



## The adoption of performance measures and management accounting system in enhancing managerial performance in Malaysian local government

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### Abstract

In many organizations, different performance measures were employed to assess different aspects of managers' performance. Some of the measures were yet to be developed, some developed but only in a very selective way, and some already presented but not adopted or only partly used. At the same time, management accounting systems might have the potential and capability of providing necessary information for planning, decision making and motivating managers' performance. Hence, this study examined the effect of the adoption of performance measures and management accounting system in enhancing the managers' performance in Malaysian local government. The data were collected through a questionnaire survey of 131 heads of departments in Malaysian local government. A structural equation modelling technique was utilised to examine the mediating effects of performance measures and management accounting system on the relationship between budgetary participation and managerial performance through a path analysis. The findings showed that the adoption of performance measures and management accounting system had strengthened the relationship between budget participation and managerial performance. The findings pointed to the practical relevance of the performance measures and management accounting system to the current management setting of government organizations.

**Keywords:** budget participation, Malaysian local government, managers, management accounting system, managerial performance, structural equation modelling

### Introduction

In many organizations, different performance measures are employed to assess the different aspects of managers' performance. In this regard, many indicators have been used to measure performance which requires a measure of public programme from four main aspects: inputs (cost), output (quantity and quality of goods and services produced), efficiency (unit cost to produce outputs), service quality (measure of service such as timeliness, accessibility, courtesy, accuracy, and satisfaction), and outcomes (progress in achieving programme objectives) (McGill, 2001). In other words, the outcomes or service quality associated with a government programme cannot be inferred just by reporting its outputs. Accordingly, one must monitor the entire impact based chain in order to understand and effectively manage government programmes. Therefore, in the Malaysian public organization context, the present study stressed on the usefulness of performance measures used for setting programme priorities and allocating budget resources, adopting new programme approaches or changing work processes, coordinating programme efforts with other internal or external organizations, refining programme performance measures, setting new or revising existing performance goals, setting individual job expectations for subordinates and rewarding subordinate managers (Cavalluzo & Ittner, 2004).

The problems related to the use (adoption) of performance measures in public organization can be associated to the following causes. Some of the measures have not been developed and some of them have been developed in a very selective way and some presented but not used or only partly used (Sole & Schiuma, 2010). These show that the concept of the use of performance measures has not to be considered as based on a single event, but rather on a process. Therefore, if the goal is to encourage and promote the development of performance measurement system in public organisations, it is necessary to understand how to manage the process of using performance measures. Providing detailed information on development and programme implementation, will assist public organization enhance their performance. Without detailed information, there is little to guide organization to implementation the government programme. Increased in-depth understanding of government organization performance measurement systems and use of performance measures could provide guidance for government to plan and develop new government programme in the future (Epstein, 1988).

On the other hand, the adoption of management accounting system also play as an important role to enhance the managers' performance in public organization. According to Sprinkle (2003), a fundamental purpose of management accounting system is to enhance organization performance by ensuring the effective and efficient use of scarce resources. The use (adoption) of management accounting system has the potential and capability to provide information necessary for planning and decision-making and to motivate individuals' performance. It has produced managerial accounting information to make better decisions. Management accounting also serves an informational function whereby subordinates can gather, exchange, and disseminate information to facilitate their decision making process (Kren, 1988). Many studies have been carried out on the informational role, for example, study by (Chenhall & Morris, 1986; Abernethy & Guthrie, 1994; Chong & Chong, 1997; Gul & Chia, 1994; Mia & Chenhall, 1994; Moores & Yuen, 2001; Soobaroyen & Poorundersing, 2008).

Tsui (2001) argued that the budget participation also influences the extent of performance measures information used in organizations. Scott and Tiessen (1999), suggested that to make performance measures information to be useful, the manager must understand the way to measure the tasks and how the measures information relate to the task at hand. This understanding can be developed at an initial stage when the manager is actively involved in budget setting. Managers who are active in preparing budgets would understand how the budget targets are derived and be more willing to accept a management evaluation style that emphasises on meeting the budget. This would lead to more acceptance of financial information in decision-making (Taylor et al., 2008). To date, no research has examined the combination of performance measures and management accounting system on the relationship between budget participation and managerial performance. In this light, this study explicitly examine the adoption of performance measures and management accounting system simultaneously through structural equation modeling technique.

The remainder of the paper is structured as follows. In next section, the research objective and the hypothesized structural model underlying the study is developed, which linked the interaction between the informational and performance roles of budget participation on managerial performance. Subsequent section presents path analysis, research method, results, hypotheses testing and conclusions.

## Literature review

The budget participation and managerial performance relationship will be explained through path model analysis. Path model analysis captures both the direct and indirect effects of budget participation on performance by including budget participation as the exogenous variable, managerial performance as the endogenous variable, and the use of performance measures information and the use of management accounting system and as mediating variables.

Path A denoted a direct relationship between budget participation and the use of performance measures information. Taylor et al. (2008) revealed that a high level of budget participation by managers

increases their use of performance measures information. Based on the path E, the following hypothesis is put forward:

H1. Budget participation positively influences use of performance measures information.

Path B embodied a direct relationship between the use of performance measures information and managerial performance. Lapsley and Wright (2004) examined the dissemination and adoption of accounting management practice and found that the most successful accounting technique is key performance indicator (KPI). KPI provided feedback to management and stakeholders about the meeting of expectations and also facilitated decision making process (Hendri, 2006). In respect to this point, result from performance measures was considered in the planning process to help improve future managerial performance (Mellor, 2001). The study by Taylor et al. (2008) indicated that the hypothesized model was positive effect of the use of performance measures information on managerial performance is accepted. Based on the path B, the following hypothesis is implied:

H2. The use of performance measures information positively influences managerial performance.

Path C specified a direct relationship between budget participation and the use of management accounting system. Eker (2009) and Etemadi (2009) revealed that budget participation and the use of management accounting system have the positive interaction effect. Burney and Matherly (2007) have studied on managerial performance from integrated perspective. Their study tested the relationship between participative budget and employees' performance through mediating effect of management accounting and information system. The result of their study indicates that the direct link between participative budget and management accounting and information system are positive and significant. Based on path C, the following hypothesis is recommended:

H3. Budget participation positively influences use of management accounting system.

Path D represented a direct relationship between the use of management accounting system and managerial performance. According to Chong (1996), managerial performance was high when a broad scope of management accounting system information was used by managers. Soobaroyen and Poorendersing (2008) revealed a significant positive relationship between management accounting system and managerial performance. They concluded, that all management accounting system dimensions are conclusively related to managerial performance. The management accounting system quality and sophistication beyond the mere scope is critical, in term of timeliness, aggregation and integration. Based on path D, the following hypothesis is advocated:

H4. The use of management accounting system positively influences managerial performance.

Path E corresponds to a direct relationship between budget participation and managerial performance. Derfuss (2009) found that budget participation and managerial performance are positive and significant linked. Murwaningsari (2008) indicates that budget participation is positively influence managerial performance. Path E represents the regression between the budget participation and managerial performance with regard to mediating effects. It represents the residual direct effect that flow through organizational commitment, the use of management accounting system and the use of performance measures information. In Leach-lo'pez (2008) study, found that budget participation and job performance have a direct relationship. Based on the review of literature for path E, the following hypothesis is recommended:

H5. Budget participation positively influences managerial performance.

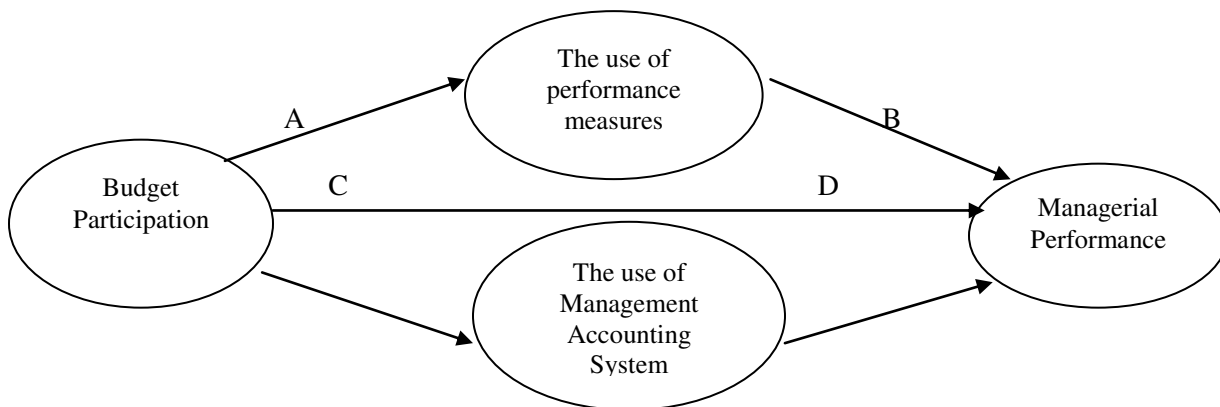
The paths below involved intervening variables: Taylor et al. (2008) found the indirect effect between the budget participation and managerial performance relationship after controlling for the mediating variable, the use of performance measures information. The finding from Taylor et al. (2008) study, indicated that the use of performance measures information has a significant mediating effect on public servants. This finding revealed that, those having higher experience in budget setting process will make

greater use of performance measures information in their work place. In turn, an increase of use of performance measures information bring about higher self-rated manager performance across the range of managerial functions. Based on the review of literature on Path A and B, the following hypothesis is advocated:

H6. The greater the budget participation, the higher is their use of performance measures information which, in turn, leads to higher managerial performance.

Eker (2009), indicates that the higher interaction score between budget participation and management accounting system information leads to higher managerial performance. Etemadi (2009) found the interaction effect of management accounting system, budget participation on managerial performance, and significantly positive in Western culture. Tsui (2001) revealed that both management accounting system and budget participation are positively correlated to managerial performance. This finding concluded that at low levels of budget participation, there was a negative relationship between management accounting system and managerial performance but progressively higher level of budgetary participation were associated with a positive relationship between management accounting system and managerial performance. Based on both path C and path D, the following hypothesis is suggested:

H7. The greater the budget participation, the higher is their use of management accounting system which, in turn, leads to higher managerial performance.



**Figure 1.** Path Model Analysis links the use of performance measures and management accounting system on the relationship between budget participation and managerial performance

## Research methodology

### Research design

There are 149 local authorities in Malaysia which include 12 city councils, 38 municipal councils, and 99 district councils having a total of 1192 head of departments. A proportionate stratified random sample consisting of 291 head of departments were chosen (Krejcie & Morgan, 1970). The number of elements chosen from each strata is proportionate to the size of a particular strata relative to the overall sample size. The data were collected through a questionnaire survey with a total of 131 head of departments in Malaysian local authorities, fully participated in the survey which accounted for 45% of the selected sample. A structural equation modeling technique was utilised to examine the direct, and indirect effects of budgetary participation on managerial performance through a path analysis. The mediating effects of the use of performance measures information and the use of management accounting system also estimate by structural equation modeling technique.

### *Measurement of variables*

A survey technique was employed to collect the data for this study. The data for this study were collected through a survey technique, using an adapted instrument from the previous study to measure variables or constructs specified within the suggested framework: budget participation, the use of management accounting system, the use of performance measures information, and managerial performance. The survey instrument includes, budget participation by Milani's (1975), the use of performance measures information by Cavalluzzo and Ittner (2004), the use of management accounting system by Chenhall and Morris (1986) and managerial performance by Mahoney et al. (1965).

## **Results**

### *Respondent profile*

After data screening, one outlier was eliminated, leaving the final data set of 130 respondents (N=130). The respondents in the present study comprises of 53 % (n=69) male and 47% (n=61) female. In term of age, there were more than 60% (n=80) of respondents were between 30 to 49 years old. About 25% (n=33) of respondents age between 20 to 29, and only 13% (n=17) age 50 and above. It is also observed that most of the respondents have been employed at the local authorities for more than 5 years are 64.7% (n=87). Therefore, they can be considered to be familiar with the goals of their organization. This study includes all of head departments which involved in budget setting process. Out of 130 respondents, there were about 35% of respondents that have less than 5 years in budget experience, 29% have 6 to ten years in budget experience and 36% of respondents have more than 10 years experience in budgeting. Majority of respondents, 42% had a degree, only 10% with post graduate, 32% with diploma and 17% with certificate. Majority of the respondents in this study covered 62% (n=80) from district councils, 11% (n=14) from city councils, 28% (n=36) from municipal councils.

## **Hypotheses testing**

To test our hypothesized theoretical model, we used a software Analysis of Moment Structures AMOS version 16.0 and we rely on standardised parameter estimates for our theoretical model (refer Figure 1). The results for testing direct effects of hypotheses H1 to H5 and the results for H6 to H7 for testing indirect effects are summarized in Table 1 and 2 respectively.

### *Direct effect*

The first hypothesis, H1 proposed that budget participation has a positive influence on the use of performance measures information. The standardised parameter estimate between budget participation and the use of performance measures information was positive and statistically significant (path coefficient = 0.437,  $p < 0.05$ ) indicating that hypothesis 1 was supported. This finding consistent with Taylor, et al. (2008) which indicates that a high level of budget participation by managers increases their use of performance measures information. Consistent with our theoretical expectations, the standardised parameter estimate between the use of performance measures information and managerial performance was positive and statistically significant (path coefficient = 0.602,  $p < 0.05$ ). Thus, H2 suggested that the use of performance measures information is positively influencing the managerial performance is asserted. This finding aligned with Scott and Tiessen (1999) which reveals that performance measures information can form important part of the information required to support decision, and help subordinates to structure staff as well as assess progress. Furthermore, this performance measures

information is intended to improve government performance through the improvement of performance-based decision making (Cavalluzzo and Ittner, 2004).

The third hypothesis, H3 proposed that budget participation positively influence the use of management accounting system. The standardised parameter estimate between budget participation and the use of management accounting system was positive and statistically significant (path coefficient = 0.519,  $p < 0.05$ ). The finding in the present study also asserted the third hypothesis. This finding was consistent with Eker (2009) and Etemadi (2009) studies which indicate that budget participation and the use of management accounting system have the positive interaction effect.

The fourth hypothesis, H4 expected that the use of management accounting system is positively influencing the managerial performance. The standardised parameter estimate between the use of management accounting system and managerial performance was positive and statistically significant (path coefficient = 0.134,  $p < 0.1$ ). Thus, hypothesis 4 supported. This finding is in line with Burney and Matherly (2007), which indicates that the direct link between management accounting and information system and employee performance are positive and significant.

Our final hypothesis H5, expected that budget participation has a positive influence on the managerial performance. After the relationship between budget participation and managerial performance was controlled by mediator, finding indicates that budget participation has insignificantly influence the managerial performance (Table 1), thus, hypothesis 5 is rejected. This insignificant result shows that the fully mediating effects of the use of performance measures information and the use of management accounting system occurs in the budget participation and managerial performance relationship. This finding was consistent with several previous studies (for examples; Milani, 1975; Kenis, 1979; Chenhall and Brownell, 1988; and Wentzel 2002).

**Table 1. Standardized regression weight**

			Path Coefficient	S.E.	C.R.	P
MAS	<---	BP	.519	.102	5.090	***
PMs	<---	BP	.437	.084	5.215	***
MP	<---	MAS	.134	.078	1.718	.086
MP	<---	BP	-.179	.112	-1.603	.109
MP	<---	PMs	.602	.165	3.641	***

Notes: \*\*\* significant at the 0.01 level

**Table 2. Direct effect of variables interaction**

Exogenous	Endogenous	Path	Factor Loading	Hypothesis Testing
BP	MAS	C	0.520	Asserted
MAS	MP	D	0.162	Asserted
BP	PMs	E	0.652	Asserted
PMs	MP	F	0.486	Asserted
BP	MP	G	0.216	Rejected

*Indirect effect of budget participation on managerial performance*

The present study also investigates and measures the linkage of budget participation and managerial performance relationship through two mediating variables, includes the use of performance measures information and management accounting system to enhance managerial performance in the Malaysian local authorities. The results of this study, indicates that budget participation has indirectly positive influence on managerial performance. To test for hypotheses H6 and H7, a path analysis technique (Alwin & Hauser, 1975) was used. The indirect effects of budget participation on managerial performance

were calculated by two combination paths (Table 3). The first combination is the combination of path A and B, and secondly, combination of path C and D.

The sixth hypothesis, H6 suggests, the greater the budget participation, the higher is their use of performance measures information which, in turn, leads to higher managerial performance. The standardised parameter estimate between budget participation and the use of performance measures information was positive and statistically significant (path coefficient = 0.437,  $p < 0.05$ ) and the standardised parameter estimate between the use of performance measures information and managerial performance was positive and statistically significant (path coefficient = 0.602,  $p < 0.05$ ). Thus, H6 is supported. This finding is aligned with Taylor, et al. (2008) study, which indicates that use of performance measures information has a significant intervening effect on public servants. This finding revealed that those who have higher experience in budget setting process will make greater use of performance measures information in their work place. The increased of use of performance measures information bring about higher self-rated manager performance across the range of managerial functions.

Finally, the seventh hypothesis, H7 suggests that the greater the budget participation, the higher is their use of management accounting system which, in turn, leads to higher managerial performance. The standardised parameter estimate between budget participation and the use of management accounting system was positive and statistically significant (path coefficient = 0.519,  $p < 0.05$ ) and the standardised parameter estimate between the use of management accounting system and managerial performance was positive and statistically significant (path coefficient = 0.134,  $p < 0.1$ ). Thus, H7 is supported. This finding indicates that the mediating effect occur in the use of management accounting system between budget participation and managerial performance relationship. This finding is consistent with Emmanuel, et al. (1990) which suggested that both budgetary participation and the usage of management accounting system also represent as managerial control tools in organizations. Budget participation is more meaningful in organizations that have sophisticated management accounting system, so that managers can use the information for participative decisions making, which in turn lead to enhance the performance.

**Table 3. Indirect effect of variables interaction**

Exogenous	Mediated	Endogenous	Path	Factor Loading	Mediating Effect
BP	MAS	MP	BP MAS MP 0.216+0.084	0.300	Fully Mediating Effect
BP	PMs	MP	BP PMs MP 0.216+0.317	0.533	Fully Mediating Effect

The finding of this study revealed the informational and performance roles of performance measures and management accounting system in enhancing the managerial performance. Eventually, the result of this empirical study was consistent with the previous studies (e.g., informational role by Chenhall & Morris, 1986; Chong & Chong, 1997; Gul & Chia, 1994; Mia & Chenhall, 1994; Moores & Yuen, 2001; Soobaroyen & Poorundersing, 2008; performance role by Taylor et al., 2008, Sprinkle, 2003; Tsui, 2001; Scott & Tiessen, 1999).

## Conclusion

This paper measured the multiple roles of budget participation on managerial performance in Malaysian local authorities. Path analysis provides an empirical evidence to explain the direct and indirect effect of budget participation on managerial performance. The use of performance measures information and management accounting system was significantly interacted as the intervening between budget participation and managerial performance relationship. The theoretical contribution of this study is to extent the earlier literature by addressing effect in which, budget participation, the use of the performance measures information and the use of management accounting system can be inter-related in providing

explanations of managerial performance efficiently. In the methodological perspective, the validated instruments can be used in future research. The practical contribution for this study is that its finding can have practical relevance in the current management setting in Malaysian government organization.

## References

- Alwin DF, Hauser (1975). The Decomposition of Effect in Path Analysis. *American Sociological Review* **40**, 37-47.
- Baines A, Langfield-Smith K (2003) Antecedents to Management Accounting Change: A Structural Equation Approach. *Accounting, Organizations and Society* **28**(8), 675-698.
- Baron RM, Kenny DA (1986) The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic and Statistical Considerations. *Social Psychiatry and Psychiatric Epidemiology* **51**, 1173-1182.
- Bentler PM, Chow CP (1987) Practical Issue in Structural Modeling. *Sociology Method and Research* **16** (1), 78-117.
- Betts SC (2003) Contingency Theory: Science or Technology? *Journal of Business & Economics Research* **1**(8), 123-130.
- Burney LL, Matherly M (2007) Examining Performance Measurement from An Integrated Perspective. *Journal of Information System* **21**, 49-68.
- Cavalluzzo KS, Ittner CD (2004). Implementing Performance Measurement Innovations: Evidence from Government. *Accounting, Organizations and Society* **29**, 243-267.
- Chapman CS (1997) Reflections on A Contingent View of Accounting. *Accounting, Organizations and Society* **22**(2), 189-205.
- Chapman CS (1998) Accountants in Organizational Networks. *Accounting, Organizations and Society* **23**(8), 737-766.
- Chenhall RH (2003) Management Control Systems Design Within its Organizational Context: Findings from Contingency-Based Research and Directions for the Future. *Accounting, Organizations and Society* **28**(3), 127-168.
- Chenhall RH, Morris D (1986) The Impact of Structure, Environment, and Interdependence on the Perceived Usefulness of Management Accounting System. *The Accounting Review* **61**(1), 16-35.
- Chenhall RH, Langfield-Smith K (1998) The Relationship Between Strategic Priorities, Management Techniques and Management Accounting: An Empirical Investigation Using a Systems Approach. *Accounting, Organizations and Society* **23**(3), 243-264.
- Chong VK, Chong KM (2002) Budget Goal Commitment and Informational Effects of Budget Participation on Performance: A Structural Equation Modelling Approach. *Behavioral Research of Accounting* **14**(1), 65-86.
- Chong VK, Bateman D (2000) The Effect of Role Stress on Budgetary Participation and Job Satisfaction-Performance Linkages: A Test of Two Different Models. *Advance in Accounting Behavioral Research* **3**, 268-276.
- Chong VK, Chong KM (2002) Budget Goal Commitment and Informational Effects of Budget Participation on Performance: A structural Equation Modeling Approach. *Behavioral Research of Accounting* **14**, 65-86.
- Chong VK, Bateman D (2000) The Effect of Role Stress on Budgetary Participation and Job Satisfaction-Performance Linkages: A Test of Two Different Models. *Advance in Accounting Behavioral Research* **4**(3) 268-276.
- Chong VK, Eagleton IRC, Leung MKC (2002) The Effect of Value Attainment and Cognitive Roles of Budgetary Participation on Job Performance. *Advance in Accounting Behavioral Research* **8**(2), 213-223.
- Chong VK, Eagleton IRC, Micheal KCL (2006) The Multiple Roles of Participative Budget on Job Performance. *Advance in Accounting* **22**(4), 67-95.



- Chong VK, Johnson DM (2007) Testing a Model of Antecedents and Consequences of Budgetary Participation on Job Performance. *Accounting and Business Research* **37**(1) 3-19.
- Dorfuss (2009) The Relationship of Budgetary Participation and Reliance on Accounting Performance Measures with Individual-Level Consequent Variables: A Meta-Analysis. *European Accounting Review* **18**(2), 203-239.
- Drury C (2000) *Management & Cost Accounting*. Thomson Learning, London.
- Dunk AS (1995) The effect of budget emphasis and information asymmetry on the relation between budgetary participation and slack. *The Accounting Review* **68**, 400-410.
- Eker M (2009) The Impact of Budget Participation and Management Accounting Systems on Performance of Turkish Middle Level Manager. *Akdeniz I.I.B.F. Dergisi*. **17**(1), 11-15.
- Eker M (2009) The Impact of Budget Participation on Managerial Performance Via Organizational Commitment: A Study on the Top 500 Firms in Turkey. *Akdeniz I.I.B.F. Dergisi*. **17**(2), 12-23.
- Emmanuel CR, Merchant KA, Otley D (1990) *Accounting for Management Control*. Chapman & Hall, London.
- Etemadi H, Dilami DH, Bazaz MS, Parameswaran R (2009) Culture, management Accounting and Managerial Performance: Focus Iran. *Advance in Accounting* **25**(2), 216-225.
- Faucett A, Kleiner HB (1994) New developments in performance measurement of public programmes. *International Journal of Public Sector Management* **7**, 63-70.
- Ferris KR (1977) A test of the expectancy theory of motivation in an accounting environment. *The Accounting Review* **52**(5), 605-615.
- Ferris KR (1977) A Test of The Expectancy Theory of Motivation in An Accounting Environment. *The Accounting Review* **52**(3), 605-615.
- Fisher C (1996) The Impact of Perceived Environmental Uncertainty and Individual Differences on Management Information Requirements: A Research Note. *Accounting, Organizations and Society* **21**(4), 361-369.
- Fisher J (1995) Contingency-Based Research on Management Control Systems: Categorization by Level of Complexity. *Journal of Accounting Literature* **14**(2), 24-48.
- Fisher J, Frederickson JR, Pfeffer SA (2000) The effect of information asymmetry of negotiated budgets: An empirical investigation. *Accounting, Organizations and Society* **27**, 27-43.
- Fisher JG (1998). Contingency theory, management control systems and firm outcomes: Past results and future directions. *Behavioral Research in Accounting, Supplement* **10**, 47-65.
- Fitzgerald L, Johnston R, Brignall TJ, Silvestro R, Voss C (1991) *Performance Measurement in Service Businesses*. CIMA, London.
- Frazier PA, Tix AP, Barron KE (2004) Testing Moderator and Mediator Effect in Counselling Psychology Research. *Journal of Counseling Psychology* **51**, 115-234.
- Frucot V, Shearon WT (1991) Budgetary Participation, Locus of Control and Mexican Managerial Performance and Job Satisfaction. *The Accounting Review* **66**, 80-99.
- Frucot V, White S (2006). Managerial Level and The Effects of Budgetary Participation on Managers. *Managerial Auditing Journal* **21**, 191-206.
- Gerdin J (2005). Management Accounting System Design in Manufacturing Departments: An Empirical Investigation Using a Multiple Contingencies Approach. *Accounting, Organizations and Society* **30**(2), 99-126.
- Gordon LA, Narayanan VK (1984) Management Accounting Systems Perceived Environmental Uncertainty and Organization Structure: An Empirical Analysis. *Accounting, Organization and Society* **9** (4), 33-47.
- Gordon LA, Miller D (1976) A Contingency Framework for the Design of Accounting Information Systems. *Accounting, Organizations and Society* **1**(1), 59-69.
- Govindarajan V (1984) Appropriateness of Accounting Data In Performance Evaluation: An Empirical Examination of Environmental Uncertainty As An Intervening Variable. *Accounting, Organizations and Society* **9**(2), 125-135.

- Gul FA, Chia YM (1994) The Effect of Management Accounting System, Perceived Environmental Uncertainty, and Decentralisation on Managerial Performance: A Test of Three way Interaction. *Accounting, Organization and Society* **19**(4), 413-426.
- Hair JF, Money AH, Samouel P, Page M (2007) *Research Method for Business*. John Wiley & Son Ltd, NJ, USA.
- Hartman FGH (2000) The Appropriateness of RAPM: Toward the Future Development of Theory. *Accounting, Organization and Society* **25**(6), 451-482.
- Hayes DC (1977) The Contingency Theory of Managerial Accounting. *The Accounting Review* **1**, 22-39.
- Hendri J (2006) Organizational Culture and Performance Measurement Systems. *Accounting, Organization and Society* **31**, 77-103.
- Horngren CT, Bhimani A, Datar SM, Foster G (2002) *Management and Cost Accounting*. 2nd.Ed. Pearson Education, United Kingdom.
- Hu LT, Bentler PM (1999) Cut Off Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria Versus New Alternatives. *Structural Equation Modeling* **6**, 61-55.
- Kenis I (1979) Effects of Budgetary Goal Characteristics on Managerial Attitudes and Performance. *The Accounting Review* **54**, 707-721.
- Kenny DA, McCoach DB (2003) Effect of the Number of Variables on Measures of Fit in Structural Equation Modeling. *Structural Equation Modeling* **10**, 333-351.
- Klien RB (2005) *Principles and Practice of Structural Equation Modelling* (2nd Ed.). The Guilford Press, NY, New York.
- Kloot L, Martin J (2000) Strategic performance management: A balanced approach to performance management issues in local government. *Management Accounting Research* **11**, 231-251.
- Kluvers R (2001) An Analysis of Introducing Program Budgeting in Local Government. *Public Budgeting and Finance* **21**, 29-45.
- Krejcie RV, Morgan DW (1970) Determining Sample Size for Research Activities. *Educational and Psychological Measurement* **30**, 607-610
- Kren L (1992) Budgetary Participation and Managerial Performance: The Impact of Information and Environmental Volatility. *The Accounting Review* **7**, 511-526.
- Kren L, Liao WM (1988) The Role of Accounting Information in the Control of Organization: A Review of the Evidence. *Journal of Accounting Literature* **7**(2), 280-309.
- Kyj L, Nouri H (2008) The Effects of Performance Feedback on Prior Budgetary Participative Research Using Survey Methodology: An Empirical Study. *Critical Perspective on Accounting* **19** (3), 1431-1453.
- Lapsley I, Wright E (2004) The Difussion of Management Accounting Innovation in Public Sector: A Research Agenda. *Management Accounting Research* **15**(1), 355-374.
- Lau CM, Moser A (2008) Behavioral Effects on Nonfinancial Performance Measures: The Role of Procedural Fairness. *Behavioral Research of Accounting* **20** (2), 55-71.
- Lau CM, Tan SLC (2003) The Effect of Job-Relevant Information on the Relationship Between Evaluative Style and Job Satisfaction. *Review of Quantitative Finance and Accounting* **21**(1), 17-34.
- Leach-Lo'pez MA, Stammerjohan WW, McNair FM (2008) The Effect of Budgetary Participation Conflict on Job Performance of Mexican and US Managers. *Advance in Accounting, Incorporating Advances in International Accounting* **24**, 49-64.
- MacCallum RC, Browne MW, Sugawara HM (1996) Power Analysis and Determination of Sample size for covariance Structure Modelling. *Psychological Method.* **1** (2), 130-49.
- Macnealy MS (1999) *Strategies for Empirical Research in Writing*. Reviewed by Ellen Barton. Wayne State University. Allyn. & Bacon, Boston.
- Magner N, Welker RB, Cambell TL (1995) The Interactive Effect of Budgetary Participation and Budget Favourability on Attitude Toward Budget Decision Makers: A Research Note. *Accounting, Organization and Society* **20**(7), 611-618.

- Magner N, Welker RB, Campbell TL (1996) Testing a Model of Cognitive Budgetary Participation Processes in A Latent Variable Structural Equations Framework. *Accounting and Business Research* 27, 41-50.
- Mahoney TA, Jerdee TH, Carroll SJ (1965) The Jobs of Management. *Industrial Relations* 1, 97-110.
- Melkers J, Katherine W (2001) Budgeters Views of State Performance Budgeting Systems. *Public Administration Review* 61, 54-64.
- Melkers J, Katherine W (1998) The State of the States: Performance-Based Budgeting requirements in 47 Out of 50. *Public Administration Review* 58, 66-73.
- Melkers J, Willoughby K (2005) Models of performance-measurement use in local governments: Understanding budgeting, communication and lasting effects. *Public Administration Review* 65, 180-191.
- Mellor R (2001) Performance Measurement and Management in Asia-Pacific local Government. A Research Project Coordinated by the UTS Centre for Local Government.
- Merchant KA (1981) The design of the corporate budgeting system: Influences on managerial behavior and performance. *Accounting Review* 56, 813-829.
- Meyer JP, Allen NJ (1997) *Commitment in the workplace: Theory, Research and Application*. Sage Publications, Thousand Oaks, CA.
- Meyer JP, Becker TE, Vandenberghe C (2004) Employee Commitment and Motivation: A Conceptual Analysis and Integrative Model. *Journal of Applied Psychology* 89 (6), 991-1007.
- Mia L, Chenhall RH (1994) The Usefulness of Management Accounting System, Functional Differential and Managerial Effectiveness. *Accounting, Organization and Society* 19(1), 1-13.
- Milani K (1975) The Relationship of Participation in Budget-Setting to Industrial Supervisor Performance and Attitudes: A Field Study. *The Accounting Review* 4, 274-284.
- Mitchell RJ (2001) Path analysis: Pollination. In: SM Scheiner, J Gurevitch (eds) *Design and Analysis of Ecological Experiments, Second Edition*, pp. 217-234. Oxford University Press.
- Mohd Nor, Nik Nazli, Abdul Hamid (2008) Budgetary Participation and Performance: Some Malaysian Evidence. *International Journal of Public Sector Management* 21, 659-673.
- Moore K, Yuen S (2001) Management Accounting Systems and Organizational Configuration: A Life-Cycle Perspective. *Accounting, Organizations and Society* 26(5), 351-389.
- Murwaningsari E (2008) The Role of Organizational Commitment and Procedural Justice in Moderating the Relationship between Budgeting Participation and Managerial Performance. *Gadjah Mada International Journal of Business* 10, 185-210.
- Otley D (1995) Management Control, Organizational Design and Accounting Information Systems. In: Ashton D, Hopper T, Scapens RW (eds) *Issues in Management Accounting*. Prentice-Hall, Upper Saddle River, NJ.
- Otley DT (1980) The Contingency Theory of Management Accounting: Achievement and Prognosis. *Accounting, Organizations and Society* 5(4), 194-208.
- Parker RJ, Kyj L (2006) Vertical Information Sharing in the Budgeting Process. *Accounting, Organizations and Society* 31, 27-45.
- Poister TH, Streib G (1999) Performance Measurement in Municipal Government: Assessing the State of the Practice. *Public Administration Review* 59, 325-35.
- McGill R (2001) Performance Budgeting, *International Journal of Public Sector Management* 14(5), 376 - 390.
- Schumacker RE, Lomax RG (1996) *A Beginner's Guide to Structural Equation Modelling*. Lawrence Erlbaum Associates, Mahwah, NJ.
- Scott TW, Tiessen P (1999) Performance Measurement and Managerial Terms. *Accounting, Organization and Society* 24, 263-285.
- Scott WR (1992) *Organizations: Rational, Natural and Open Systems*. Prentice-Hall, Eaglewood Cliffs, NJ.
- Sekaran U (2005) *Research Methods for Business: A Skill-Building Approach* (4th ed.). John Wiley & Sons, NY.

- Sharma R, Jones S, Ratnatunga J (2006) The Relationships Among Broad Scope MAS, Managerial Control, Performance and Job Relevant Information: A Concomitant Analysis. *Review of Accounting and Finance* 5 (3), 228-250.
- Sole F, Schiuma G (2010) Understanding Organisational Knowledge – Based Value Creation Dynamics: A Systems Thinking Approach. In: Taticchi P (ed) *Business Performance Measurement and Management New Contents, Themes and Challenges*, pp.327-341. Springer-Verlag Berlin Heidelberg.
- Soobaroyen T, Poorundersing B (2008) The Effectiveness of Management Accounting Systems: Evidence from Functional Managers in A Developing Country. *Managerial Auditing Journal* 23(2), 187-219.
- Sprinkle GB (2003). Perspectives on Experimental Research in Managerial Accounting. *Accounting, Organizations and Society* 28(2), 287-318.
- Stedry AC (1960) Budget Control and Cost Behavior. Prentice-Hall, Englewood Cliffs, NJ.
- Steers RM (1977) Antecedents and Outcomes of Organizational Commitment. *Administrative Science Quarterly* 22, 46-56.
- Steiger JH (1990) Structural Model Evaluation and Modification. *Multivariate Behavioral Research* 25, 214-212.
- Steiger JH (2007) Understanding the Limitations of Global Fit Assessment in Structural Equation Modeling. *Personality and Individual Differences* 42, 893-898.
- Subramaniam N, Mia L (2001) The Relation Between Decentralised Structure, Budgetary Participation and Organization Commitment, the Moderating Role of Manager's Value Orientation Towards Innovation. *Accounting, Auditing and Accountability* 14(3), 12-39.
- Swiernga RI, Moncur RH (1975) Some Effect of Participative Budgeting on Managerial Behavior. National Association of Accountant, New York.
- Taylor D, Fadzlon AH, Zuraidah MS (2008) The Factors Impacting Managerial Performance in Local Government Authorities Within an Islamic Cultural Setting. *JAMAR* 6, 23-41.
- Tsui Judy SL (2001) The Effect of Culture on the Relationship between Budgetary Participation, Management Accounting System, and Managerial Performance: An analyses of Chinese and Western Managers. *International Journal of Accounting* 36(3), 125-146.
- Wentzel K (2002) The Influence of Fairness Perceptions and Goal Commitment on Managers' Performance in Budget Setting. *Behavioural Research in Accounting* 14, 247-271.