors. Time series and cross sectional data (pooled data) were used in the present study for data analysis purposes.

Table 1. The Sector Distribution of the Study Sample

Sector	Study Population	Study Sample	Percent %
Energy	4	4	2.87
Materials	42	34	24.46
Capital Goods	12	8	5.76
Commercial and Professional Service	2	2	1.44
Transportation	5	4	2.87
Consumer Durables and Apparel	5	5	3.6
Telecommunication Services	4	4	2.87
Food and Staples Retailing	4	3	2.16
Health Care Equipment and Service	6	6	4.32
Insurance	33	19	13.67
Consumer Services	6	4	2.87
Pharma and Biotech	1	1	0.72
Retailing	6	3	2.16
Media	2	2	1.44
Food and Beverages	12	10	7.2
Utilities	2	2	1.44
Diversified Financials	4	3	2.16
Banks	12	8	5.76
Real Estate Investment Traded Funds	12	9	6.47
Real Estate Management and Development	10	8	5.76
Equity Rights	1	0	0
Total	**185**	**139**	**100%**

3.2 Variable measurement

Most empirical work in the field SMA has conceptualized and opertionalized SMA based on the two main dimensions developed by Cadez and Guilding (2008). These dimensions are: (1) the adoption and use of SMA techniques and tools (SMAT) and (2) management accountant's involvement in strategic management processes (SMAI). Hence, deploying these two SMA dimensions has been used by most researchers as indicators for practicing SMA in firm (e.g. Ah Lay & Jusoh, 2011; Aksoylu & Aykan, 2013; Cadez & Guilding, 2008, 2012), the present study measures the level of using SMA technique in sample companies in the same approach of previous studies. Four SMA techniques (SMAT) that are cost process implementation techniques (SMAT1), performance evaluation adoption techniques (SMAT2), competitor oriented appraisal techniques (SMAT3), and customer oriented analysis (SMAT4), are employed for measuring the variable SMAT. Following the question "To what extent does your company use the following strategic management techniques and tools?", the four SMA techniques were listed together with a five-point scale ranging from "1" (not at all), to "5" (to a great extent).

On the other hand, the management accountant's involvement in strategic management processes (SMAI) was measured using Wooldridge and Floyd's (1990) instrument. This insurgent asked respondents to assess their involvements into five facets of strategic management process: (1) problem-identification and setting objectives, (2) generating and (3) evaluate alternatives, (4) developing details about alternative and (5) action plans to implement selected alternative(s). This scale is evaluated by using a 5-point scale ranged from "1" (not at all involved) to "5" (fully involved). However, in order to measure the adoption level of SMA in companies, the researcher is averaging the factors of the two SMA dimensions, which are SMAT and SMAI within one variable (i.e. SMA).

To measure the CG, the present study is based on some previous studies conducted in developed and developing countries including Saudi Arabia (e.g. Akbar et al., 2016; Ammann et al., 2011; Buallay et al., 2017; Chung et al., 2011; Gurbuz et al., 2010; Gurbuz et al., 2010; Haβ et al., 2016; Khamis, et al., 2015; Mishra & Mohanty, 2014; Shammari & Al-Sultan, 2010;Tang & Wang, 2011). Thus, the CG has been measured using the Size of the board of directors (CG1), Ownership of the largest shareholder (CG2), Ownership of management (CG3), Ownership of the three largest shareholders (CG4), Independency of board of directors (CG5) and Separation between the chairman and CEO (CG6). Following Akbar et al. (2016), the researcher of this study applies a dummy coding scheme to evaluate the level of practicing of the six CG measures (CG index) in Saudi listed companies. This way of evaluation gives a value of 1 if a company complies with a particular CG measure and 0 otherwise (See Table 2). Thus, the total score of the CG index comprises 6 points, which indicates higher CG practice. Next, the company's CG index is calculated as a percent of total score.

Following Buallay et al. (2017) and Roudaki and Bhuiyan, (2015) the firm performance (FP) in this study was measured using two proxies: return on equity (ROE) (FP1) and return on assets (ROA) (FP2). Averaging these two proxies is used to measure the firm performance (FP). Based on previous studies (Barros et al., 2013, Buallay et al., 2017; Guo & Kga, 2012; Yasar, 2013), four control variables will be used for the estimated study models. These variables are: company age (CVA), company size (CVS) and Sector type (CVST) and company's financial leverage (CVLV). Table 2 shows study variables labels, measurements and descriptive.

4. Analytical Procedures

After obtaining the data and before investigating the hypotheses of the study, a reliability analysis and factor analysis are carried out to evaluate the reliability and validity of the study scale. Additionally, Kaiser-Meyer-Olkin (KMO) test is also employed to measure sampling adequacy for each variable in the model and for the complete model. Moreover, the variance inflation factors (VIF) are tested to examine any multicollinearity problem that may be found in data. Next, regression analyses are carried out to investigate the causal relationships among CG, SMA, and firm performance. Finally, to examine the moderating role of CG in the link between SMA and firm performance, the researcher employs the interaction variable analysis.

Table 2. Variables Labels and Measurement

Factor	Variables	Labels	Measurements
Strategic Management Accounting (SMA)	Cost process implementation techniques	SMAT1	The extent of using activity-based costing, target costing, quality costing, attribute costing, and life-cycle costing.
	Performance evaluation adoption techniques	SMAT2	The extent of using balanced scorecard and benchmarking.
	Competitor oriented appraisal techniques	SMAT3	The extent of using competitive position monitoring and competitor cost assessment.
	Customer oriented analysis	SMAT4	The extent of using customer profitability analysis and customer valuation.
	Management accountant's involvement in strategic management processes	SMAI	The score obtained from responding on Wooldridge and Floyd's (1990) instrument.
Corporate Governance (CG)	Size of the board of directors	CG1	Coded as 1 if the board members are not between 7 and 13 members and otherwise as 0.
	Ownership of the largest shareholder	CG2	Coded as 0 if a shareholder has shares more than 20% and otherwise as 1.
	Ownership of management	CG3	Coded as 0 if manager has shares more than 20% and otherwise as 1.
	Ownership of the three largest shareholders	CG4	Coded as 0 if the shareholders have shares more than 50% and otherwise as 1.
	Independency of board of directors	CG5	Coded as 0 if the boards of director members are not controlled by greater than 50% independent outside directors and otherwise as 1.
	Separation between the chairman and CEO	CG6	Coded as 1 if there is a separation between the chairman position and CEO and otherwise as 0.
Firm Performance (FP)	Return on equity	FP1	Calculated by dividing net income on shareholder's equity
	Return on assets	FP2	Calculated by dividing net income on total assets.
Control Variables (CV)	Company Age	CVA	The natural log the number of years since the company was established.
	Company Size	CVS	The natural log of total assets
	Sector Type	CVST	Adding 20 dummy variables into the analysis
	Financial Leverage	CVLV	Calculated by dividing total assets on shareholders' equity

5. Findings and Discussion

Table 3 shows the means and standard deviations of the adoption level of SMA, CG index, firm performance measures, and other explanatory variables.

Table 3. Descriptive Statistics

Variable	Mean	Standard deviation
Adoption of SMA (SMA)	3.68	0.965
CG index (CG)	0.743	0.319
FP1 (ROE)	0.32	0.114
FP2 (ROA)	0.09	0.136
Firm Performance (FP)*	0.22	0.126
Company Age	19.45	9.11
Company Size	65,345	19,320
Financial Leverage	0.24	0.17

** FP is calculated by averaging the scores of ROE and ROA (see Wang & Huynh (2014)).*

Table 3 shows that the mean of CG index is 74.3% with a standard deviation of 0.319. This indicates that most of the sample companies have complied with the CG with a great variance. This figure is a good sign to a

country with a newly established CG mechanisms implemented since 2010. In addition, the mean of SMA adoption in the sample companies (M=3.68 out of 5) with a standard deviation of 0.965 indicates that most of the companies are in a good practicing of management accounting from a strategic perspective. Firm performance measure shows mean value of 22% with clear variances between companies under consideration. In addition, size, age and financial leverage show also considerable variances between the sample companies. To test the reliability and validity of the study scale, the researcher employs the reliability and factor analysis. Table 4 shows the results for these two analyses.

Table 4. Results for Reliability and Factor Analysis

Item	Factor Loadings			Communalities	Item-total Correlations	Cronbach's Alpha	N of Items
	SMA	CG	FP				
SMAT1	0.774			0.734	0.672	0.874	5
SMAT2	0.805			0.764	0.571		2
SMAT3	0.552			0.502	0.344		2
SMAT4	0.756			0.714	0.609		2
SMAI	0.854			0.818	0.714		5
CG1		0.754		0.707	0.588	0.833	6
CG2		0.721		0.674	0.615		
CG3		0.709		0.688	0.563		
CG4		0.766		0.732	0.507		
CG5		0.773		0.755	0.619		
CG6		0.752		0.741	0.551		
FP1			0.824	0.788	0.731	0.861	2
FP2			0.789	0.728	0.623		
VIF	**1.89**	**1.04**	**2.11**				
KMO	**0.913**						

From Table 4, the Cronbach's alphas for the three study factors (SMA, CG and FP) are all above 0.70, the reasonable threshold identified by Nunnally (1978). In addition, the item "SMAT3- Competitor oriented appraisal techniques" has item-total correlation of 0.344 which is smaller than 0.5, the acceptable limit by Nunnally (1978). This item thus is dropped from the data. The other items in the study scale score item-total correlations above 0.5. These results indicate that the present study scales achieve acceptable level of internal reliability and consistency. Furthermore, the observed values of VIF for the variables in the current study model are at acceptable level (less than 5 (Rogerson, 2001)), which indicates that no problem of multicollinearity exists for the present study data. Moreover, factor analysis presented in Table 4 shows that all the factor loadings and communalities are above 0.5, as the acceptable limit recommended by Hair et al. (2009). In addition, KMO value is 0.913 which is greater than 0.7, the lowest limit suggested by Hair et al. (2009). Consequently, the 13 retained items in study scale satisfy the reliability and construct validity.

To test if the data fits the study hypothesized measurement model, the researcher employs confirmatory factor analysis. The fit estimates for this model are presented in Table 5.

Table 5. Goodness of Fit Statistics for the Study Hypothesized Model

Fit Index	X^2/ *df*	TLI	GFI	AGFI	NFI	RMSEA
Value	1.87	.98	.96	.93	.98	.05
Result	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable

Note. χ^2 *=chi-square; df =degrees of freedom; TLI = Tucker-Lewis Index; GFI=the goodness of fit index; AGFI=the adjusted goodness of fit index; NFI=the normal fit index; RMSEA=the root mean square error of approximation.*

As seen from Table 5, all the indices for goodness of fit are at acceptable levels. Therefore, the study hypothesized model satisfies the all the indices of goodness of fit in tem of study data. To explore the causal relationships in the study model and test its hypotheses, the researcher employs the regression analyses. The results of these analyses are presented in the following tables (6 & 7).

Table 6. Regression Results

Explained Variable	Explanatory Variable	Coefficients	Standard Error	t-statistics	R^2	F_{value}	Supported
CG	SMA	0.309	0.022	7.762**	0.228	12.766**	H1
CG	SMA	0.232	0.054	11.03**	0.308	7.904**	H1
	CVA	0.107	0.085	3.557*			
	CVS	0.115	0.061	7.992**			
	CVST	0.135	0.033	8.221**			
	CVLV	0.123	0.037	4.542*			
FP	CG	0.189	0.082	12.341**	0.174	9.121**	H2
FP	CG	0.155	0.034	8.442**	0.189	8.973**	H2
	CVA	0.109	0.056	3.732*			
	CVS	-0.096	0.043	5.778**			
	CVST	0.112	0.214	-0.456			
	CVLV	0.121	0.088	6.249**			
FP	SMA	0.432	0.009	12.754**	0.298	11.809**	H3
FP	SMA	0.321	0.033	9.231**	0.311	10.764**	H3
	CVA	0.111	0.053	4.888*			
	CVS	-0.121	0.021	6.084**			
	CVST	0.165	0.301	-0.559			
	CVLV	0.208	0.045	4.432*			

*Note. **p < .001; *p < .01; all Durbin Watson statistic were between 2.21 and 2.51indicating no autocorrelation problem in the sample.*

It is shown from Table 6 that the adoption of SMA in the companies under consideration has a significant positive impact on CG index practices ($\beta = 0.309$, $P < 0.001$). In addition, the adoption of SMA accounts for 22.8% of the variation in CG index ($R^2 = 0.228$). Thus, the study *hypothesis H1* is statistically supported, which is consistent with previous studies (Sam et al., 2012; Seal, 2006; Soin & Collier; 2013; Wang & Huynh, 2014). This can be explained in the light of the role of advanced management accounting system in providing the directory board in company with useful and significant information in order to cope with the firm environment, and run it effectively, efficiently, and economically. Furthermore, SMA provides corporate boards with necessary information that help in offering appropriate suggestions and recommendations to the senior corporate officers (CEOs), so that those officers can make better decisions and manage the firm in the right direction (Kaplan & Norton, 2006). According to Larcker and Tayan (2013), some management accounting control systems can be effective ways to deal with the principal-agent problems and consequently reduce the agency costs (Larcker & Tayan, 2013).

The results also indicate that CG has a significant positive impact on company performance ($\beta = 0.189$, $P < 0.001$), in which the CG by itself explains 17.4% of variance in company performance ($R^2 = 0.174$), and thus statistically supported the study *hypothesis H2*. This result is consistent with previous studies (Akbar et al., 2016; Ammann et al., 2011; Chung et al., 2011; Gurbuz et al., 2010; Haβ et al., 2016; Khamis, et al., 2015; Mishra & Mohanty, 2014; Shammari & Al-Sultan, 2010; Tang & Wang, 2011). Therefore, compliance with CG is expected theoretically and empirically to help reduce the agency costs and thus positively influence the performance of companies. In addition, good GC provides the board of directors with the appropriate incentives to achieve company objectives, improving the effectiveness of the control measures by preventing manipulation, distortion and deception, and reducing the negative impact of information asymmetry phenomenon. This in turn contributes in diminishing the conflicts of interests among various parties (i.e. managers and owners), which result in reducing the agency cost (Larcker & Tayan, 2013). However, reducing the agency cost will therefore improve the efficiency of resource utilization (Ueng, 2016), help firms in creating competitive advantage, and enhance firm performance (Wang & Huynh, 2014).

Furthermore, the results also indicate that SMA has a significant positive impact on company performance ($\beta = 0.432$, $P < 0.001$), in which the SMA by itself explains 29.8% of variance in company performance ($R^2 = 0.298$), and thus statistically supported the study *hypothesis H3*. This result is consistent with previous studies (Cadez & Guilding, 2012; Hammad et al., 2010; Trkman, 2010; Ahid & Augustine, 2012; Ah Lay & Jusoh, 2011; Khadash & Feridun, 2006). This result may be explained in the light of SMA role in contemporary companies. SMA enables contemporary companies to collect information about the competitors, product, and market, reduce costs and gain competitive advantages (Shah et al., 2011), and it also provides managers with predictive and future oriented information for meaningful strategic decision making (Alleyne & Weekes-Marshall, 2011), which in turn enables managers to make right and rational decisions in facing rapid changes and uncertainties in surrounding environment, and thus improve their company performance.

As the present study focuses on the coefficients on the CG and SMA in the interpretation of the results, the control variables that are significantly associated with the CG, SMA and FP will not be discussed. The results regarding the impact of control variables indicate that CG and company performance are also driven by other factors such as company age, company size, sector type, and company financial leverage.

To test the forth study *hypothesis H4*, the researcher uses the interaction factor analysis. This is employed by adding interactive factor "CGXSMA" to the model and test whether this new variable affects company performance (FP). The following table presented the results related to test the forth study *hypothesis H4*. The results are presented in Table 7 shows that the factor "CGXSMA" has a positive a significant positive impact on company performance (FP) ($\beta = 0.165$, $P < 0.001$). The factor SMA with the factor "CGXSMA" are jointly explained 43.8% of the variation in company performance (FP). Furthermore, the coefficient value indicates that an increase in CG index by 1% will increase the impact of adopting SMA on company performance by 16.5%. Consequently, CG index level is statistically moderate the association between the adoption of SMA and company performance. Thus, companies which have a good CG practices can enhance the relationship between the adoption of SMA and their performance. In summary, this finding statistically supports the study *hypothesis H4* that CG *may moderate the relationship between the adoption of SMA and firm performance*.

Table 7. Results for Testing the Moderating Effect

Explained Variable	Explanatory Variable	Coefficients	Standard Error	t-statistics	R^2	F_{value}	Supported
FP	SMA	0.327	0.021	7.325**	0.438	8.777**	H4
	CGXSMA	0.165	0.034	8.007**			
FP	SMA	0.235	0.034	8.442**	0.453	8.973**	H4
	CGXSMA	0.113	0.056	6.209**			
	CVA	0.018	0.056	3.732*			
	CVS	-0.083	0.043	5.778**			
	CVST	0.213	0.214	-0.689			
	CVLV	0.222	0.076	5.099**			

*Note. **p < .001; *p < .01; all Durbin Watson statistic were between 2.01 and 2.17indicating no autocorrelation problem in the sample.*

Therefore, the adoption of SMA in company will enhance CG practices that in turn lead to improve company performance. This finding is partially consistent with the previous study conducted by Wang & Huynh (2014). Wang & Huynh (2014) reported that CG affects performance both directly and in interaction with the adoption of traditional and advanced management accounting techniques. Accordingly, company that adopts advanced management accounting system such as SMA has a good CG practices that in turn leads to improve company performance. This may due to the argument that SMA enables the company to report its results fairly to shareholders (Cromie et al., 1995), and enhances the role and professionalization of outside independent directors (Christine et al., 2011). In addition, O'Connor and Byrne, (2015) found that firm's resources, functions, culture, characteristics and systems lead to differences in CG level of practices, and therefore, differences in performance level.

6. Conclusions

The relationship between CG and firm performance has mixed findings. Although several prior studies have found significant positive relationships, other empirical studies found negative (Hutchinson, 2002; Giroud & Mueller, 2010) or no relationships (Castaner & Kavadis, 2013; Grove et al., 2011; Shank et al., 2013) between these two construct. This difference in results may be due to the difference in some company's internal and external factors such as company culture, leadership style, risk management, firm resources, country's institutional setting (O'Connor & Byrne, 2015), management accounting systems (Wang & Huynh, 2014) besides other factors. In addition, the relationship between SMA and firm performance is also not conclusive (Ah Lay & Jusoh, 2011), and suffers from a lack of empirically based research (Nixon & Bums, 2012). Some authors and researchers pointed out that the relationship between SMA and firm performance is rather ambiguous and needed for more contextual factors to make it clearer (Cadez & Guilding, 2012; Nixon & Bums, 2012; Otley, 2016).

Disagreements among researchers on the relationships between CG, SMA and firm performance make managers do not know the best practices of CG and how to implement these practices (Akbar et al., 2016). Accordingly, the present study mainly focuses on the interaction between CG and SMA and its impact on firm performance. In other word, the present study explores the moderating role of CG in the association between the adoption of SMA and company performance. This first attempt takes into account two main contextual factors (i.e. CG and SMA) that may have positive impacts on company performance, after controlling other influencing factors such as company size, age, belonging sector, and financial leverage.

However, none of prior studies have discussed and explored this moderating role of CG in the strategic company settings. As employed by previous studies, the findings of the present study offer statistical evidence on the causal relationships between SMA and CG, CG and firm performance, and SMA and firm performance. While the adoption of SMA has a significant positive impact on CG as well as firm performance, higher CG index leads to enhance firm performance. More importantly, the present study findings regarding the moderating role of CG reveal that CG index moderates the causal relationship between the adoption of SMA in company and company performance. Thus CG strengthened the relationship between the adoption of SMA and company performance. Contrary to what has been suggested previously, the adoption of SMA alone may be insufficient to determine company performance. Instead, the extent to which company compliances with CG practices yields differential impacts on company performance. Companies therefore need to exert additional effort in raising levels of CG practices as they do in ensuring that SMA in a positive light. Both CG and SMA are found to have positive impacts on company performance, however, the impact of SMA on company performance can be enhanced by higher compliance with CG practices regarding the size of the board of directors, the ownership structure, the independency of board of directors, and the separation between the chairman and CEO. In sum, The CG can encourage the use of SMA approach in the firm; in turn this leads the performance of the firm to be improved. The researcher of this study concludes that one of the most important roles of CG is to ensure that company adopts the strategic initiative such as SMA with a stake in successful outcomes. The adoption of SMA can provide a company's board of directors and executive team with an outward-oriented perspective (e.g. external and market- oriented information), specifically with regard to competitors, customers and the external environment (Kırlı & Gümüş, 2011), which in turn enhances the movement toward the corporate objectives and goals, the implementation of strategic plans, and the allocation of resources. In addition, key strategic decision (e.g. new market entries, mergers and acquisitions, pricing position, etc) require reliable and appropriate information and oversight of CG. As the board of directors have to help the COEs in balancing the short-term goals which is desired by shareholders with the long-term goals necessary to ensure the company's future performance, SMA, in the light of its strategic techniques and management accountant's participation in strategic making process, is consider a building block for achieving this balance. However, the present study offers company managers with better knowledge and understanding of how CG can play a significant role in enhancing the link between SMA and company performance. Matching between management accounting systems and CG is an essential decision that should take into consideration by contemporary companies since it will have a significant impact on their performance. In addition, it is recommended that contemporary company should use externally and market-oriented management accounting techniques that are more able to cope with the current ever-changing business environment, and meet the requirements of stakeholders, and in turn achieves higher performance. Besides, the participation of management accountant in strategic decision should also be enhanced.

As there is a paucity in studies examining the moderating role of CG in the association between SMA and firm performance, the present study findings provide additional insight into the interaction between CG and SMA on firm performance and therefore corroborates the suggestion of Baron and Kenny (1986), in which the association between independent variable(s) and dependent variable(s) (causal relationship) in research model is often not a simple bivariate, and other variable(s) may moderate or mediate this association between an independent variable and a dependent variable. In addition, this study corroborates that the mixed findings regarding the relationship SMA and firm performance may be due to the differences in some contextual factors (Cadez & Guilding, 2012; Nixon & Bums, 2012; Otley, 2016) such as CG.

Although, this study adds to the literature as well as to the practice, it should be assessed against some limitations. First, SMA measures were self-report scale based on one single informant from each company and taken at one point in time. This may raise the problem of common method bias, and future research should use a multi-informant method to overcome this problem. Second, the generalization of this study finding should be with care since this study is conducted in Saudi Arabia country. Future research might also consider examining the role of each CG measures on the association between SMA and firm performance to reflect a more overall picture. Other contextual factors such as firm resources, firm culture, firm structure, and country's institutional setting, environmental uncertainty, and intensity of competition can be taken into consideration by future research to investigate their impacts on the link between CG, SMA and firm performance. Hence, the resulting findings may provide us with a comprehensive picture in the subject of this study.

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