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Management Control Systems and Contextual Variables in the Hospitality Industry

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Abstract

This paper examines management control systems (MCS) in the Indonesian hospitality sector. More specifically, we examined the relationships between MCS and the contextual variables of environment, technology, structure, size, strategy and culture. We found that higher levels of technology, structure, and culture were related to more sophisticated MCS, while size was related to more traditional MCS. The present study is an extension of previous contingency-based studies that focused on just one aspect of contingency, instead of considering six contextual factors that may affect MCS. Furthermore, this paper contributes to a fuller understanding of MCS practices in Indonesia and the hospitality industry, and helps management determine the most effective MCS design.

Keywords Hospitality Management, Management Control Systems, Indonesia, Contextual Variables

Introduction

As the hospitality industry has become an important factor in most economies, there has been a call for further research on this industry, and, in particular, its relationship to management control systems (MCS) (Chenhall, 2003). In their review of hospitality studies, Harris and Brown (1998) cited the need for more empirical and contextual research on the hospitality industry. Haktanir and

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Harris (2005) noted that detailed studies of hospitality accounting have been limited, especially in the MCS area. As competition in the hospitality industry has increased and more effective operations and business decision-making activities have become more critical, there is a need for additional research to help hospitality managers design a better system that will allow them to focus on organizational strategies and achieve organizational goals.

Both quantitative and qualitative information play a key role in the management and decision-making activities of an organization. Accounting information, as part of the information systems (especially management accounting information), significantly contributes to the effective functioning of the management process. Management accounting provides information that is crucial for making effective decisions (Horngren, 2004), because it focuses on how management uses controls for planning and control activities.

When companies face increasing competition, management frequently reviews and adjusts company goals and strategies to cope with the changing business climate. An effective tool that management can use to encourage managers to achieve these goals and focus on organizational strategies is a formalized system called MCS (Horngren, Bhimani, Datar, and Foster, 2008). This study adopts the view that MCS can be conceptualized in terms of a continuum that ranges from traditional to sophisticated (Simons, 1995). Traditional MCS systems rely mainly on diagnostic controls, while sophisticated systems rely on a combination of belief systems, boundary systems, diagnostic control systems, and interactive control systems (Simons, 1995).

Chenhall (2003) cites six factors that affect the design of MCS in contingency-based management accounting: environment, technology, structure, size, strategy, and culture. The environment in which a company operates is often ever-changing and unpredictable, but sophisticated MCS can help management cope with unstable conditions in times of high uncertainty. Technology refers to the complexity of the business processes and the tools that management uses, which affect the level of MCS. Organizational structure is the way that an organization manages its employees in order to attain its organizational goals. A component of structure refers to the degree of decentralization. When the environment changes, either due to complexity or change in the size of the company, senior management often delegates decision-making to lower level managers. This creates the need for a more highly sophisticated MCS in order to integrate the different activities of many different managers. The culture of the country in which a company operates will also impact its decision making and strategies. In short, these six factors, often called contextual variables, will determine the level of sophistication or effectiveness of MCS.

This study tests the relationship of MCS to these contextual factors in the Indonesian hospitality industry. This study extends prior research in several ways. First, our investigation draws on the work of Chenhall (2003) and considers all six contextual factors of the contingency approach for predicting the design of MCS. This study examines multiple contextual factors at one time to determine the importance of each factor, rather than studying each factor in isolation. In addition to extending prior research on MCS, this study examines the relationship between relevant contextual factors and MCS in the hospitality industry. In particular, it is the first study to extend the literature on MCS to the Indonesian hospitality industry. By providing insights into the relationship of MCS and contextual variables, we provide preliminary evidence on the contextual factors that are important in designing a MCS for the hospitality industry in general, and the specific factors that are important for Indonesian managers in encouraging employees to achieve organizational goals.

This paper is organized as follows. The next section provides an overview of the literature and the paper's hypotheses. The research design and methodology then follow in Section 3. Results are presented in Section 4. Finally, Section 5 contains the summary and conclusions.

Prior Literature and Hypotheses

The purpose of management accounting is to provide information for decision making, motivate management behavior, and promote organizational efficiency and effectiveness. Consequently, management accounting draws on and uses information from the fields of behavioral science, organization, and decision-making (Belkaoui, 1980). Therefore, research into MCS also encompasses these fields (Hayes, 1977; Merchant, 1981; Dunk, 1989; Imoisili, 1989; Banker and Mashruwala, 2007; Durden, 2008; Modell, 2009; Ho, Huang and Wu, 2011).

The part of a formalized information system used by an organization to encourage its managers to attain the organizational objectives is called a MCS (Horngren et al., 2008; Juha-Pekka et al., 2011). Four levers of controls, including belief systems, boundary systems, diagnostic control systems, and interactive control systems have been used to measure MCS (Simons, 1995). Belief systems are formal systems used by management "to define, communicate, and reinforce the basic values, purpose, and direction for the organization" (Simons, 1994). These systems are communicated through formal documents, such as mission statements and statements of purpose. Formal systems used by management to establish rules and limits that must be respected by employees are called boundary systems. These systems are created through codes of business conduct, strategic planning systems, and operating directives. Boundary systems typically outline minimum

business standards that help the company avoid identified risks (Simons, 1994). Diagnostic control systems refer to formal feedback systems (budgets and business plans) used to monitor and correct deviations from standard performance procedures. Interactive control systems are formal systems used by top management in order to personally and regularly involve themselves in subordinate decision making (Simons, 1994). These systems create focus and ensure communication and education throughout the organization. MCS systems that focus mainly on diagnostic controls are considered more traditional systems, while MCS that use all four levers are considered more sophisticated systems.

The introduction of the contingency model from modern organization theory has contributed to the development of MCS, especially in explaining the factors affecting organizational performance. The appropriateness of different control systems depends on the business setting according to contingency control, though control system generalizations can be made for classes of business settings (Fisher, 1995). Additionally, more than one contingent factor can influence the effectiveness of MCS under the contingency framework. Hayes (1977) introduced three determinant factors of organizational performance: internal, interdependency, and environment. In an attempt to advance the knowledge of MCS and the relationship between budgetary aspects and performance (Ivancevich, 1976; Kenis, 1979; Merchant, 1981; Abernethy and Brownell, 1999), researchers added other factors in their models as moderating variables (Dunk, 1989; Imoisili, 1989; Kren, 1992, Indriantoro, 1993, Subramanian and Mia, 2001).

From the user's point of view, the contingency concept is critical in designing MCS to ensure that the system fits his or her needs. This proposition has been examined by researchers individually and simultaneously by researching the effects of the contextual variables of environmental uncertainty and organizational structure on MCS (Anshari, 1977; Gordon and Narayanan, 1984; Otley, 1999 and 2001). Additionally, Chenhall and Morris (1986) and Chenhall (2003) provided additional evidence on the effect of the contextual variable of job interdependency on MCS.

The three contextual variables of external environment, organizational interdependency, and organizational structure, and their relationships to MCS, consisting of scope and timeliness, as well as aggregation and integration, were examined by Chenhall and Morris (1986). They found that environmental uncertainty significantly correlates with the MCS characteristics of scope and timeliness, organizational interdependency with the MCS characteristics of scope, aggregation, and integration, and decentralization with the MCS characteristics of aggregation and integration. Additionally, they found an interaction effect of

environment uncertainty and decentralization on the MCS characteristics of scope and aggregation and an interaction effect of organizational interdependency and decentralization on the MCS characteristics of scope and integration.

In recent works based on a deductive research approach, Chenhall (2003) summarized that there are six contextual variables that affect the design of MCS. As shown in Figure 1, these contextual variables include environment, technology, organization structure, company size, business strategy, and culture.

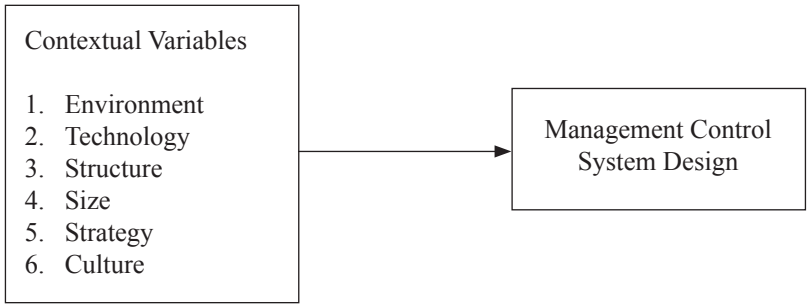

Figure 1: Relationships between MCS and Contextual Variables

In focusing on the hospitality industry, the Kosturakis and Eyster (1979) study of small hotel companies revealed that budgets were mainly used for control purposes. This is consistent with Cruz's (2007) findings of the common use of budgeting and budgetary control practice in the hotel industry in Portugal. Schmidgall and Ninemeier (1987) noted the increasing use of sophisticated control systems in multi-unit hotel chains, while Rusth (1990) noted that when environmental uncertainty is high, simplified budgeting control systems are more suitable for small or single-unit organizations. Additionally, research has found that the failure of MCS to use participation, feedback, communication, and training can lead to employee resistance, including attempts to manipulate or destroy the system (See Harris and Brown, 1998).

Environment

Since MCS are used to carry out organizational objectives and strategies, the design of a MCS depends on the environment the company is facing (Chenhall, 2003). According to Emmanuel et al. (1990), the relevant characteristics of environment affecting MCS are the degree of predictability, the extent of competition faced in the market place, and the number of different product-markets faced by a degree of hostility (price, product, technological and distribution competition). In conditions of a stable environment, traditional or less sophisticated MCS systems would be more appropriate for management decision making (Simons, 1995).

On the other hand, when environmental uncertainty is high, a more complicated and sophisticated MCS would be more appropriate to cope with the changing environment and help make more effective decisions. To cope with uncertain conditions, Simons (1995) suggests that the use of interactive control systems will be more effective. Chenhall (2003) suggests that as the uncertainty of the external environment increases, so too should the openness and the external focus of the MCS.

A steady stream of prior research has confirmed that the level of environmental uncertainty is associated with the design of MCS (see Chenhall, 2003). In consistency with prior research, we formulated the following hypothesis:

H1: Higher levels of environmental uncertainty will be associated with more sophisticated MCS.

Technology

Though technology has many meanings in the context of organizational behavior, it generally refers to how the organization transforms input into output, including hardware, materials, people, software, and knowledge (Chenhall, 2003). Literature has defined technology in terms of five different dimensions: technical complexity (Woodward, 1965), operations technology and variability (Hickson, Pugh and Pheysey, 1969), interdependence (Hrebiniak, 1974), routine and non-routine (Perrow, 1967 and 1970), and manageability of raw material (Mohr, 1971).

Bell (1965) found that the components of technology can be a predictor of MCS. Using interdependence as a dimension of technology and MCS as defined by operating budgets and statistical reports, Macintosh and Daft (1987) found that interdependence activities highly relied on operating budgets and statistic reports. By extending the technology concept to include automation, Abernethy and Lillis (1995) found that flexible machine systems also affected the MCS design. Chenhall (2003) notes that organizations producing highly specialized, non-standard, or differentiated products require controls to encourage flexible responses, higher levels of open communications and a MCS that can manage the interdependencies. Abernethy, Bouwens, and Van Lent (2004) went on to prove that companies having advanced technologies, characterized by high levels of interdependence, have more informal controls of MCS. Based upon prior research, we would expect that technology will affect MCS and formulated the following hypothesis:

H2: Higher levels of organizational technology will be associated with more sophisticated MCS.

Structure

Structure is concerned with the official of roles of an organization's members, designed to ensure that the organizational activities are carried out (Chenhall, 2003). Employee motivation, efficiency of work, information flow, and control systems are affected by the structural arrangement. The general typology of structure frequently cited in literature is the one developed by Pugh et al. (1969a and 1969b). This typology structure includes the dimensions of integration, formalization, specialization, and decentralization. Using the decentralization dimension in their case study approach for a Finland company setting, Haldma and Laats (2002) found support for the relationship between structure and MCS. In general, high levels of structures are associated with more sophisticated MCS, which enables organizations to cope with the complexities involved. However, Abernethy and Stoelwinder (1990) found that in a public hospital setting, structure did not affect the choice of the MCS. As the majority of previous research supports the relationship between structure and MCS (see Chenhall, 2003), we proposed the following hypothesis:

H3: Higher levels of organizational structure will be associated with more sophisticated MCS.

Size

Firm efficiency seems to improve with the growth of a company as there is more opportunity for specialization and division of labor. As an organization becomes larger, it also begins to increase controls, in order to handle greater quantities of information (Chenhall, 2003). This argument is consistent with that of Merchant (1981), who defined size as a complexity in business and concluded that when complexity is increased, the use of budgeting as a control tool will also grow. Except for the studies summarized by Fisher (1995) and Chenhall (2003), few studies have explicitly examined the relationship between the contextual variable of size and MCS design. Chenhall (2003) argued that the larger the size of an organization, the greater the emphasis on and participation in budgets and sophisticated controls. These propositions lead to the conclusion that MCS design will be contingent on size. This leads us to the following hypothesis:

H4: Size of an organization will be positively associated with sophisticated MCS.

Strategy

Strategy is the means through which managers can influence the nature of an organization's culture, external environment, technologies, structural arrangements, and the MCS (Chenhall, 2003). Prior research has noted a

relationship between strategy and MCS (Merchant, 1981; Simons, 1987 and 1991; Govindarajan and Gupta, 1985; Govindarajan, 1988; Govindarajan and Fisher, 1990; Marginson, 2002). When organizations are faced with changing or highly competitive environments, strategy becomes more intense and more sophisticated levels of MCS are employed. Chenhall (2003) notes that more formal and traditional MCS are associated with strategies of conservatism, defender orientation, and cost leadership. Prior research led to the formulation of the following hypothesis:

H5: Higher levels of strategy will be associated with more sophisticated MCS.

Culture

Countries possess different cultural characteristics, which in turn predisposes individuals within different cultures to respond to MCS in distinctive ways (Chenhall, 2003). Though previous research on the relationship of culture to MCS has tested culture through social controls (Hopwood, 1976) and boundary systems (Simons, 2000), the most frequently used typology of culture is national culture, as developed by Hofstede (1991). National culture includes the five dimensions of power and distance, individualism and collectivism, masculinity and femininity, uncertainty avoidance, and Confucian dynamism.

Previous research has found a relationship between culture and MCS (Chenhall, Hall and Smith, 2010). Harrison and McKinnon (1999) identified twenty studies over the past ten years that support the relationship between culture and MCS. Chow, Shields and Wu (1999), using the Hofstede typology of culture and seven dimensions of MCS, found the importance of culture on MCS design. The findings suggest that when organizational culture stresses openness, transparency, equality, and sound values, there is more reliance on traditional MCS, while organizations with highly unsettled cultures rely more on sophisticated MCS. The following hypothesis was formulated based on prior research:

H6: Higher levels of organizational culture will be associated with more sophisticated MCS.

Research Design and Methodology

Sample Selection

The sample frame for our study came from a report created by the Indonesian government's tourism unit that contained all "star" hotels in Central Java, Indonesia. A total of 141 hotels in nineteen regions were contacted to confirm their "star" status, and to determine their willingness to participate in the survey. Fifty hotels were dropped from the sample, as they either declined to participate

or were no longer "star" status hotels, resulting in a final sample size of ninety-one hotels in thirteen regions of Central Java. Questionnaires were sent via courier and regular mail to these ninety-one star hotels. Each hotel was provided with three envelopes, one each for the general manager, marketing manager, and operational manager. In total, 273 questionnaires were sent out and 137 questionnaires were returned. Of these questionnaires, sixty-two were eliminated due to incomplete responses, resulting in a final sample size of seventy-five usable questionnaires.

Instrument

Subjects received a fifteen-page questionnaire designed to solicit their perceptions of MCS and the contextual variables of environment, technology, structure, size, strategy, and culture for the hotels where they worked (Appendix I). All questions, with the exception of MCS–focused inquiries, were taken from instruments used in prior research (Indriantoro, 1993;Govindarajan and Fisher, 1990; Miles and Snow, 1978; and Pugh, Hickson, Hinings, Turner, 1969a). Items concerning MCS variables were based on Simons' (1995 and 2000) four dimensions – belief system, boundary system, diagnostic control system, and interactive control system. All responses were gauged on a six-point response scale.

Model

Based on previous research, we used a multiple regression model to test the relationship between MCS and the contextual variables of environment, technology, structure, strategy, culture, and size. Our model represents a main effect regression as suggested by Fisher (1995), and previously used by Alexander and Randolf (1985) in their study on contingency factors of technology and structure. Additionally, we used the contextual variables as suggested by Chenhall (2003) to test our hypotheses, as he notes that much is to be gained by simultaneously considering the elements of environment, technology, strategy, and structure and their relationships with MCS. Our hypotheses were tested through the following regression equation:

$$MCS_i = b_0 + b_1 Environment_i + b_2 Technology_i + b_3 Structure_i + b_4 Size_i + b_5 Strategy_i + b_6 Culture_i$$

Where:

i = firm

Dependent Variable

Management Control System: MCS is defined as the perceived usefulness and importance of the system based upon Simons' four levers of controls (1995 and

2000). These levers of control include belief system, boundary system, diagnostic control system, and interactive control system. MCS that focus mainly on diagnostic controls are considered more traditional systems, while MCS that use all four levers are considered more sophisticated systems. Subjects were asked to respond to a series of sixteen belief system items, forty-eight boundary system items, twenty-nine diagnostic control system items, and fourteen interactive control system items relating to their work situations, using a six-point scale where 1 = "Extremely low" and 6 = "Extremely high". Total MCS score was calculated by averaging the response to each of the 107 items. Higher scores indicate reliance on all four levers of control (sophisticated MCS), while lower scores indicate reliance on diagnostic controls only (traditional MCS).

Independent Variables

Environment: This study defines environment as business uncertainty according to Miles and Snow (1978). This construct includes competitors' actions, technology, product attributes/design, market demand, raw material availability, raw material prices, government regulations, and labor union actions. Managers were asked their perceptions of how these eight factors related to the hotel where they worked using a six point scale where 1 = "Extremely difficult to predict" and 6 = "Extremely easy to predict". The environment score was calculated by averaging the response to each of the eight items. Lower scores indicate environments with high uncertainty, while higher scores indicate stable environments.

Technology: Technology is defined according to Pugh et al. (1969a) as the workflow activities and is applicable to service companies, such as hotels. This construct includes repeat-cycle equipment, single purpose equipment, fixed line operation, single point procedure, waiting time, buffer stock, breakdown workflow, output of workflow, and precise specification-based evaluation. Subjects responded to nine items concerning the use of technology in their hotels using a six-point scale, where 1 = "Extremely low" and 6 = "Extremely high". The technology score was calculated by averaging the response to each of the nine items. A lower score indicates low complexity of operations while higher scores indicate more complex operations.

Structure: Structure is based on Pugh et al. (1969a) and includes the four dimensions of integration, formalization, specialization, and decentralization. Subjects responded to three integration items, ten formalization items and fourteen specialization items concerning the structure of their hotels using a six-point scale, where 1 = "Extremely rare to use" and 6 = "Extremely often used". Additionally, they responded to ten decentralization items using a six- point scale, where 1 = "Decision Made by Top Management" and 6 = "Decision Made by Individuals under First Level Supervision". The total structure score was calculated by

averaging the response to each of the thirty-seven items. A higher score indicates a more complex organization of operations, while lower scores indicate simpler organizational structure.

Company size: Company size measures the complexity of a company (Merchant, 1981 and Al-Khadash, 2003). As complexity in a company increases, total assets, employees, and sales often increase as well. Because many of the hotels are privately owned in Indonesia, information concerning total assets and sales is not publicly available. This study used the number of employees as supplied by respondents to measure size, consistent with prior research (Merchant, 1981).

Strategy: Strategy is operationalized per Govindarajan and Fisher (1990) as the level of competition and includes the categories of cost leadership, differentiation, and niches. Items included in this construct include pricing, research and development cost, product quality, brand, and product feature. Subjects were asked to position their companies relative to their competitors for each of these five items based upon a six-point scale where 1 = "Extremely low" and 6 = "Extremely high". The strategy score was calculated by averaging the response to each of the five items. Higher scores are indicative of a more competitive environment.

Culture: Culture is operationalized using Indriantoro's (1993) questionnaire, which was based upon Hofstede (1991) typology. This typology includes power and distance, individualism and collectivism, masculinity and femininity, and uncertainty avoidance. It represents the levels of openness, transparency, equality and other values of corporate culture. Based on their work settings, subjects were asked to respond to twenty-nine questions using a six-point scale where 1 = "Strongly disagree" and 6 = "Strongly agree". Total culture score was measured by averaging the response to each of the twenty-nine questions. Low scores are indicative of sound company values.

Results and Discussion

Validity and Reliability

Validity tests were conducted for all variables to determine the reliability of the research instrument. A high reliability measure indicates that repeated administration of the instrument to the same or similar groups of people would produce the same results. The results of our tests indicated that all 107 items for MCS, eight items for environment, nine items for technology, thirty-seven items for organization structure, five items for strategy, and twenty-nine items for culture appeared to measure their respective constructs, since all Cronbach's

alphas were high and the data collected were consistently reliable. The variables had a Cronbach's alpha of 0.973 for MCS, 0.629 for environment, 0.783 for technology, 0.938 for structure, 0.790 for strategy, and 0.776 for culture.

Descriptive Data

Table 1 shows the response means, standard deviations, and correlations for each of the dependent and independent variables. The average mean score for MCS was 4.09, while the average mean scores for environment, technology, structure, size, strategy and culture were 3.89, 3.78, 3.90, 67.84, 4.21 and 4.17, respectively. Of the contextual variables, technology, structure, strategy, and culture were significantly related to MCS at $p < .05$.

Table 1: Average
Descriptive Statistics and Correlations for MCS and Contextual Variables

Variable	Mean	SD	MCS	Environment	Technology	Structure	Size	Strategy
MCS	4.09	.546						
Environment	3.89	.684	-.0528					
Technology	3.78	.494	.5936*	.0509				
Structure	3.90	.598	.5605*	-.197**	.4266*			
Size	67.84	34.08	-.0874	-.4285*	.1418	.0552		
Strategy	4.21	.543	.3172*	.2401*	.5031*	.3012*	.0642	
Culture	4.17	.400	.3510*	.0087	.2517*	.1087	.1190	.1337

*$p < .05$

Table 2 shows the breakdown of the respondents by employee position. Twenty-two general managers, twenty-six marketing managers and twenty-seven operational managers completed the questionnaires. ANOVA testing was performed to determine if there was a difference in responses for each variable

Table 2: Average
Descriptive Statistics Based on Respondent Category

Variable	General Manager Mean (Stand. Dev.) N = 22	Marketing Manager Mean (Stand. Dev.) N = 26	Operational Manager Mean (Stand. Dev) N = 27
MCS	4.06 (.457)	4.16 (.679)	4.05 (.477)
Environment	3.73 (.707)	4.01 (.656)	3.90 (.689)
Technology	3.71 (.468)	3.88 (.513)	3.74 (.497)
Strategy	4.26 (4.80)	4.19 (.549)	4.18 (5.98)
Size	68.68 (35.29)	68.92 (33.48)	66.11 (34.90)
Structure	3.99 (.614)	3.97 (.618)	3.75 (.556)
Culture	4.20 (.403)	4.17 (.358)	4.13 (.446)
N (%)	22 (9.33%)	26 (34.67%)	27 (36%)

by manager level. The results of our ANOVA test, as shown in Table 3, show that all variables were insignificant, indicating that responses did not differ for the different levels of management.

Table 3: Analysis of ANOVA between General Managers, Marketing Managers and Operational Managers

Variables	Mean of Square	F-Value	Sig*
MCS	.298	0.29	0.750
Environment	.467	1.02	0.367
Technology	.244	0.87	0.422
Structure	.358	1.28	0.285
Strategy	.295	0.16	0.849
Culture	.160	0.21	0.808

*$p < 0.05$

Test of Hypotheses

Table 4 shows the results of the regression equation examining the dependent variable of MCS and the six contextual variables of environment, technology, structure, size, strategy and culture. The model was significant at $p < .000$ and had an adjusted R-squared of .5248. The results of our hypotheses are as follows:

Environment: Hypothesis 1 posits that higher levels of environmental uncertainty will be associated with more sophisticated MCS. The results in Table 4 show that the contextual variable of environment was not significantly related to MCS, indicating that environment does not affect MCS and Hypothesis 1 is not supported. Though this finding is consistent with the findings of Subramaniam

Table 4: Average
Regression Result MCS and Contextual Variable

Variables	Coefficient	Std. Error	t	Sign.
(Constant)	.174	.629	.028	.782
Environment	-.043	.083	-0.52	.608
Technology	.451	.111	4.05	.009*
Structure	.324	.086	3.78	.000*
Size	-.004	.001	-2.72	.008**
Strategy	.011	.098	0.11	.910
Culture	.318	.112	2.83	.006*
F Value = 14.44				.000*

Dependent Variable: MCS
*Significant at 1%
**Significant at 5%

and Mia (2001), it contradicts the findings from the studies of Chenhall (2003), Simons (1995), and Emmanuel, Otley, and Merchant (1990).

Technology: Hypothesis 2 states that higher levels of organizational technology will be associated with more sophisticated MCS. As shown in Table 4, technology was significantly positively related to MCS at $p < .009$, thus supporting Hypothesis 2. This indicates that at higher levels of technology, a more sophisticated MCS system is needed to handle the complexities of the organization. This finding is consistent with those of Macintosh and Daft (1987), Abernethy and Lillis (1995), and Abernethy et al. (2004).

Structure: According to Hypothesis 3, higher levels of organizational structure will be associated with more sophisticated MCS. As shown in Table 4, Hypothesis 3 is supported as structure was significantly related to MCS at $p < .000$. This suggests that when structure is complex, a more sophisticated MCS is needed to manage the complexities of the organization. These results are consistent with those of Haldma and Laats (2002).

Size: Hypothesis 4 states that the size of an organization will be positively associated with sophisticated MCS. Table 4 shows that size was significantly negatively associated with MCS at $p < .08$. These findings are inconsistent with Hypothesis 4, as we predicted that size and MCS would be positively related. Thus, Hypothesis 4 is rejected. Our results suggest that as firms grow in size, they tend to rely on more formal traditional MCS. These findings are contrary to the findings of Merchant (1981) and Chenhall (2003). Our results might be due to the fact that none of the hotels in our survey were extremely large. The average hotel in our sample size had sixty-eight employees, with the smallest hotel having fifteen employees and the largest having 138 employees. With such relatively low numbers of employees, it may be possible to effectively manage a hotel through the use of more budgeting or traditional MSC, where a large hotel may require a more sophisticated MCS.

Strategy: Hypothesis 5 posits that higher levels of strategy will be associated with more sophisticated MCS. Contrary to Hypothesis 5, Table 4 shows that strategy was not significantly related to MCS. Thus, the MCS structure does not appear to be influenced by the strategy that managers use to influence the culture, structure, technology and external environment of the organization. This finding contradicts the findings of previous studies conducted by Merchant (1981), Govindarajan and Gupta (1981), Govindarajan (1988), Govindarajan and Fisher (1990), and Marginson (2002) who all found a positive relationship between strategy and MCS.

Culture: Hypothesis 6 states that higher levels of organization culture will be associated with more sophisticated MSC. Table 4 shows that Hypothesis 6 is supported, as culture was significantly positively related to MCS at $p < .006$. These findings suggest that when corporate culture is strong, supporting openness, transparency, and equality, there is less need for sophisticated MCS systems because traditional MCS systems meet organizational needs. This finding is consistent with those of Harrison and McKinnon (1999) and Chow et al. (1999).

Overall, we found that the variables of technology, organizational structure and culture were positively associated with sophisticated MCS, while the size of an organization was negatively associated with sophisticated MCS. Additionally, we found that the variables of strategy and environment were not related to MCS.

Summary and Conclusion

The purpose of this study is to contribute to the limited body of knowledge regarding MCS in the hospitality industry. According to Chenhall (2003), the MCS of an organization is a broad concept and thus it is important to consider many different elements of control. Thus, this study provides insights into how multiple contextual variables impact the structure of MCS systems in the Indonesian hospitality industry. In particular, we examined the contextual variables of environment, technology, organization structure, size, business strategy, and culture. Ninety-one hotels in thirteen regions of Central Java, Indonesia were sent questionnaires, one each for the general manager, marketing manager and operating manager. A total of seventy-five usable questionnaires were returned. The results of the survey show that the contextual variables of technology, structure, size, and culture affected the organization's MCS in the hospitality industry.

As predicted, the relationship between MCS and technology, structure, and culture were positively related, indicating that higher levels of technology, structure, and culture are related to more sophisticated MCS. These results are not surprising, as it would be expected that the hospitality industry would encourage flexible response and higher levels of communication with customers and, consequently, with upper management. This would result in more flexible, sophisticated MCS that would enable the organization to cope with different complexities and issues that arise from dealing with their varied customers.

Interestingly, the relationship between MCS and size was the opposite of what was expected, indicating that larger organizations tend to rely more on traditional

MCS. These results could be caused by the small size of the hotels used in the study, as the average hotel surveyed employed sixty-eight employees, and the largest hotel employed only 138 employees. The results of prior research that showed the positive relationship between MCS and size may only be applicable to much larger companies.

Contrary to prior research, no support was found for a relationship between MCS and the contextual variables of environment and strategy. Thus, the level of environmental uncertainty, which includes competitor's actions, technology, product attribute/design and government regulation, does not appear to impact controls systems in the hospitality industry in Indonesia. Additionally, MCS are also not affected by the strategies that managers of hotels use to influence the culture, structure, technology and external environment of the organization.

Furthermore, we found no differences in results when examining the various levels of managers. These findings suggest that perceptions of middle and upper level managers are the same regarding what contextual factors are important in influencing MCS design.

The main contribution of this study is in furthering the understanding of the relationship between MCS and contextual variables. It is one of the first studies to consider the relationship of six contextual factors at one time. This study goes beyond other contingency-based studies, which have previously focused on one aspect of contingency at a time. Additionally, we added to the research into MCS in the hospitality industry. Our results provide insights into how the contextual factors affecting MCS design can influence the behavior of managers in the hospitality industry, in general, and the Indonesian hospitality industry specifically. In particular, these results can help provide managers with clear views of their organizations and how to manage them.

Several limitations of the current study are acknowledged. Although established measurement instruments were used in most of the study, the MCS items used in the questionnaire were original. Secondly, the use of data restricted to the hospitality industry in Indonesia could limit the generalization of the results to other contexts outside Indonesia and other industries. Future research could examine different settings (i.e. country, industry, etc.) and investigate the effect of each contextual variable on the relationships between MCS and firm performance.

Notes

1. Traditional MCS focuses on specific operating goals and budgets, cost controls, and rigid budget controls (Chenhall, 2003).
2. The attached survey represents an English translation of the original survey, which was written in Indonesian.
3. Becausesize is measured by the number of employees at each hotel, all managers at the same hotel would have the exact same size measurement.
4. The homogeneity of variance between manager types for each variable except size was tested to ensure that the assumptions for ANOVA were met. The results of the Levene test are insignificant for all variables, suggesting the same variance for all manager groups. Furthermore, redundant responses from each manager of the same hotel may contribute to the insignificance of the results.

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