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Research paper

Barriers to implementing environmental management accounting practices in small medium manufacturing companies in Malaysia

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Abstract

This study examines the barriers to adopting environmental management accounting among small-medium enterprises (SMEs) in Malaysia, specifically among manufacturing SMEs. The data were collected from SME managers using a mail survey. The data were analyzed using descriptive statistics, and the results showed that the financial barrier is the strongest barrier to practice environmental management accounting, followed by informational barrier, attitudinal barrier, institutional barrier, and management barrier. The results provide an understanding of SME managers concerning the reasons that hinder them from practicing environmental management accounting. In addition, the findings contribute to the body of knowledge on environmental management accounting as this area is considered to be a "green area" that requires more empirical evidence.

Keywords: *Barriers; Environmental Management Accounting; Small- Medium Enterprises JEL Classification: M40; M41.*

1. Introduction

Over the last decade, sustainability issues have become increasingly significant to policy makers in both the political and the business world (Avila and Bradley, 1993; Ladd Greeno, 1994). One of the techniques to improve sustainability is environmental management accounting (hereafter called EMA). As mentioned by Bennet and James (1997), environmental-related management accounting has the potential to make a substantial contribution to both business success and sustainable development. The role of management accounting is to provide information for planning, control, and decision-making. The function of management accounting is changing from financial information to non-financial information. This is due to the demands of the customer, environmental legislation to integrate sustainability considerations in the decision-making process (Heeren, 1998).

According to Chang (2007), EMA is defined as an instrument that aims to assist firms in managing environmental performance and reporting environmental information to both the internal and external stakeholders. Also, Gale (2006) and Jasch (2006) argued that the increase in the environmental impacts and related costs, as well as the failure of conventional accounting systems in providing the required information for reducing these impacts and costs, has led to the appearance of EMA. Chang (2007) mentioned that EMA has emerged as a response to the challenges faced by traditional management accounting with regards to the activities relating to environmental issues.

Despite the importance and benefits of EMA, the level of adoption and implementation of EMA practice is still weak within firms in many countries, especially in developing countries, such as Malaysia. This is due to low environmental awareness, ineffective role of professional bodies, and lack of stakeholder pressure, and possibly because of the weakness of environmental legislation and firms difficulties (Burrit, 2004). The weakness is very obvious in smaller firms, as mentioned by Mitchell and Reid (2000). Most of the studies designed to investigate technical innovation and development only concentrated on larger firms to the exclusion of smaller firms where the expertise and capacity to innovate in management accounting is less likely to exist. Besides that, according to Nuwan and Ki-Hoon Lee (2015), much research on EMA has so far focused on developed countries and research on developing countries has only just started to appear. Hence, new research in this area is encouraged to contribute to the body of knowledge. This situation provides the motivation to embark on a study to identify barriers to implementing EMA in small and medium companies.

Obviously, the adoption of EMA assists the small medium enterprises (hereafter called SME) to sustain its competitive advantage. However, given that low adoption and awareness of EMA in SME (Yacob et al., 2013, Musa and Chinniah, 2016), it is important to identify the barriers faced by SME industry to implement EMA. This research focuses on SME, due to the significant contribution by SME to the economic growth. In Malaysia, the contribution of SME to GDP is increased from 32.2% in 2010 to 36.3% in 2015 (SME Annual Report 2015/16). The sustainable of SME is crucial for future growth and to stay competitive, therefore, SME is encouraged to adopt a new management accounting techniques such as EMA to improve their business performance. Hence, it is important to understand the barriers that hinder SME from adopting this contemporary management accounting technique. Thus, the aim of this paper is to identify the barrier factors in implementing

EMA among manufacturing SME in Malaysia. The contribution of this paper is to assists managers to understand this issue and provide ideas on how to increase the level of EMA adoption in their companies. This paper is organized as follows. The next section of this paper discusses the literature review followed by a section on research methodology. The subsequent section focuses on the results and discussion, and, finally, the conclusion is in the last section.

2. Literature review

2.1. Environmental management accounting

EMA is a young area that lacks consensus concerning a definition. The definition of EMA is categozised into two perspectives – internal environmental accounting using monetary measures and monetary and non-monetary approaches to internal accounting (Schaltegger, Hahn and Burritt, 2000).

The framework of Schaltegger et al. (2000) explains EMA as only including the environmentally- driven monetary aspects of accounting that help managers to make decisions and be accountable for the outcome of their decisions. The second definition provides broader terms as it includes both monetary and non-monetary. For example, IFAC (1998, 2005) argued that EMA is "the management of environmental and economic performance through the development and implementation of appropriate environment-related accounting systems and practices. While this may include reporting and auditing in some companies, EMA typically involves life-cycle costing, full-cost accounting, benefits assessment, and strategic planning for environmental management." From the IFAC definition, the separation of the monetary and non-monetary aspects of EMA is not clearly stated, and some authors called it "environment-related management accounting" (see for example Bennet and James, 1998). On the other hand, the EMA Expert Working Group of the United Nations Division of Sustainable Development (UNDSD) defined EMA according to two categories - physical and monetary. "EMA is broadly defined as the identification, collection, estimation, analysis and use of physical flow information (i.e., materials, water, and energy flows), environmental cost information, and other monetary information for both conventional and environmental decision-making within an organization" (UNDSD, 2001: 4).

Other researchers and academics also provide different definitions. EMA is a system that collects, records, evaluates and transmits information about environmentally induced financial impacts and environmental impacts of the given system. It is seen as an extension of conventional management accounting which measures and reports "financial and non-financial information that helps managers make decisions to fulfill the goals of an organization" (Horngren, Datar and Foster 2003: 2-3). Birkin (1996) argued that EMA is a straightforward development of management accounting. Jasch (2006) explained that EMA is an information system that is not separated from management accounting. While Bartolomeo et al. (2000) viewed EMA as the generation, analysis, and use of financial and related non-financial information with the purpose of supporting the management within a company or business. EMA is important to build a sustainable business as EMA integrates corporate environmental and business policy. Although their definitions differ, there is a consensus that environmental accounting should consider both monetary and physical environmental information for internal management and external reporting (Christophor, 2014).

2.2. Barriers to environmental management accounting practices

Dahle and Neumayer (2001) suggested that there are significant barriers that prevent EMA from being practiced. Among these are the lack of financial resources, lack of environmental awareness, a non-environmental attitude and also location. They studied barriers in the university environment. In addition, Nicolaides (2006) mentioned that the resistance to change is a major obstacle to implementing environmental initiatives.

Based on Chang (2007), five major categories of barriers prevent EMA from being practiced, namely, institutional, management, cultural/attitudinal, financial and informational. Chang (2007) explained that: institutional and management barriers refer to a lack of goals and goal-setting processes; bidding and other processes that do not take consideration of the full or life-cycle costs; insufficient incentives to minimize waste and incentives in general. Cultural barriers are the thought that 'somebody else should do it' and a lack of nurturing of leaders from the top down. Financial barriers are the lack of responsibility-centered budgeting. Informational barriers constitute the lack of data and information, and a need for a common language (Chang, 2007:76).

3. Research method

The population has been derived from the directory of the Federation of Malaysian manufacturers (FMM). Based on the FMM's directory for 2013, 350 samples were chosen. The study employed a postal survey to collect data. The respondents for this study were the managers of SMEs in the manufacturing sector. The returned questionnaires in the current study are 70 respondents with a response rate of 20 percent. Based on comments by Rahman (2001), this response rate was considered reasonably adequate.

The items used for this study were adapted from Chang (2007). There are five categories of barriers – financial, informational, managerial, attitude and institutional. All responses were elicited on a 5-point response scale. The respondents consist of 82.9 percent medium-sized and 17.1 percent small-sized companies. The type of industry sector is chemical/wood (18.6 percent), electrical (20 percent), automotive/machinery (24.3 percent), plastic/rubber and food/tobacco (10 percent respectively, building/material (1.4 percent) and others (15.7 percent).

4. Analysis and discussion

This study used descriptive statistics under Statistical Package for the Social Sciences version 19 (SPSS) to analyze the data. The view of the results showed that financial barriers are one of the most important factors preventing organizations practicing EMA. Table 1 highlights that financial barrier (mean=3.5429), informational barrier (mean=3.5381) and attitudinal barrier (mean=3.4357) are the most important barriers that prevent EMA from being practiced in SME manufacturing firms. While the least important barriers are the institutional barrier (mean= 2.9000) and management barrier (mean=2.8857).

Table 1: Overall Result of Descriptive Statistics on Barriers Influencing EMA Practices (N = 70)

Our EMA practices are influenced by	Mean	Std. Dev	Min	Max
Financial barrier	3.5429	0.6004	2.00	4.50
Informational barrier	3.5381	0.6698	2.00	4.33
Attitudinal barrier	3.4357	0.7269	1.00	4.00
Institutional barrier	2.9000	0.7809	1.00	4.00
Management barrier	2.8857	0.7833	1.25	4.75

The result of the descriptive statistics for each of the items on the barriers influencing EMA practices is reported in Table 2. The absence of resource (mean=3.5857), the efficiency of financial considerations (mean=3.5286) and lack of concentration on environmental costs (mean=3.5000) are among the root causes of barriers to the integration of environmental issues into accounting systems in SME manufacturing in Malaysia. The lack of an information framework creates difficulties in effectively collecting, identifying and evaluating environment-related data, especially in pollution prevention, waste management decisions, and performance evaluation. The findings of this study are consistent with those of Johnson (1993), who indicates that lack of guidance on

environmental management accounting, in particular recognizing future environmental costs, leads to difficulty in measuring and recognizing future liabilities (Johnson, 1993).

Table 2: Barriers to Practicing Environmental Management Accounting (N=70)

The decision not to implement EMA practices in the organization due to	Mean	Std. Dev	Min	Max
Financial Barriers				
Resource constraints	3.5857	0.64814	2.00	5.00
Efficiency of financial considerations	3.5286	0.75607	1.00	5.00
Environmental costs are not considered significant	3.5000	0.75661	2.00	5.00
Informational Barriers				
Difficulties in collecting or allocating environmental costs	3.5857	0.71207	2.00	5.00
Low physical environmental uncertainty	3.5000	0.63131	2.00	4.00
Attitudinal Barriers				
Low priority of accounting for environmental costs	3.4429	0.75442	1.00	4.00
Resistance to change	3.4286	0.75319	1.00	4.00
Institutional Barriers				
Lack of institutional pressure	3.1714	0.88418	1.00	4.00
Stakeholder power	2.7571	0.85864	1.00	4.00
Shareholder power	2.7714	0.87097	1.00	4.00
Management Barrier				
Few incentives provided to manage environmental costs	3.0429	0.93925	1.00	4.00
Lack of environmental responsibility & Accountability	2.7000	0.82269	1.00	5.00
Lack of integrating the environment into strategic planning	2.9000	0.87062	1.00	5.00
Lack of advocacy from the firm leadership	2.9000	0.81915	1.00	5.00

5. Conclusion

The aim of this study is to examine the barriers to implementing EMA among SME manufacturing firms in Malaysia. This study enhances the understanding of the factors that hinder the development of EMA. The results indicate that financial is ranked as the biggest barrier followed by informational, attitudinal, and institutional and management barriers. The findings are useful for managers and accountants in SMEs who are interested in applying contemporary management accounting techniques in their firms. The findings also contribute to the body of knowledge in EMA as this area is a young area in many countries, particularly in developing countries.

References

[1] Avila, J. A., Bradley, W. W. (1993), What is environmental strategy. The McKinsey Quarterly, 4, 53-68.

[2] Bartolomeo, M, Bennett, M, Bouma, JJ, Heydkamp, P, James, P., Wolters, and T. (2000), Environmental Management Accounting in Europe: Current Practice and Future Potential. The European Accounting Review, 9(1), 31-52.

[3] Bennett, M., James, P. (1998), The green bottom line. In Bennett, M. & James, P. (eds). The green bottom line. Environmental Accounting for Environment. Current practice and future trends. Sheffield: Greenleaf Publishing, 30-60.

[4] Bennett, M., James, P. (eds) (2000), The Green Bottom Line: Environmental accounting forManagement: Current Practice and Future Trends. 2nd edn, Greenleaf Publishing, Sheffield.

[5] Birkin, F. (1996), Environmental Management Accounting. Management Accounting, 74(2), 34-7.

[6] Burritt, R. L. (2004). Environmental management accounting: roadblocks on the way to the green and pleasant land. Business Strategy and the Environment, 13(1), 13-32.

[7] Chang, H.C. (2007), Environmental Management Accounting within universities: Current state and Future potential. (Un-Published Thesis) RMIT University.

[8] Christophor, S. K. Tsui. (August 2014), A Literature Review on Environmental Management Accounting (EMA) Adoption. Web Journal of Chinese Management Review, 17(3). 1-20

[9] Dahle, M, Neumayer, E. (2001), Overcoming Barriers to Campus Greening: A Survey among Higher Educational Institutions in London, UK. International Journal of Sustainability in Higher Education, 2 (2), 139-60.

[10] Johnson, L.T. (1993), Research on environmental reporting. Accounting Horizons, 7(3), 118-123.

[11] Gale, R. (2006), Environmental costs at a Canadian paper mill: A case study of environmental management accounting (EMA). Journal of Cleaner Production, 14(14).

[12] Heeren, Anouk van. (1998), Management Accounting for sustainable development: A chain related case study between Costa Rica and the Netherlands. In the Seventh International Conference of Greening of Industry Network Rome, 15-18.

[13] IFAC (2005). International Guidance Document: Environmental Management Accounting, International Federation of Accountants, New York.

[14] Jasch, C.H. (2006), EMA as the next step in the evolution of management accounting. Journal of Cleaner Production, 14(14), 1194-1213.

[15] Horngren, CT, Datar, SM, Foster, G. (2003), Cost Accounting: A Managerial Emphasis, 11th edn, Prentice Hall, New Jersey.

[16] Ladd Greeno, J. (1994). Corporate Environmental Excellence and stewardship: Five critical tasks of top management. Total Quality Environmental Management, 3(4). 479-499.

[17] Mitchell, F. Reid, G. (2000), Problems, Challenges, and Opportunities: Small Business as a Setting for Management Accounting Research. *Management Accounting Research*, 11(4), 385 – 390.

[18] Musa, H, Chinniah, M. (2016). Malaysian SMEs development: Future and challenges on going green. Procedia – Sosial and Behavioral Sciences, 224, 254-262.

[19] Nuwan, G, Ki-Hoon Lee. (2015). Environmental management accounting (EMA) for environmental management and organizational change: An eco-control approach. Journal of Accounting & Organizational Change, 11(3), 363-383.

[20] Rahman, S. (2001), a comparative study of TQM practice and organisational performance of SMEs with and without ISO 9000 certification. International Journal of Quality and Reliability, 18(1), 35-49.

[21] SME Annual Report 2015/2016. Retrieved from www.smecorp.gov.my. Access on 20 October 2016.

[22] Schaltegger, S., Hahn, T, Burritt, R.L. (2000), Environmental Management Accounting – Overview and Main Approaches. Lueneburg: Center for Sustainability Management at the University of Lueneburg.

[23] UNDSD (2001), Environmental Management Accounting, Procedures and Principles. United Nations Division for Sustainable Development, Geneva.

[24] Yacob, P, Aziz, N.S, Mohamad Makmur, M.F, Mohd Zin, A.W. (2013). The policies and green practices of Malaysian SMEs. Global Business and Economic Research Journal, 2(2), 52-74.