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The impact of management control systems on performance of Malaysian local authorities

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Abstract

An increasing number of profit and non-profit organizations implementing management control systems (MCSs) have proven the importance of the systems in improving organizational performance. However, there is a lack of empirical evidence concerning how the MCSs affect the performance of local authorities. Even though there are some previous studies concerning the performance of local authorities, most only focus on performance measurement methods, such as the use of balanced scorecard and performance indicators. The application of MCSs and their effect on performance are rarely discussed in local authorities, especially in the Malaysian environment. Therefore, the objective of this study is to examine the impact of MCSs on performance of Malaysian local authorities by using the structural equation modeling (SEM) tool. Statistical results showed that the internal formal control were significantly associated with all three performance dimensions – financial, service quality, and procedural, as expected. However, the internal informal control only had a direct relationship with the service quality performance, and did not have a significant relationship with the financial performance and procedural performance. This study contributes to the literature concerning the structural linkage among internal controls and performance constructs within Malaysian local authorities by developing and testing the hypothesised relationships using SEM analysis.

Keywords: Management control systems, performance, local authorities

1. INTRODUCTION

Over the years, the performance of Malaysian local authorities has attracted the attention of both the government and the public. The demands of the public and other stakeholders, and continuous complaints concerning the dissatisfaction with the public services, have contributed to the urgent need of accountability and transparency in delivering public services (Fatimah Wati & Mohd Zaini, 2004). This is due to the fact that local authorities are devices for delivering public services to the local community through the effective use of resources. The local authorities need to create value for all resource providers in order to satisfy them, especially the public as they are part of the resource providers through their tax payments. Indeed, the public are becoming more aware that failure in the value creation will be reflected in the value that they can receive from the service providers, for example, the services from the local authorities.

For that reason, local authorities should be concerned as to whether the services they deliver provide beneficial value to the public. To assess how far the local authorities successfully create value in their service delivery, they

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have to measure their performance. One of the tools that can be used to evaluate the performance is through the implementation of management control systems (MCSs). This has been proven by previous literature, for example, Batac and Carassus (2009), Grubnic and Woods (2009), Greatbanks and Tapp (2007), Ho (2011), Mimba, Helden, and Tillema (2013), Steventon, Jackson, Hepworth, Curtis, and Everitt (2012), and Torres, Pina, and Marti (2012). Therefore, this paper attempts to examine the relationships between MCSs and performance among Malaysian local authorities.

The next section of this paper discusses the literature review and hypotheses development in relation to existing literature and observation by the researcher on conceptual of MCSs, and performance constructs identified in Malaysian local authorities such as financial, service quality, and procedural. This is followed by the discussion of research methodology, and the results of the study - an assessment of goodness of measures (i.e. validity and reliability of the constructs). The subsequent section presents the data analysis, path analysis, and hypotheses testing. The conclusions of this paper are discussed in the last section.

2. REVIEW OF LITERATURE AND HYPOTHESES DEVELOPMENT

This section discusses the concept of MCSs in Malaysian local authorities, and how it affects the performance. The conceptual model and hypotheses of the research is also presented.

2.1 Formal control systems and informal control systems

Horngren, Datar, and Foster (2012) considered MCSs to be a system consisting of both formal and informal control. The formal MCSs of an organization include explicit rules, procedures, performance measures, and incentive plans that guide the behaviour of its managers and other employees. The formal control system comprises several systems, such as the management accounting system, which provides information regarding costs, revenue, and income; the human resources system, which provides information on recruiting, training, absenteeism, and accidents; and the quality system, which provides information concerning yield, defective products, and late deliveries to customers. On the other hand, informal MCSs include shared values, loyalties, and commitment among members of the organization, organizational culture, and the unwritten norms about acceptable behaviour of the people in the organization (Anthony and Govindarajan, 2007).

In another review paper, Macintosh and Daft (1987) classified MCSs as a formal control and defined them as a package of control that includes accounting reports, budgeting, formal hierarchy and supervision, job descriptions, rules and standard operating procedures, statistics for measuring performance, organizational structure, and employees and performance appraisal systems. In addition, Simons (1990) defined MCSs as a formal control that involves the formal procedures and systems to maintain or to alter patterns in organizational activities. The definitions of MCSs by Macintosh and Daft (1987) and Simons (1990) appear similar to the study of Otley and Berry (1994) in which MCSs are termed as being a set of procedures and processes that manager and other organizational participants use in order to ensure the achievement of their goals and the goals of their organizations.

Furthermore, Rosanas and Velilla (2005) highlighted MCSs as a formal system that consists of goal setting, performance measurement and evaluation, and incentives. Formal control could be divided into two – financial and non-financial information. Financial information, such as budget, is basically provided for internal users for interactive controls (Simons, 1990), while non-financial information is used for decision support mechanisms (Chenhall, 2003). While some researchers only consider MCSs in a formal way, some consider both aspects, formal and informal (see, for example, Anthony and Govindarajan (2007), Chenhall (2003, 2007), Batac and Carassus (2009), Otley (1980)). In addition, Chenhall (2003) classified informal control into personal control and social control. Personal control involves centralized decision-making in which individuals see themselves as having more interaction on formal-related-matters (for example: budget), and being required to explain the variances in the budget. Therefore, they are satisfied with their superior-subordinate relationships. Whereas, social control relates to how the management controls the behaviour of people in the organization in order to achieve its desired objectives, such as through the hierarchical order, institutional structure, and communication structure (Lebas & Weigenstein, 1986).

Anthony and Govindarajan (2007) also considered the process of MCSs, which is much more involved with the informal interactions between one manager and another, or between a manager and their subordinates. The informal interactions normally occur through informal communications by means of memos, meetings, conversations, or even by facial expressions. In addition, they further acknowledge that both formal systems and informal processes influence human behaviour in organizations, and, consequently, they affect the degree to which

goal congruence can be achieved. The formal control systems normally involve strategic plans, budgets, and reports, while the informal processes take into account the work ethics, management style, and culture that exist in the organization.

A more comprehensive review of the MCSs component was reported by Batac and Carassus (2009). They reviewed and identified budgeting, accounting and management controls as formal control, which is accompanied by informal control. They claimed that the behaviour of the organizational members, which is considered as informal control, could influence the success of the formal control system, or, in other words, the informal control could influence the formal control. For example, if the organizational members readily follow the set of policies and procedures designed in the organization, then the MCSs could be successfully implemented. In the latest literature, Cuguro-Escofet and Rosanas (2013) treated the definition of MCSs similar to Batac and Carassus (2009) who referred to formal MCSs as a set of objectives and rule-based control system, while the informal MCS is needed to influence the formal control process. Further, Cuguro-Escofet and Rosanas (2013) revealed that both the formal and informal control systems are crucial in improving the performance of organizations.

Based on the above discussion, it is recognized that MCSs comprise both a formal and informal system that is used by the management to control the activities within the organization to achieve their goals and objectives.

2.2 MCSs and performance

In the MCSs literature, a number of studies suggested a positive relationship between MCSs and performance (Herath, 2007; Ittner & Larcker, 2003; Merchant, 1982). MCSs are used by management to achieve the desired goals and to ensure that the activities or organization are functioning in accordance with the organizational policies. It is also a process by which managers influence other members of the organization to implement the organization's strategies in order to achieve the goals and objectives (Anthony & Govindarajan, 2007) by encompassing both financial and non-financial performance measures, which, in turn, affect the organizational performance. In addition, Chenhall (2003) characterized MCSs as a broader term that covers management accounting systems in achieving goals, and as a tool that provides external and internal information to assist managerial decision-making.

All of these descriptions imply that MCSs are a tool that are used in decision-making and managerial action processes. For many researchers and scholars, MCSs are a part of the performance management process (Anthony & Govindarajan, 2007; Chenhall, 2003; Chenhall & Euske, 2007), that readily lends itself to real-world applications of the management process as it leads to achieving the goals and objectives of the organization. This applied control process incorporates performance management techniques to describe and predict outcomes based on management experience. Thus, it was proven that performance management would affect the performance of both private and public sector organizations (Chenhall & Euske, 2007; Verbeeten, 2008). This is consistent with Otley (1999) and Heinrich (2002) who state that the organization must organize its performance management properly to ensure the MCS could be developed successfully in the process of defining goals, selecting strategies, allocating resources, and measuring and rewarding performance in order to obtain better organizational results.

2.3 The relationship between internal control and performance

Internal control system has been seen as a tool to enhance the monitoring and reporting processes in organization, and to ensure the compliance with laws and regulations (Jokipii, 2010). Ittner and Larcker (1997), and Herath (2007) also agreed that the internal control will lead to the higher performance. In fact, Siti-Nabiha (2010) found that the internal control systems such as the use of key performance indicators (KPIs) has led the improvement in the performance of Malaysian local authorities.

As documented by these researchers, the ultimate goal of internal control is to assure the achievement of predetermined objectives of organization. In order to perform well, internal control plays the function of monitoring, communicating, measuring, reviewing and analyzing the progress of organizational strategies in achieving the targeted goals. As empirically proven in previous studies, the positive relationship between internal control and performance has been reported (Simons, 1990; Triantafylli & Ballas, 2010; Tsamenyi et al., 2011; Yahya, Ahmad, & Fatima, 2008). By considering the above discussions on formal and informal controls, these arguments therefore, lead to the following hypothesis:

- H_{1a}: There is a relationship between internal formal control and financial performance.
- H_{1b}: There is a relationship between internal formal control and service quality performance.
- H_{1c}: There is a relationship between internal formal control and procedural performance.
- H_{2a}: There is a relationship between internal informal control and financial performance.

H_{2b}: There is a relationship between internal informal control and service quality performance.

H_{2c}: There is a relationship between internal informal control and procedural performance.

The literature also supports the formulation of the conceptual framework for examining the relationship between internal control systems and performance of Malaysian local authorities as portrayed in Fig. 1.

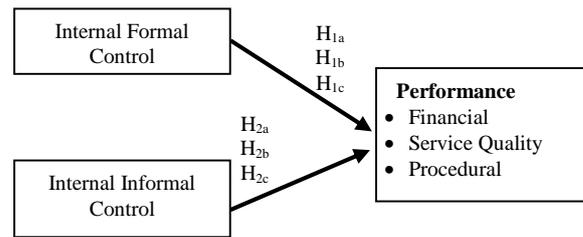


Fig. 1. Conceptual Framework.

3. RESEARCH METHODOLOGY

The unit of analysis of the study is all the departments of city councils, municipal councils, and district councils in Peninsular Malaysia. The respondents are heads of department. Currently there are 149 local authorities in Malaysia, including in the state of Sabah and Sarawak. Out of the 149 local authorities, 99 are located in Peninsular Malaysia consisting of eight city councils, 34 municipal councils, and 57 district councils that are governed under the Local Government Act 1976 (Source: <http://jkt.kpkt.gov.my>). From the 99 local authorities within Peninsular Malaysia, there are 899 departments.

For the purposes of this study, it was necessary to ensure that the sample was as representative as possible of the population from which it was drawn. Additionally, because the researcher was interested in the MCS implementation in local authorities within Peninsular Malaysia, not just those in city councils or municipal councils, it was essential that the sample include all the departments from each type of local authority. In line with the above discussions and also by taking into consideration the probability of non-response, the main concerns of the researcher were to achieve a minimum of 300 usable responses. Therefore, the sample size of 899 was determined for this study by using the total number of departments in the local authorities within Peninsular Malaysia.

3.1 Data collection

A questionnaire-based survey was carried out to seek responses from 899 departments attached to the local authorities within Peninsular Malaysia. Out of the 899 questionnaires distributed, 372 were returned, which resulted in 355 usable responses that were used for further analysis.

4. RESULTS AND DISCUSSIONS

This section of the study presents and discusses the empirical results of the study based on the feedback from the questionnaire survey. The findings are reported as follows – assessment of goodness of measures which includes the reliability and validity of the instruments used in the study, and the hypotheses testing.

4.1 Assessment of goodness of measures

It is important to validate the measures used in this study as it builds trust in providing correct results. The validation of measures can be divided into two main aspects: reliability and validity assessment. Reliability is a measure of the internal consistency of a set of scale items, whereas validity used to determine whether the constructs of the study actually measure the intended concept (Sekaran and Bougie, 2011).

4.1.1 Reliability

As this study used the SEM technique to analyse the data, Bagozzi and Yi (1988) suggest three types of reliability that could be examined: individual item reliability, composite reliability, and average variance extracted (AVE).

1. Individual item reliability

Individual item reliability is computed directly by the AMOS programme, and is listed as squared multiple correlations in the output, which is represented as R^2 . In this study, the R^2 values of the measurement model in the observed variables were used as estimations for a particular observed variable. Following Bollen (1989), R^2 values of above 0.50 provide evidence of acceptable reliability.

2. Composite reliability

Composite reliability is used to assess measurement model reliability, which means that a set of latent construct indicators are consistent in their measurement. Items for measuring a construct with highly intercorrelated among others show that they measure the same latent construct. However, there is no definite acceptable threshold. Fornell and Larcker (1981) suggest that values greater than .50 are considered adequate, while Bagozzi and Yi (1988) suggest that values greater than .60 are desirable.

3. Average Variance Extracted (AVE)

The AVE reflects the overall amount of variance captured by the latent construct. It has been suggested that the AVE value for a construct should exceed .50 (Bagozzi & Yi, 1988; Fornell & Larcker, 1981). Inevitably, Cronbach's Alpha is also measured in this study for each confirmed scale. The Cronbach's Alpha is calculated after demonstrating the unidimensionality of a measure as suggested by Anderson and Gerbing (1988). Generally, the acceptable value of Cronbach's Alpha in social science research is .70 (Hair et al., 2010; Sekaran & Bougie, 2011).

All these reliabilities are shown in Table 1. It can be seen in Table 1 that the Cronbach's Alpha coefficients for all the variables exceeded the .70 cut-off level (Hair et al., 2010; Sekaran & Bougie, 2011), thereby indicating that there was a good level of internal consistency among the constructs, and thus indicates strong reliability.

4.1.2 Validity

Content validity and construct validity were employed to determine the validity of the survey instruments used.

1. Content Validity

Content validity is used to test whether items are representative of the constructs they are supposed to measure. In other words, a construct is considered to have content validity if the constructs had measurement items that cover all the important aspects of the constructs being measured. Normally, an expert opinion is the basis for establishing content validity, not statistical analysis (Hair et al., 2010). Accordingly, the researcher conducted thorough discussions with two academicians in the public sector field, two academicians in the management accounting field, and two practitioners from the government sector to develop questions for this study. Furthermore, the questionnaire was also reviewed and critiqued by a few heads of department from four selected local authorities in East Coast Region. After making some amendments as suggested, the questionnaire was considered to have content validity and suitable for the study.

2. Construct validity

Construct validity is another validity test that is important when discussing the validity of instruments used in a study. Although construct validity is claimed to be the most difficult type of validity to establish, it is also the most 'powerful' when it comes to measuring how well the correlations between variables can fit with the theories around which the test is designed (Sekaran & Bougie, 2011). This can be assessed through the determination of both convergent validity and discriminant validity (Hair et al., 2010).

(a) Convergent Validity

According to Hair et al. (2010), three methods can be used to determine convergent validity – the analysis of factor loadings, the analysis of AVE, and the analysis of composite reliability. They suggested a standardised loading of .40 or higher for a sample size of more than 200, while Bagozzi and Yi (1988) recommended that factor loadings of each item ranging between .60 and .90 are satisfactory. In the SEM technique, using the AMOS programme, Anderson and Gerbing (1988) suggested that the accepted cut-off value for factor loadings is when t-values (which is reported as the critical ratio in AMOS output) are greater than ± 1.96 or ± 2.58 at 0.05 or .01 levels, respectively. In addition, the value of squared multiple correlation (SMC) or R^2 is also inspected, which must be above the .3 cut-off value (Hair et al., 2010). The second method to determine the convergent validity is through the analysis of AVE. It is suggested that the satisfactory AVE values must exceed the .5 benchmark (Hair et al., 2010). While through the third method, Fornell and Larcker (1981) suggested that the values of composite reliability should exceed the .7 benchmark.

Table 1 presents the convergent validity results, which summarize the standardised loadings, critical ratio, squared multiple correlations, composite reliability and AVE of each item from the measurement model in Figure 2. As shown in Table 1, the value of the factor loadings for each item was above the cut-off value of .70 for the new measurement scales, as suggested by Hair et al. (2010), with all the critical ratios being greater than ± 1.96 at the .05 significance level (Anderson & Gerbing, 1988). Furthermore, the values for the squared multiple correlations or R^2 were also above the suggested value of .30 (Hair et al., 2010). According to Hair et al. (2010), a composite reliability of .70 or above and AVE of more than .50 are considered to be acceptable. As can be seen from Table 1, all the composite reliabilities were more than .90 and above the threshold values of .50 (Fornell & Larcker, 1981) and .60 (Bagozzi & Yi, 1988). Moreover, the AVE ranged from .62 to .77, which also exceeded the .50 rule of thumb (Bagozzi & Yi, 1988; Fornell & Larcker, 1981). Therefore, based on these results, it can be concluded that convergent validity has been established.

Table 1. Results of Confirmatory Factor Analysis of Measurement Model.

Constructs / Items	Factor Loading	Critical Ratio (t-values)	Composite Reliability ^a	R ²	AVE ^b	Cronbach's Alpha
Internal Formal Control			.95		.67	.929
InMonitoring1	.744	6.293		.515		
InMonitoring2	.824	6.884		.678		
InMonitoring3	.889	7.041		.791		
InMonitoring4	.786	6.457		.571		
InMonitoring5	.806	6.837		.649		
MRS1	.962	7.182		.926		
MRS2	.782	6.772		.612		
MRS3	.846	6.941		.716		
MRS4	.735	-----		.590		
Internal Informal Control			.94		.65	.890
ManagementStyle1	.792	8.173		.579		
ManagementStyle3	.795	7.402		.554		
ManagementStyle4	.730	8.444		.533		
ManagementStyle5	.908	9.499		.824		
Communication1	.717	8.353		.514		
Communication3	.955	9.714		.911		
Communication4	.862	9.260		.743		
Communication5	.754	-----		.507		
Procedural			.92		.65	.915
Performance16	.807	13.098		.651		
Performance17	.815	13.265		.665		
Performance18	.869	14.308		.755		
Performance19	.793	12.830		.629		
Performance20	.761	12.208		.579		
Performance21	.771	-----		.595		
Service Quality			.95		.75	.946
Performance5	.973	24.296		.947		
Performance6	.842	17.660		.709		
Performance7	.795	15.881		.632		
Performance8	.877	19.183		.769		
Performance9	.822	16.878		.676		
Performance10	.873	-----		.763		
Financial			.93		.77	.931
Performance1	.926	19.612		.857		
Performance2	.803	15.420		.644		
Performance3	.917	19.921		.841		
Performance4	.860	-----		.739		

Note:

^aComposite reliability = (square of the summation of the factor loadings)/[(square of the summation of the factor loadings) + (square of the summation of the error variances)]

^bAVE = (summation of the square of the factor loadings)/[(summation of the square of the factor loadings) + (summation of the error variances)]

(b) Discriminant validity

Discriminant validity refers to the degree to which measures of conceptually distinct constructs differ (Hair et al., 2010). It is established when the variance extracted from two constructs is greater than the square of the correlation between those two constructs (Fornell & Larcker, 1981). To identify the existence of discriminant validity, Fornell and Larcker (1981) suggested comparing the square root of AVE with the squared correlations between the latent constructs. If the square root of AVE value is substantially greater than the squared correlations, then it indicates that discriminant validity is attained (see Table 2).

Table 2. Discriminant Validity of Constructs.

Constructs	(1)	(2)	(3)	(4)	(5)
(1) Internal Formal Control	.8190				
(2) Internal Informal Control	.1246	.8060			
(3) Financial Performance	.0196	.0139	.8770		
(4) Service Quality Performance	.0372	.1129	.0008	.8660	
(5) Procedural Performance	.0172	.0169	.0493	.0029	.8060

Note: Bold figures represent the square root values of AVE for each construct, while the other figures represent the squared correlations.

Investigation of the results in Table 2 shows that all the square roots of the AVE values were greater than the squared correlations, thereby indicating that the discriminant validity has been achieved.

4.2 Hypotheses testing

Fig. 2 and Table 3 presents the results of 6 hypotheses generated in the study.

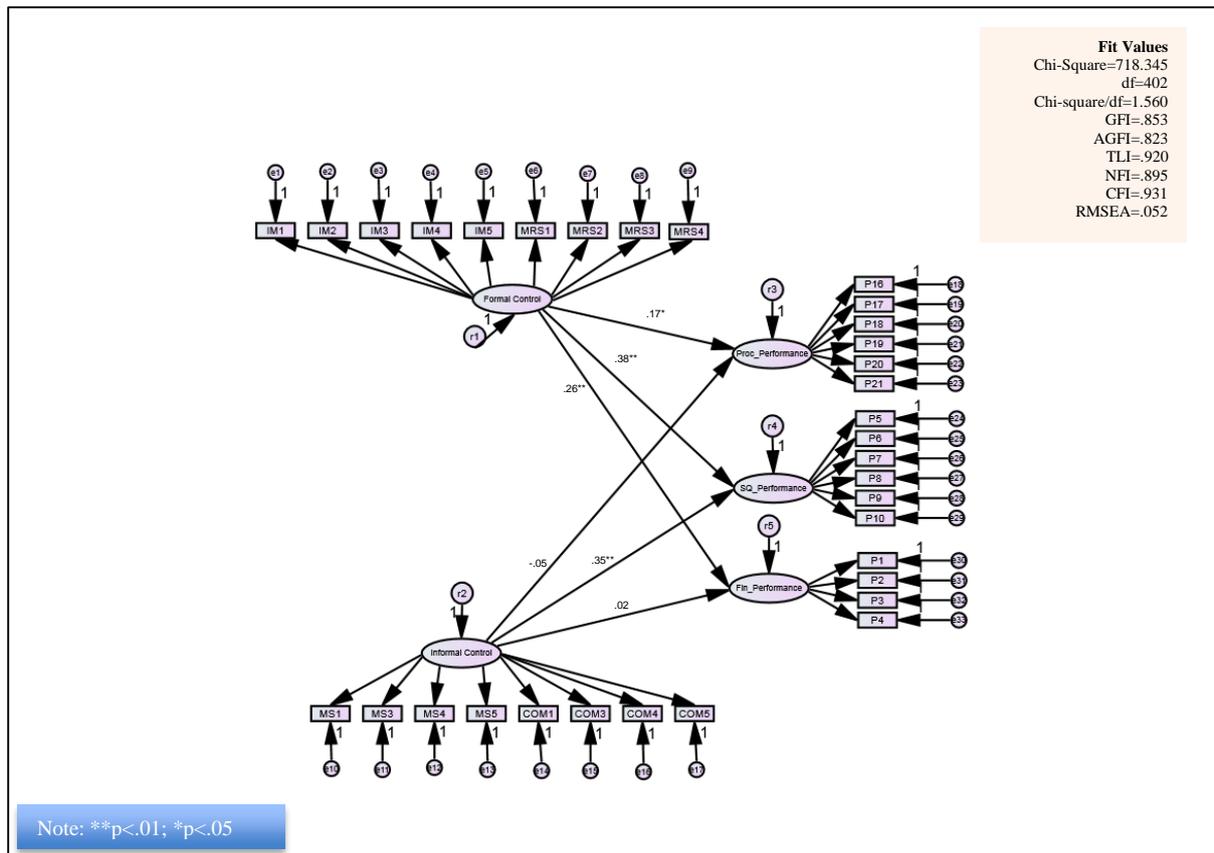


Fig. 2. Results of the Path Analysis.

Table 3. Hypotheses Testing Results.

Hypothesis	Relationship	Path Coefficient	Critical Ratio	p-value	Decision
H _{1a}	IFC → FP	.26**	4.281	.000	Supported
H _{1b}	IFC → SQP	.38**	4.386	.000	Supported
H _{1c}	IFC → PP	.17*	3.065	.012	Supported
H _{2a}	IIFC → FP	.02	1.280	.200	Rejected
H _{2b}	IIFC → SQP	.35**	4.761	.000	Supported
H _{2c}	IIFC → PP	-.05	0.897	.370	Rejected

Note: **p<.01; *p<.05; FP=financial performance, SQP=service quality performance; PP=procedural performance; IFC=internal formal control; IIFC=internal informal control.

The association between internal formal control and the performance of Malaysian local authorities – financial performance, service quality performance, and procedural performance – were tested in hypotheses 1a, 1b, and 1c, respectively. The results showed that two paths (H_{1a} and H_{1b}) were significant at the .01 level, while hypothesis 1c (H_{1c}) was significant at the .05 level. Among these three relationships, internal formal control has the strongest effect on service quality performance (path coefficient at .38). Thus, the results of the structural path established support for H_{1a} , H_{1b} , and H_{1c} . Furthermore, a relationship between internal informal control and financial performance was also posited (H_{2a}), as well as between internal informal control and service quality performance (H_{2b}), and between internal informal control and procedural performance (H_{2c}). Neither the structural path of H_{2a} and H_{2c} were significant as the critical ratios for the hypotheses were 1.280 and .897, respectively, which were below the cut-off value of 1.96 suggested by Hair et al. (2010). Accordingly, H_{2a} and H_{2c} were rejected. However, the relationship between internal informal control and service quality performance (H_{2b}) was significantly supported at the 1% level, thus resulting in acceptance of the hypothesis.

5. CONCLUSION

This study contributes to the literature concerning the structural linkage among internal controls and performance constructs within Malaysian local authorities by developing and testing the hypothesised relationships using SEM analysis. The results provide direction to practitioners about the importance of MCSs in the effort to improve the performance of organizations, and especially to the local authorities. This study also discovered the importance of a formal system of internal control as it affects the performance of local authorities in terms of both the financial and non-financial aspects, and meeting stakeholders' needs and work process improvement.

Therefore, in order to enhance the performance of the local authorities, top management should monitor and supervise the existing control systems, and, at the same time, improve the current systems by taking into account the needs and desires of all related stakeholders. Additionally, public complaints should continue to be effectively used as an important input for the improvement of the quality of service delivered by the local authorities to the public. This is because, what is done with public sector funds is everybody's business. And thus, the public have rights in knowing where the money has gone as they are the tax payers.

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