Exploring the Relationship between Formal Management Control Systems, Organisational Performance and Innovation: The Role of Leadership Characteristics

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ABSTRACT

Manuscript type: Research paper
Research aims: This study aims to examine the relationship between the formal management control system (MCS) on organisational performance and innovation. It also evaluates the role of leadership characteristics as the moderating variable between MCS and innovation.
Design/Methodology/Approach: This study employs a survey questionnaire, and data collected from business units of Indonesian manufacturing and services firms. The warp partial least squares structural equation modeling (PLS-SEM) approach was employed to analyse the data and test the proposed model.
Research findings: The findings demonstrate that: (1) A well-designed formal MCS can improve organisational performance and innovation; (2) managers with good characteristics such as showing good behaviour through compliance with company rules, involving themselves in subordinates' activities, and supporting subordinates' ideas, can improve subordinates' creativity in producing innovation.

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Theoretical contribution/Originality: This study expands the existing literature by examining the role of leadership characteristics as a moderating variable between the formal management control system (MCS) and innovation.
Practitioner/Policy implications: The findings of this study demonstrate that, for Indonesian firms to compete in globally-competitive markets, they need to implement well-designed formal MCS. For formal MCS to contribute to innovation, managers who demonstrate good leadership characteristics are crucial.
Research limitation/Implications: Future research can investigate comparative analyses of different ASEAN countries since different Asian countries have different dominant cultures and values, which may have some impact on MCS, organisational performance and innovation. It may also consider how different types of MCS improve organisational performance and innovation performance.

Keywords: Management Control Systems, Organisational Performance, Innovation, Leadership Characteristics
JEL Classification: M41

1. Introduction

As the Indonesian economy progressed beyond its predominantly agricultural base to the manufacturing and service industries, Indonesia has increasingly positioned itself as an attractive destination for foreign investment due its cost-effective and abundant labour resources (Fu et al., 2018). While globalisation has provided opportunities for the manufacturing and service industries, these sectors face significant challenges due to intense competition, particularly from China. The fast pace of technological and scientific changes have further impacted the competitiveness of local firms.

Within the literature, innovation has been shown to be crucial for organisational performance (Shanker et al., 2017; Singh et al., 2017). Organisational abilities to innovate help them gain sales and revenues, thereby leading to sustainability (Tuan et al., 2016; Indriastuti et al., 2017). On the same note, other studies have evidenced relationships between management control systems (MCS) and organisational performance (Nguyen et al., 2017; Daina et al., 2019). MCS is a process in which management has the authority to influence subordinates to achieve organisational goals. Anthony (1965) defined MCS as a process in which managers ensure that resources are obtained and used

effectively and efficiently in achieving organisational goals. It plays an important role in a company's strategy implementation process by helping managers to capitalise on their concerns, free them from decisions that can be delegated and controlled by exception, and provide information when informal networks are redundant (Davila & Foster, 2007). A well-designed control system will improve organisational performance because employees adhere to a system to achieve company goals. Apart from organisational performance, MCS also relates to innovative processes. MCS can provide plenty of information from various sources, therefore facilitate comprehensive decision-making for innovation (Chenhall & Moers, 2015). A well-designed control system can stimulate employees to think creatively and innovate. However, Henri and Wouters (2019) stated that MCS has not been able to improve organisational performance. While having various information absolutely provide more comprehensive insights to support decision making for innovation, having too much information can cause conflicting goals and result in information overload. MCS becomes more complex when it has multiple controls associated with multiple relationships that depend on the environmental context (Chenhall & Moers, 2015). The inconsistent results from earlier empirical works imply that there is a possible moderating variable that may affect the relationship.

Ko et al. (2018) explained that employees are more likely to engage in self-gratification under uncertain business environments, hence guidelines that contain clear rules are needed to facilitate goal alignment. In such situations, managers need to monitor subordinates' behaviour to work in accordance with managerial expectations so that the company's goals can be achieved. However, monitoring of subordinates' behaviour is not sufficient. Managers must be involved in subordinates' activities to ensure that subordinates' work aligns with a company's goals. A company that is led by a manager who demonstrate good leadership characteristics can affect an employee's behaviour at work. Managers' good characteristics can be shown by their involvement in providing and developing ideas with subordinates (Chenhall et al., 2011; Mustamil & Najam, 2020) and managerial involvement in supporting innovation (Barham et al., 2020). Hence, this study contributes to the existing literature by examining the role of leadership characteristics as the moderating variable between MCS and innovation in the Indonesian large manufacturing and service firms. It also investigates the impact of MCS and innovation on organisational performance. In exception to Nguyen et al. (2017), there is a lack of study in this line of research.

The remaining sections of this paper are organised as follows. Section 2 reviews the literature on MCS, and its theoretical development. Section 3 discusses the methodology employed while Section 4 reports on the results. Section 5 discusses the findings and Section 6 concludes the paper by focusing on the implications for management and theory.

2. Literature Review

2.1 Resource Based View

This study employs the resource based view (RBV) theory as the underpinning theory. The theory highlights that organisational performance is influenced by the existence of resources that are valuable, rare, non-substitutable and imitable (Barney, 2001). The RBV theory suggests that for an organisation to achieve its goals, its internal structure needs to adapt to external conditions and environments. They need to be able to configure its internal resources to successfully acquire external resources. Firms with high capabilities to identify trends in the external environment, absorb, reconfigure and assimilating the external resources is likely to continuously renew their resources. The mutual adaptation involves planning and control, such as compensation and evaluation, incentive and benefit, information sharing and cross-communication (Hasanudin et al., 2019), which requires a control system. Thus, organisations that are able to acquire and exercise control over resources can use them to gain competitive advantage. Based on this theory, the present study postulates that organisations that use resources which include MCS and leadership characteristics can improve innovation performance, which eventually is expected to lead to organisational performance.

2.2 Management Control Systems (MCS), Innovation and Organisational Performance

The main purpose of MCS is to ensure a degree of goal alignment. The alignment of goals is influenced by the formal and informal systems that exist in the MCS. Formal MCS includes strategic planning, budgeting and reporting, as well as rules covering instructions, standard operating procedures, and guidelines (Anthony & Govindarajan, 2011) that are visible, clear, objective and measurable. Informal MCS however, is not consciously designed. It includes the unwritten policies of the

organisation, often derived from organisational culture. However, this study focuses on formal MCS. There are four types of formal systems highlighted in the literature (Simons, 1994), which includes: 1) Belief System – This system is used by top managers to define, communicate and reinforce basic values, goals and direction of the organisation, which are highlighted in documents such as a statement of vision, mission and goals. 2) Boundary System – This system is used by top managers to set boundaries and explicit rules that must be followed, which are created through codes of business conduct, strategic planning systems and operating directions provided to business managers. 3) Diagnostic Control System – This system is a feedback system that is used to monitor organisational outcomes and deviations from predetermined performance standards, which are exemplified by business plans and budgets. 4) Interactive Control System – This system is used by top managers to regularly and personally involve themselves in sub-ordinates' decision-making activities, whereby the focus is to ensure dialogue and learning throughout the organisation.

The relationship between MCS and firm performance have been well-documented in previous literature (Diefenbach et al., 2018; Duréndez Gómez-Guillamón et al., 2016). MCS has become a prime tool that facilitate managers in planning, budgeting, analysing, measuring and evaluating information for effective decision-making (Cosenz & Noto, 2015). It helps to enhance mutual commitment and coordinate action towards desired outcomes. For example, in uncertain business environments, firms tend to drift away from their underlying values due to unpredictable changes. Here, the existence of belief control system provides a relatively stable reference point for individuals to make judgments that are aligned with the strategic intent of the organisation. It provides a common basis of understanding, resolve conflicting interests and facilitate the collaboration between organisational members with disparate experiences and knowledge, in order to arrive at new ideas. Based on these arguments, this study postulates that:

H_1: Formal MCS has a positive relationship with organisational performance.

Much literature have examined the relationship between formal MCS and innovation (Speklé et al., 2017; Sa'adon et al., 2019; Beuren et al., 2019). The literature highlighted that interactive control system can be used as a tool to increase the capacity to process information and encour-

age active interaction, since it involves discussions between subordinates and managers. Ongoing dialogues and exchange of ideas help them to critically evaluate achievements in terms of quality, productivity and effectiveness of new products or processes introduced (Koufteros et al., 2014). The active communication can assist in the learning process and enhance employees' creativity. Based on these arguments, this study postulates that:

H_2: Formal MCS has a positive relationship with innovation.

2.3 Innovation and Organisational Performance

Innovation could be referred to as the generation, acceptance and implementation of new ideas, processes, products or services, which offer improvement to organisations as well as customers (Chaganti & Damanpour, 1991). For the customers, the values of innovation are reflected in lower prices as well as improved attributes, while for the organisations, they can result in higher profits, increased market share and new markets which help sustain growth (Alrowwad et al., 2020; Philipson, 2016). In a turbulent environment like today, innovation is recognised as one of the main sources of organisational success. Changes in customers' preferences, lifestyles and values which are driven by globalisation, education and media require organisations to develop new products and services to suit their customers' needs. Based on these arguments, this study postulates that:

H_3: Innovation has a positive relationship with organisational performance.

2.4 Formal MCS, Innovation and Leadership Characteristics

Despite the significant role of MCS in innovation performance (Speklé et al., 2017; Sa'adon, et al., 2019; Beuren et al., 2019), other studies (e.g. Henri & Wouters, 2019) reported that MCS has not been able to improve organisational performance, indicating a possibility of an intervening variable that may have affected the relationship. Within the leadership and organisational behaviour literature, good leaders are found to have influence on innovation performance. Organisations that are able to discover, create, seize and exploit opportunities ahead of their rivals can gain innovation performance (Kuratko et al., 2014). However, this kind of organisation only exists when there is a leader,

who is able to provide and create a working environment that stimulate and support creativity. Participatory leaders who make decisions about projects by taking into account of their team members' decisions are able to encourage employees' creativity (Creţu, 2015). Alharbi et al. (2020) showed that in the context of Saudi Arabia, transformational leadership contributed to subordinates' self-esteem, confidence and efficacy, motivating them to adopt innovative ways in performing their tasks beyond expected performance. Meanwhile, other empirical studies have evidenced the use of MCS (e.g., the use of specific performance measures, the delegation of decision rights or the use of planning systems) is dependent to some extent on individual differences, such as leadership styles (e.g., Jansen, 2011). This shows that certain leaders' behaviour trigger the choice of specific MCS practices that contribute to innovation performance. Based on these arguments, this study postulates that:

H_4: Leadership characteristics moderate the relationship between formal MCS and innovation.

Based on the previous literature and the hypotheses developed, this study proposes a research model as below:

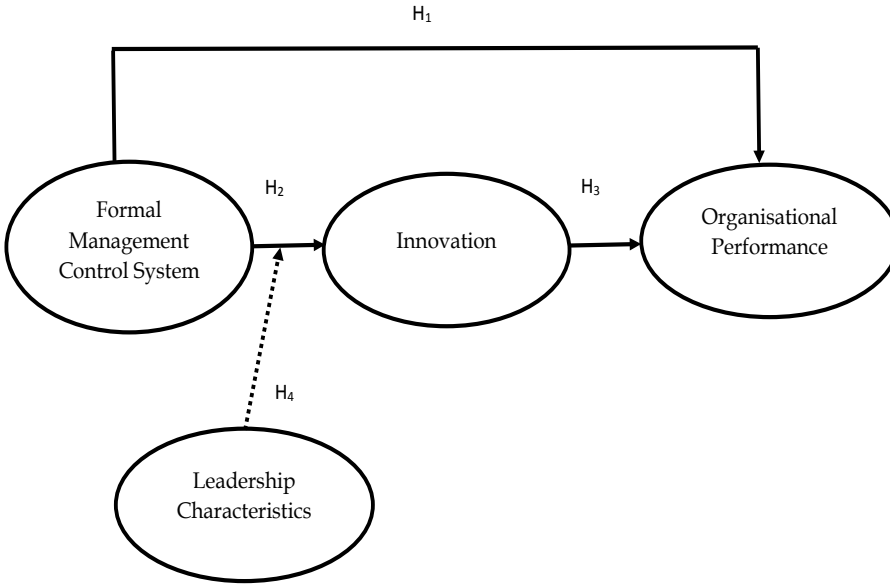

Figure 1: Research Model

3. Methodology

The research model developed was tested using a quantitative survey. The instruments used were adapted from previous literature, and pilot tested using 30 respondents in the manufacturing and services industry. Based on the pilot study, the inconsistencies of wording, unclear or ambiguous items in the questionnaire were refined. The instruments used are described in Table 1.

Table 1: Research Instruments

Constructs	Items	Sources
Formal MCS (Belief system)	Company goals communicate the values that the company embraces. Company goals can provide inspiration for employees. Employees work with the awareness of the company's core values.	Speklé et al. (2017), Chenhall et al. (2011)
Formal MCS (Boundary system)	Employees understand the code of conduct that applies in the company. The code of conduct provides information to employees about prohibited behaviour. Company communicates risks that must be avoided by employees.	
Formal MCS (Diagnostic control system)	Company carries out quality control in production activities. Company operates using ABC system. Company operates using a standard cost system.	
Formal MCS (Interactive control system)	Manager supervises employee performance. Manager evaluates employee progress. Manager compares plans and results.	
Organisational performance	Company has a wider market share than competitors. Company is always making improvements. Company rarely receives complaints from consumers. consumers.	King and Clarkson (2015)
Innovation	Manager has new ideas for new product or service launches. Manager assists employees in developing ideas. Manager has a solution when there are obstacles in the launch of a new product or service.	Chenhall et al. (2011) and Speklé et al. (2017)
Leadership characteristics	Manager shows good behaviour Manager does not discriminate between employees Manager asks employees to follow company rules	Abernethy et al. (2010)

To enable us to measure the role of leadership characteristics of top management and the management control system practised, the researchers collected questionnaire data from business unit managers of firms in the service and manufacturing sectors in Indonesia. These managers report to the CEO of the firm and are considered as the most appropriate respondents to assess leadership characteristics and control system choice of top management in improving employees' innovation and organisational performance. The selection procedure used to choose the managers are as follows. We first identified a sample of service and manufacturing firms that reflect the regional distribution of firms throughout Indonesia. The sampling frame was drawn from the list of service and manufacturing firms registered with the Ministry of Industry, Republic of Indonesia, as of 2020. The study only included organisations that have more than 100 employees to warrant the implementation of formal management control systems. The total population was 130 firms. These firms were contacted and their willingness to participate was sought. Once consent to participate was obtained from the potential respondents, the questionnaires were distributed through online survey. Of the 122 questionnaires distributed, 92 responses were obtained, resulting in 75.4 per cent response rate. Table 2 illustrates the demographic profiles of the respondents.

Table 2: Demographic Profiles of the Respondents

Demographic Variable	Category	Frequency	Percentage (%)
Age	20-25 years old	52	57
	26-30 years old	28	30
	31-45 years old	9	10
	>45 years old	3	3
Industry	Services	57	62
	Manufacturing	35	38
Education	Diploma	38	41
	Bachelor	33	36
	Master	21	23
Working Period	< 1 year	32	35
	1-3 years	40	43
	4-5 years	10	11
	> 5 years	10	11

Table 2 shows that more than half of the respondents were in the age range of 20-25 years old (57%). Sixty-two per cent (62%) of respondents were in the services industry, while 38% were from the manufacturing industry. Most of the managers have 1-3 years of working experience (43%) and with diploma level education (41%).

4. Data and Analysis

4.1 Measurement Model Analysis

This study employs the structural equation modeling (SEM) with WarpPLS software to analyse the collected data. PLS regression was used since this approach is widely used for a complex causal–predictive analysis and do not require multivariate normal distribution and large sample size (Ghozali, 2009). The data collected were first tested for convergent and discriminant validity.

The convergent validity was assessed based on the average variance extracted (AVE), factors loadings, composite reliability and Cronbach's alpha. Table 3 shows that the AVE, composite reliability and factor loadings values were above the threshold values of 0.5. The Cronbach's alpha values for all the constructs were also reported to be more than 0.7. These figures show that the measurement model achieves convergent validity (Hair et al., 2010). In addition to convergent validity, we also ran the discriminant validity test. Table 4 shows that all constructs had AVE values which were substantially higher than their correlations with other constructs, indicating discriminant validity (Fornell & Lacker, 1981).

In addition to convergent and discriminant validity tests, we also examined the common method bias (CMB). CMB occurs when the answers to the respondents' questionnaire do not reflect their thoughts about the phenomenon being asked (Gorrell et al., 2011). It is caused by individuals' tendency to present themselves in a favourable light, regardless of their true feelings about an issue or topic (Podsakoff et al., 2003). This study used the Harman's single factor test, a popular research technique used to address CMB. The result for the percentage of variance showed the value of 44% (<50%). It can be concluded that there was no common method bias.

4.2 Structural Model and Hypothesis Testing

Assuming that the measurement model passes the convergent and validity test, we then performed a structural model analysis to examine

Table 3: Convergent Validity

Items	Loadings	AVE	Cronbach's alpha	Composite reliability
Formal MCS		0.503	0.908	0.923
BLS1	0.694			
BLS2	0.745			
BLS3	0.704			
BDS1	0.622			
BDS2	0.744			
BDS3	0.757			
DCS1	0.767			
DCS2	0.534			
DCS3	0.577			
ICS1	0.710			
ICS2	0.796			
ICS3	0.807			
Organisational performance		0.596	0.659	0.815
OP1	0.796			
OP2	0.818			
OP3	0.698			
Innovation		0.789	0.865	0.918
INV1	0.829			
INV2	0.938			
INV3	0.893			
Leadership characteristics		0.711	0.792	0.880
LC1	0.907			
LC2	0.888			
LC3	0.722			

Table 4: Discriminant Validity

Construct	FMCS	INV	OP	LC
Formal Management Control System (FMCS)	0.73			
Innovation (INV)	0.71	0.88		
Organisational Performance (OP)	0.66	0.76	0.77	
Leadership Characteristics (LC)	0.61	0.66	0.67	0.84

the hypotheses developed. The results from Figure 2 revealed that formal MCS was positively related to organisational performance (β=0.24, p<0.01) and innovation performance (β=0.59, p<0.01), providing support for H_1 and H_2. The results also highlighted that innovation performance had a significant positive impact on organisational performance (β=0.58, p<0.01), hence providing support for H_3. The relationship between formal MCS and innovation performance was found to be moderately influenced by leadership characteristics (β=0.22, p<0.01), hence supporting H_4.

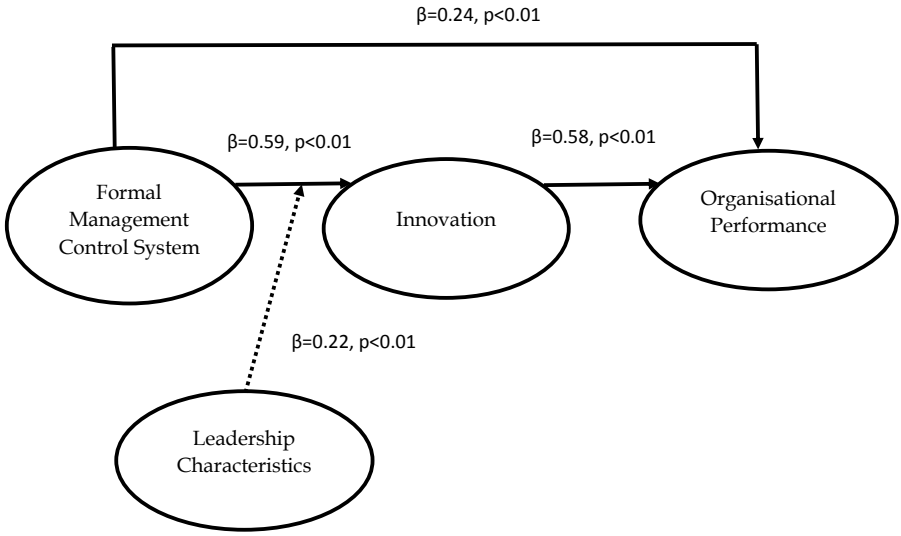

Figure 2: Structural Model Analysis

5. Discussion

This study investigated the relationship between formal MCS, organisational performance, innovation and leadership characteristics. The study's outcomes indicated that formal MCS is a crucial factor in improving innovation performance, which consequently lead to organisational performance. The findings demonstrated that many Indonesian firms realised the importance of having good control systems in order to compete globally and meet their stakeholders' expectations. It shows that management control system has spread to Indonesia which is a developing country, and it's an important tool in

promoting innovation. Through MCS, uncertainties can be reduced, and coordinated actions towards achieving desired outcomes can be promoted, leading to better organisational and innovation performance. This result is in line with Duréndez Gómez-Guillamón et al. (2016) and Speklé et al. (2017).

This study found that organisational innovation pursued by Indonesian manufacturing and service industries do influence their performance. It shows that activities that enhance innovation through product and process innovation in the form of quality, design and business modifications through technology adoption have boosted performance of the firms. This is in line with Alrowwad et al. (2020) and Philipson (2016). This is not surprising since increased innovation performance help firms to enter new markets, sustain existing markets and reduce operational costs.

The findings of the study also imply that while MCS may contribute towards innovation performance, its impact could be influenced by leadership characteristics. In the Indonesian context, the design and implementation of MCS cannot be separated from the country's societal factors (Efferin et al., 2016). In Indonesian culture, obedience to leaders is very much emphasised. Such values may shape the process and results of any control systems practised by the organisation. For example, in Indonesia, organisations are heavily influenced by *bapakism* whereby those with higher social status (leader) are perceived as being more knowledgeable compared to employees; and just like children, the employees must continuously listen to and learn from their leaders to avoid making mistakes (Efferin & Hartono, 2015). Since employees look up to their leaders, it is important for the leaders to behave more supportively, appreciate their subordinates, and try to develop their employees' knowledge and competencies. This will help strengthen the impact of MCS on innovation performance.

6. Conclusion, Implication/Limitation and Suggestion

Underpinned by the resource-based view theory, this study has developed a research model which incorporates leadership characteristics as a moderator that influences the interactions between formal MCS and innovation. The study's findings should add to the body of literature in several ways. First, this study expands on the literature in the context of Indonesia. Being a developing country that is heavily influenced by socio-cultural influence, the effectiveness of MCS is influenced by leadership

characteristics. The implementation of MCS has the potential to promote innovation, i.e. when leaders demonstrate supportive leadership, and offer more constructive criticisms in supporting their employees.

The findings of this study also offer implications for practitioners. First, for Indonesian firms to compete in globally competitive markets, they need to practise a well-designed formal MCS that consist of belief systems, boundary systems, diagnostic control systems and interactive control systems, as this will improve innovation and organisational performance. It is clear that organisational performance will increase along with values, goals, direction and rules which has been communicated by managers to their subordinates. A formal system is useful for improving companies' performance because it can increase transparency and coordinate individuals' actions in organisations to achieve the desired results. Secondly, managers or leaders need to demonstrate good leadership characteristics by producing conducive environments, for effective MCS implementation. Managers who demonstrate good behaviour through compliance with company rules, involving themselves in subordinates' activities, and supporting subordinates' ideas will improve creativity of subordinates in producing innovation.

Despite the contributions of this study, this study also has limitations. First, the findings of this study may not be able to be generalised, due to low sample size. Second, this study only focused on Indonesian manufacturing and service firms. Future research should compare and analyse different ASEAN countries since different countries have different dominant cultures and values, which may impact on MCS and innovation performance. Third, this study only covered formal MCS. Future research can also compare formal MCS and informal MCS in improving organisational performance and innovation.

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