The Effects of Management Accounting Systems and Organizational Commitment on Managerial Performance

Yao-Kai Chuang, Tajen University, Pingtung, Taiwan

ABSTRACT

This Study examines the interactive effects of organizational commitment and management accounting system (MAS) design on managerial performance. MAS design was defined in terms of the extent to which managers use broad scope MAS information. The responses of 134 managers, drawn from the public manufacturing companies in Taiwan, to a questionnaire survey were analyzed by moderated multiple regression method. The result shows that the interaction effect between the extent of the use of MAS information and organizational commitment had an impact on managerial performance. When the managers were with high organizational commitment, the extent of use of broad scope MAS information led to higher information processing capacity and hence to improve managerial performance.

INTRODUCTION

Contingency theory has been applied to the analysis and design of management accounting systems (MAS) in recent years. Some researches focus on the examination of the relationship between MAS and managerial performance and interpreted the interactive effects with some contextual variables, such as perceived task uncertainty (Chong, 1996). Chong’s study got a conclusion that the more was the uncertainty or environmental variety getting higher, the more was the usefulness of broad scope MAS information because managers need more information to assist them to make decisions in an uncertainty environment. Nevertheless, there was one issue merit further investigation. As the advancing of the information technology and software technique, enterprises are getting more easier to build a larger MAS to contain as much information as possible to fulfill the demand of decision making in today’s complicated working environment. When the size of MAS information became too large, the performance would not getting improved, even worse, because of the limited information processing capacities (IPC) of the organizations and their members (Schick et al., 1990). Shields (1983) also indicated that judgment accuracy was an inverted U-shaped function of supply of information. It means that in the positive slope section more information was helpful for judgment accuracy, but when over the hill, information overloaded or the negative slope section, more information turn to be harmful to the judgment accuracy.

According to the suggestion of Hahn et al. (1992), one of the methods to increase IPC of organizational members was to raise the level of their involvement. To higher members’ involvement in the organizations, one of the alternatives was to enhance their organizational commitment. People with higher commitment were willing to take their time to process the large volume of information that was called the increment of IPC according to the description of Schick et al. (1990). Hence, organizational commitment plays an important role of the relationship between the extent of the use of broad scope MAS information and managerial performance.

A theoretical development linking the moderating effect of organizational commitment between broad scope MAS information and managerial performance is developed in the next section. Subsequent sections are the research method of this study, the results of the research, the discussion, conclusion, and limitations.

THEORETICAL DEVELOPMENT

Management accounting systems was one of the organizational subsystems that facilitated control by reporting the performance of the participants of organizations (Chia, 1995). The broad scope MAS (BSMAS) referred to the dimension of focus, quantification and time horizon (Gordon & Narayanan, 1984) and was used to provide economic, noneconomic, external, and future-oriented information (Chenhall &Morris, 1986). The scope of a MAS should include
the estimates of the likelihood of future events occurring in order to assist managers price-making, inventory control and labor negotiations (Simon, 1954) and to assess manager’s reliability, cooperation, and flexibility (Hayes, 1977). Chenhall & Morris also mentioned that BSMAS not only had the function of alleviating the difficulties caused by the environmental uncertainty but also enhance the control in uncertain situations by focusing information on the origins of uncertainties. Hence, BSMAS had the positive effect with the managerial performance before information overload.

Nevertheless, in a complicated managerial environment, managers tend to seek information more than they really required, even to the extreme of inducing overload (Driver & Mock, 1975), in order to increase the decision maker’s confidence (Oskamp, 1965) but either enhanced the decision-making accuracy of the performance (O’Reilly III, 1980). Hence, the participants of organizations who tried to avoid mistakes in uncertainty situation by searching for more information than needed always overvalued their IPC if they did not increase their involvement. Hahn, Lawson & Lee (1992) conclude “ involvement level can interact with information load by expanding the working capacity for processing incoming information so that relative performance of high-involvement groups will be enhanced at higher information load level”. Hahn et al. also took an example describing that idea. If there were two person. The first person is willing to work overtime to get the task done. The second person does not. The first person has increased his/her involvement to meet the new demands on time. In addition, according to Schick et al. (1990) that the first person have increase his/her IPC because of his/her additional working hours, in stead, the second person did not changed anything even his/her IPC.

Streers (1977) described that commitment to an organization is considered to reflect the relative strength of an individual’s identification with and involvement in that organization. In this study we replaces the involvement level to be the level of organizational commitment. And based on the previous discussion, if an organization is trying to avoid information overload, it should try to raise people’s organization commitment. High committed people can improve their IPC because they’re willing to work extra hours dealing information to improve the managerial performance. On the other hand, low committed people would not work more than requirement to increase their IPC and draw the performance backward when they had to deal with lots of information. So, organizational commitment plays a moderating role of the relationship between the extent of the use of broad scope MAS information and managerial performance. The reasoning in the previous paragraphs suggests the following hypothesis.

**H1:** The higher the organizational commitment (X₂), the more positive is the relationship between the extent of use of broad scope MAS information (X₁) and managerial performance (Y). In mathematical terms, when X₂ increases, \( \frac{\partial Y}{\partial X_1} \) is greater.

**METHOD**

**The sample**

This study collected 134 effective questionnaire data from the production managers from 107 randomly selected public manufacturing companies in Taiwan. A total of 450 questionnaires were sent with stamped self-addressed envelope, and made a response rate of 29.7%. The average seniority of the respondents was 10.7 years.

**Variable measurement**

* Broad scope MAS information. Chenhall & Morris’s (1986) six-item instrument was modified to measure “the extent of use” of BSMAS information. The instrument originally asked respondents to rate the “perceived usefulness of “ MAS information to link managerial performance that was unrealistic (Chong, 1996). The extent of use of MAS information enhances decision effectiveness and ultimately impact on managers’ performance that would be more precise linkage. Managers were asked to rate the extent of use of broad scope MAS information in their daily decision making activities on a 7-point Likert-type scale ranging from 1 (never/seldom) to 7 (usually/always). The scores were analyzed by averaging across items.

* Managerial Performance. Managerial performance was measured in terms of a nine-item self-rating scale that required participants to evaluate their performance on a seven-point Likert-type scale from 1 (very low performance) to
7 (very high performance). That attempt to capture the performance for 8 managerial dimension: planning, investigation, coordinating, evaluating, supervising, staffing, negotiating and representing and one overall performance dimension (Mahoney et al., 1963, 1965). The scores were analyzed by averaging across items.

Organizational Commitment. The instrument developed by Mowday et al (1982), called the Organizational Commitment Questionnaires (OCQ), was primarily intended to examine affective commitment and test an employee’s involvement to exert effort. Commitment was measured by fifteen-item questionnaire and 7-point Likert scale from 1 (strongly disagree) to 7 (strongly agree). The scores were analyzed by averaging across items. Randall (1987) described the questionnaires containing three components: (a) a strong belief in, and acceptance of, the organization’s goals; (b) a willingness to exert considerable effort on behalf of the organization; and (c) a desire to maintain membership in the organization.

RESULTS

The descriptive statistics and correlation matrix for the variables were presented in Table 1 and Table 2 respectively. The hypothesis was tested by moderated multiple regression equation (Pedhazur, 1982) based on the following multiplicative model:

\[ Y = a + b_1X_1 + b_2X_2 + b_3X_1X_2 + e \]  

Y: Managerial performance  
X_1: broad scope MAS information  
X_2: Organizational Commitment  
X_1X_2: Interaction between MAS and Organizational Commitment  
e: Error term  
a, b_1, b_2, b_3: the coefficient of the regression equation

The hypothesis implies that \( b_3 \) will be positive and statistically significant. The mathematical term: \( \frac{\partial Y}{\partial X_1} \) will be positive for higher values of \( X_2 \) and negative for lower values. That is \( \frac{\partial Y}{\partial X_1} = b_1 + b_3X_2 \)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Theoretical range</th>
<th>Actual range</th>
<th>Cronbach α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance</td>
<td>4.6202</td>
<td>0.5346</td>
<td>1</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>BSMAS</td>
<td>5.1107</td>
<td>0.8769</td>
<td>1</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Commitment</td>
<td>5.6132</td>
<td>0.6173</td>
<td>1</td>
<td>7</td>
<td>2</td>
</tr>
</tbody>
</table>

**Table 2. Correlation matrix for the variables**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Performance</th>
<th>BSMAS</th>
<th>Commitment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BSMAS</td>
<td>0.252**</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>Commitment</td>
<td>0.464**</td>
<td>0.317**</td>
<td>1.000</td>
</tr>
</tbody>
</table>

**p<0.05

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>Value</th>
<th>Std. Error</th>
<th>t-Value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>a</td>
<td>6.295</td>
<td>2.191</td>
<td>2.873</td>
<td>0.005</td>
</tr>
<tr>
<td>BSMAS (X_1)</td>
<td>b_1</td>
<td>-0.738</td>
<td>0.427</td>
<td>-1.729</td>
<td>0.086</td>
</tr>
<tr>
<td>Commitment (X_2)</td>
<td>b_2</td>
<td>-0.354</td>
<td>0.386</td>
<td>-0.918</td>
<td>0.360</td>
</tr>
<tr>
<td>Interaction (X_1X_2)</td>
<td>b_3</td>
<td>0.141</td>
<td>0.074</td>
<td>1.908</td>
<td>0.049</td>
</tr>
</tbody>
</table>

Adjusted \( R^2 = 0.231; R^2 = 0.248; p<0.05 \)

The results presented in Table 3 show that the coefficient \( b_3 \) was positive and significant (t-value=1.908, p<0.05). \( b_3 \)
was not equal zero that provides support for H1 showing that interaction between the extent of the use of MAS information and organizational commitment had a significant impact on managerial performance. In order to obtain additional insight about the nature and direction of the interaction effects of organizational commitment, the partial derivative of the equation (1) over the extent of the use of broad scope MAS information (X₁) was computed (Schoonhoven, 1981) and shown as the following:

\[ \frac{\partial Y}{\partial X_1} = -0.738 + 0.141X_2 \]  (2)

Equation (2) will be zero when \( X_2 \) (organizational commitment) has a value of 5.234, which is the inflection point (see Figure 1). This inflection point is within the range of observable value for \( X_2 \). In other words, equation (2) will be positive when organizational commitment is greater than 5.234 and negative when organizational commitment is below 5.234. Therefore, the results show that the higher the level of organizational commitment, the greater the positive impact of the extent of the use of broad scope MAS information on managerial performance.

![Figure 1](image_url)

**FIGURE 1**

**CONCLUSIONS AND LIMITATIONS**

The results of this study support the hypothesis that organizational commitment and the extent of the use of broad scope MAS information have an interactive effect on managerial performance. Managers who are operating in a high organizational commitment situation will involve more time in their organization when they face the overwhelming information to improve the managerial performance. On the other hand, lower committed people would not involve too much in their organization, so their performance would be interfered when they have to deal with lots of information. Hence, organizational commitment plays a moderating role of the relationship between the extent of the use of broad scope MAS information and managerial performance.

This study has several limitations. First, the sample was drawn from the manufacturing industry of Taiwan. Generalization the results to other industries and countries should be done cautiously. Second, the regression model of performance explained a low level of variance (Adjusted \( R^2 = 0.231 \)) indicating that variables other than organizational commitment and broad scope MAS information are at work to affect managerial performance. Other potential MAS design factors are needed to examine in the further research.

Despite the limitations above, the results of the study indicate that understanding of the way in which greater usage of broad scope MAS information assists in improving managers’ performance is enhanced by considering the way commitment is playing an important role in organization. While the results are clearly a modest extension of the body of research exploring the usefulness of MAS information, they do add to our understanding about which factors at the individual level potentially affect the design of MAS.
REFERENCES


