Factors affecting the adoption of performance measurement system among Malaysian SMEs

Kamilah Ahmad, Shafie Mohamed Zabri, Siti Sarah Omar

1,2 Department of Production and Operations Management
3 Department of Technology and Management
Faculty of Technology Management and Business, Universiti Tun Hussein Onn Malaysia

Performance measurement system plays an important role in enhancing the competitiveness of small and medium enterprises (SMEs). The purpose of this paper is to provide new empirical evidence on the factors that lead to the use of performance measurement system in Malaysian SMEs specifically in the manufacturing sector. A postal survey to the selected SMEs was used to facilitate the study. The results indicate that the performance measurement system is widely used by the majority of the respondents. The results also suggest that the SMEs make more use of performance measures when their firms encounter operational complexity as a result of growth in the use of modern technology, when the owner/manager is committed to their use and when the SMEs employed a qualified accounting staff. However the findings suggest that the firm's size and market competition are not likely to increase the higher use of performance measurement system among SMEs.

Keywords: Performance measurement system, Small and medium-sized enterprises (SMEs), Manufacturing sector, Malaysia

1.0 INTRODUCTION

A successful company is always characterised by flexibility and an ability to react quickly to the competitive and changing environment through the use of systematic PMS. Nevertheless the choice of the right performance measures has become a major task for today’s business organisation including SMEs. Knowledge in the existing performance measures, commitment of the firm as well as the firm’s financial resources might hinder the proper use of performance measurement system (PMS) among relatively smaller firms. As PMS is crucial for supporting managerial development and managing an increasing complexity of SMEs, the proper use of PMS should be emphasised. However as a relatively small firm, SMEs tend to have poor strategic planning and do not fully understand what their critical success factors are. This situation may cause a discontinuity of SMEs in the long term. Adequate use of essential business and systematic management practices are one of the vital factors in ensuring the survival of SMEs. Therefore it is crucial for SMEs to adopt proper techniques of PMS to set future objectives and plan any necessary improvement.

Despite a significant contribution of SMEs to the most economy in the world, there is only a few pieces of information regarding the application of PMS in SMEs that have been found in the literature. Most existing literature focused on large firms as a sample of study, evidenced by the series of literatures examining the use of PMS among large firms. Apart from that, obtaining data from SMEs is quite challenging due to unavailability of published financial data and confidentiality factor. In addition some SMEs are not use to the academic research and consequently are quite reluctant to be involved in the academic survey. Therefore this research aims to take up the challenge by exploring the adoption of PMS among Malaysian SMEs. This paper contributes towards filling the gap in the literature and adds new information to the body of knowledge in PMS by investigating the issues from the case of Malaysian SMEs. The remainder of the article is structured as follows. In the next section the literature review PMS followed by research methodology and a discussion of the survey results. Conclusion is presented in a final section.

2.0 PERFORMANCE MEASUREMENT SYSTEM

PMS is a group of techniques developed by the organisations to evaluate the effectiveness and efficiency of business activities at both operational and organisational level. This system is tailored to specific organisational characteristics as the choice of metrics used to measure the performance is not a generic independent process that applicable for all type of organisations. Currently there is lack of research
investigating the use of PMS among smaller firms. SMEs sector comprises of relatively small enterprises that are generally associated with limited use of business resources as well as professional expertise. Under these constraints, few questions are raised particularly on (1) How the SMEs decide on the choice of techniques used for measuring their performance, and (2) What are the common practices of performance measurement among SMEs. The lack of knowledge in this area also prohibits further action to improve managerial skills and competencies level among SMEs. Therefore it is worth investigating the PMS issues in SMEs in order to provide new empirical evidence to the body of knowledge. The previous literature categorised performance measures in terms of financial and non-financial or qualitative and quantitative criterion. The traditional financial measures have long been criticised due to its failure to respond to developments in the technological and competitive environment. Stated that that traditional PMS has been argued tend to be narrow and inward looking and fail to include qualitative factors. Despite these limitations, a large number of previous studies stated that traditional approach has still been receiving consistent interest among organisations over time either in developed or developing country. For example, indicated a high use of financial measures such as financial return and working capital among UK manufacturing firms. A study by shows that ROI and divisional profit have relatively high adoption rates among Australian manufacturing firms. Meanwhile found that the traditional financial measures were the most widely used. indicated that the majority of Egyptian companies have a wide use of financial measures as opposed to nonfinancial measures. The newly-innovated performance measurement which covering non-financial aspects of operational performance are introduced to provide additional information which could not been provided by the traditional approach. Multidimensional PMS is important for enhancing the likelihood that all relevant performance dimensions are considered. Similarly, argued that regardless of strategy, organizations with more extensive PMSs, especially those that included objective and subjective non-financial measures, have better overall performance. The newly-innovated measures also take an explicit strategic focus and provide more relevant, accurate and appropriate information for management. However from the review, financial-based performance measures are still widely adopted by today’s organization.

This study is based on contingency theory in exploring the variables that affect the use of non-financial performance measures among small firms. The central theme is that there is no unique best structure to all organisations under all circumstances; instead each organisational structure is a response to a set of contingencies. Contingency theory must therefore identify specific aspects of an accounting or performance evaluation system which is associated with certain defined circumstances and demonstrate an appropriate match. Researchers to date have attempted to explain the development or change of PMS by examining designs that best suit contingent variables including the nature of the environment, technology, size, structure, and strategy. For example view contingent variables as external and internal factors. While internal contingencies are determined as technology, organizational aspects, and strategy; external factors indicate the features of external environment at the level of business and accounting that shape internal systems.

reveal that the use of multidimensional performance measures is associated with two dimensions of the effectiveness of PMSs; performance and staff related outcomes. Top management support was found to be associated with the effectiveness of PMSs in respect to the performance related outcomes.

In organisations such as SMEs, one important issue that might limit the adoption of PMS is the abilities and competencies of the available human resources. concluded that qualified accountants, together with the generally high level of education and training of the accountant, might aid the generation and analysis of financial information. found that poor training of employees was the major obstacle to the adoption of new performance measures. This situation may reflect a lack of skills by employees and the difficulty in comprehending the performance measurement process.

Nevertheless, researches related to contingency factor in SMEs are very limited. Furthermore, the extant literature on this subject is confined to developed countries and there is very little evidence on factors associated with the use of PMS. Therefore this study fill in the research gap by focusing SMEs sector as a main sample of study.

3.0 RESEARCH METHODOLOGY

The target population identified for gathering information regarding this concern is Malaysian SMEs from the manufacturing sector. A questionnaire survey was employed and the firms were selected from the Federation of Malaysian Manufacturers (FMM). At the end of the survey 160 questionnaires were received which equal to 16% (160/1000). The response rate is considered acceptable in the SMEs context and sufficiently enough for quantitative analysis.

PMS was measured using 13 items which can be categorised into three components; Overall Performance Measurement System (PMS); Financial Performance Measurement System (FPMS) and Non-Financial Performance Measurement System (NFPMS). The items was measured using five-point likert scale 1=rarely used to 5=Very frequent. Meanwhile the measurements used as proxies for the contingent factors are detailed below.

- Size of the firms
Previous studies have demonstrated consistently that a firm’s size has significant effect on the use of PMS in business organizations. A larger firm has greater total resources, and require more control of, and information
on, their business activities and, therefore, need more comprehensive PMS. Thus it is essential to test whether the size of the SMEs will be associated with a greater use of PMS. The following general hypothesis was developed in order to guide the analysis.

\[ H_1: \text{ There is significant relationship between size of the firm and the use of PMS among SMEs.}\]

- Intensity of market competition
  It has been argued that the intensity of market competition can play a major role in encouraging the use of PMS. As competition increases, a more reliable management information is likely to be needed by the firms to compete effectively and avoid planning based on inaccurate information when making decisions. The following general hypothesis was developed in order to guide the analysis.

\[ H_2: \text{ There is significant relationship between intensity of market competition and the use of PMS among SMEs.}\]

- Commitment of owners/directors of firms
  Since the owner/manager will probably be involved closely in the management of the firm, the commitment of the owner/manager of the firm might directly influence the extent of use of PMS. The following general hypothesis was developed in order to guide the analysis.

\[ H_3: \text{ There is significant relationship between commitment of owner/manager of firm and the use of PMS among SMEs.}\]

- Advanced manufacturing technology
  The use of modern technology in production activities has been shown to impact on the extent of use of PMS in many populations but not for SMEs. Even though advanced production techniques may be limited to smaller firms, it is assumed that manufacturing firms employ technology of some form in assisting their production activities. The following general hypotheses were developed in order to guide the analysis.

\[ H_4: \text{ There is significant relationship between advanced manufacturing technology and the use of PMS among SMEs.}\]

- The level of qualification of accounting staff
  In small firms, the existence of qualified internal accounting staff can be a significant factor underlying the adoption of PMS. In the case of SMEs, it is doubtful as to whether qualified internal accountants will have been hired in all firms and even if hired whether these staff have recognized qualifications. The following general hypotheses were developed in order to guide the analysis.

\[ H_5: \text{ There is significant relationship between the level of qualification of the accounting staff and the use of PMS among SMEs.}\]
The relationship between contingent factors and the use of overall PMS

The results presented in Table 2 show a positive and significant relationship between owner/manager commitment and AMT with the use of overall PMS.

Table 2: Pearson correlation coefficient test results for the relationship between contingent factors and the use of overall PMS.

<table>
<thead>
<tr>
<th></th>
<th>Correlation coefficient</th>
<th>Sig. value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size of the firms</td>
<td>0.017</td>
<td>0.847</td>
</tr>
<tr>
<td>Market competition</td>
<td>0.073</td>
<td>0.422</td>
</tr>
<tr>
<td>Owner/manager commitment</td>
<td>0.384**</td>
<td>0.000</td>
</tr>
<tr>
<td>AMT</td>
<td>0.212*</td>
<td>0.020</td>
</tr>
<tr>
<td>Qualified accounting staff</td>
<td>0.176*</td>
<td>0.047</td>
</tr>
</tbody>
</table>

Correlation is significant at the 0.05 level (2-tailed).*
Correlation is significant at the 0.01 level (2-tailed).**

The results presented in Table 3 show a positive and significant relationship between owner/manager commitment, AMT and qualified accounting staff with the use of overall PMS.

The relationship between contingent factors and the use of FPMS

Table 3: Pearson correlation coefficient test results for the relationship between contingent factors and the use of FPMS.

<table>
<thead>
<tr>
<th></th>
<th>Correlation coefficient</th>
<th>Sig. value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size of the firms</td>
<td>0.142</td>
<td>0.110</td>
</tr>
<tr>
<td>Market competition</td>
<td>0.086</td>
<td>0.349</td>
</tr>
<tr>
<td>Owner/manager commitment</td>
<td>0.365**</td>
<td>0.000</td>
</tr>
<tr>
<td>AMT</td>
<td>0.150</td>
<td>0.103</td>
</tr>
<tr>
<td>Qualified accounting staff</td>
<td>0.185*</td>
<td>0.037</td>
</tr>
</tbody>
</table>

Correlation is significant at the 0.05 level (2-tailed).*
Correlation is significant at the 0.01 level (2-tailed).**

The results presented in Table 4 show a positive and significant relationship between owner/manager commitment and AMT with the use of NFPMS.

The results presented in Table 4 show a positive and significant relationship between owner/manager commitment and AMT with the use of NFPMS.

5.0 SUMMARY

The results of the bivariate analysis of the relationships between selected contingent variables and the use of PMS find that a greater use of business performance information provided by PMS are present when SME owner/managers have a greater participation and support for use of this system. The results suggest that, in SMEs, the owner/manager may drive pressure for improved information for performance evaluation. The demand for the greater use of PMS might be attributed to demands from the owner/manager of firm for information for handling more complex decision making and also for helping them in strategic planning. Therefore owner/managers have major influence on the use of information that related to monitoring performance of organization.

Likewise, the greater use of AMT has been positively and significantly associated with the use of overall PMS which indicates that the improved information for performance measurement is crucial in response to increased complexity in firm operations. The firms with a greater use of AMT also appear to be more careful in measuring the performance based on non-financial measures. This perhaps shows the importance of firms having comprehensive records on operation and production performance so that firms are able to act wisely and competitively. The result suggests that the regular use of necessary tools for performance measurement were found to be associated with the availability of more qualified accounting staff within the firms. However this factor is not significantly associated with the use of more current practices like non-financial PMS. Therefore the result indicates that competent accounting staff is significant in encouraging the application of traditional PMS in SMEs.

Overall this study shows that the commitment of owner/manager, the use of technology and qualified accounting staff have been identified as significant factors that have significant relationship with the adoption of PMS among SMEs. However the finding indicates that the firm's size which is measured by annual sales turnover are not likely to increase the extent of use of PMS. Similarly SMEs tend to adopt PMS regardless a different level of market competition of SMEs.

6.0 CONCLUSION

In Malaysia SMEs has a crucial contribution to the business activities and remains as an integral part of economic development of the country²⁰. The purpose of this article is to investigate the application of PMS among Malaysian SMEs and factors that have significant relationship with the use of PMS in SMEs. A quantitative
data from a survey on 160 SMEs in manufacturing sector was used to facilitate the analysis.

The results suggest that three explanatory variables; owner/manager commitment; level of qualifications of internal accountant; and use of AMT appear the most significant factors associated with the wider use of PMS among SMEs. This result supports the argument and findings of the previous studies that an owner/manager's commitment plays a critical role in the effectiveness of the development of management system in SMEs. Further the results suggest that modern technology can be an important driver that leads to the higher use of PMS in the smaller firm context. The association between technology with the use of performance evaluation system is consistent with several previous findings for example 18-19.

Overall the findings imply that the SMEs make more use of PMS when their firms encounter operational complexity as a result of growth in the use of modern technology, when the owner/manager is committed to their use and when the SMEs employed a qualified accounting staff. The effect of these factors in a sample is viewed as a distinctive element of the Malaysian context, which requires further investigation in this environment, especially in relation to the role of current trends of PMS in today's business organisation.

ACKNOWLEDGEMENTS

The financial support from the Ministry of Education Malaysia under a research grant RAGS is acknowledged with gratitude.

REFERENCES