

IMPACT OF MANAGEMENT CONTROL SYSTEMS ON RETURN ON ASSETS OF MANUFACTURING COMPANIES IN SRI LANKA

Kariyawasam A.H.N.^a, Dr. Low L. T., Kevin^b, and Prof. Dr. Senaratne D S N P^c

- a. PhD Candidate, Management & Science University, Malaysia, Department of Accounting, University of Sri Jayewardenepura, Sri Lanka.
E-mail: harendrak@sjp.ac.lk
- b. : UTAR University, FAM, Sg Long Campus, Selangor D.E., Malaysia.
E-mail: niveklow@gmail.com
- c. Department of Accounting, University of Sri Jayewardenepura, Sri Lanka.
E-mail: samanthisenaratne@sjp.ac.lk

ABSTRACT

Management Control Systems (MCS) are important tools supporting organization, organizational learning, and innovation, as the premise of management control is to ensure the attainment of organizational objectives. The Sri Lankan manufacturing sector is the largest contributor to the industry sector which in turn is the second largest contributor to the country's GDP, has continuously shown improved financial results. This study focuses on the impact of MCS on the return on assets of manufacturing companies in Sri Lanka. A structured questionnaire was developed and sent to a sample population of 83 manufacturing companies in Sri Lanka. 71 of the companies responded to the questionnaire. Structured interviews were subsequently conducted with selected personnel in these 71 companies to ensure proper completion of questionnaire and to authenticate the information provided. Based on analysis of data it was found that there is a statistically significant relationship between MCS and return on asset of manufacturing companies in Sri Lanka

Keywords: Return on Sales, Management Control Systems, Management Controls, Manufacturing Companies.

1. INTRODUCTION

The Sri Lankan manufacturing sector, being the main contributor to the industry sector of the economy, has evolved considerably since independence. Prior to obtaining independence in 1947, and the years immediately after independence, the industry was dominated by the processing of agricultural produce for both domestic consumption and for export. The most important companies in the sector were involved in the preparing and packaging of the country's primary export commodities namely Tea, Rubber and Coconut for export. The manufacturing process for these primary produce was usually characterized by modest capital investment in machinery, minimum technological knowhow and simple sequential procedures. In the 1960s, deterioration of the country's foreign exchange reserves and the government's socialist economic policies

resulted in the exit of many foreign companies that operated in large scale industries such as plantations, transport, banking and finance, health and education.

In 1978, a change in Government and the introduction of open economic policies which lead to liberalization of the economy resulted in significant changes in the manufacturing industry. Though extremely limited in the 1970's, private sector investment and participation developed rapidly in the late 1970s and 1980s. This was further boosted by the establishment of the Greater Colombo Economic Commission and Free Trade Zones, which facilitated the entry of foreign participants into the local manufacturing sector. By the late 1980s, these initiatives had resulted in significant growth in the manufacturing sector. Manufacturing output growth increased to 5.6% per annum from 1977-1988 as against a growth rate of 1.7% per annum during the period 1970 – 1977. Further manufacturing capacity utilization also increased during this period to 75% per annum, as against 63% per annum from 1970 – 1977. In addition, total output from the manufacturing sector has increased over the period 1990-2010 from 15% of GDP in 1990 to 17.3% in 2010.

As the performance of companies in the manufacturing sector have improved over time, it is interesting to measure the impact of the Management Control Systems (MCS) implemented by these companies. Management Control Systems are an essential part for the management of any company regardless of the ownership structure of the company. Management Controls include a wide variety of tools and mechanisms designed to ensure that budgetary and other policy decisions are executed properly; resources are utilized appropriately; mismanagement, waste and fraud are eliminated, if not minimized, and timely information is obtained, maintained and used for decision making. It has been traditionally considered as the formal feedback and control system to monitor organizational outcomes and correct deviations from standard performance (Anthony, 1965). However, in recent times, MCS have been recognized as important tools supporting the organization, organizational learning, and innovation (Simons, 1990; Knights & Willmott, 1993; Bisbe & Otley, 2004). This is because the central theme of management control involves ensuring that an organization achieves its objectives (Otley, 2003). In this study the main objective is to analyze the impact of MCS on the return on assets of manufacturing companies in Sri Lanka.

2. STATEMENT OF THE PROBLEM

The role and importance of Management Control Systems (MCS) have evolved from formal feedback and control systems to important mechanism supporting organization, organizational learning, and innovation. Though MCS have always been identified as an important tool in the academic context, one observable fact is that the usage of these MCS among organizations is very limited (Otley, 2003). Furthermore, MCS used in organizations are most often restricted to the use of traditional techniques such as budgetary control. This use of traditional techniques is a common phenomenon in the Sri Lankan context as well (Fonseka et al., 2005). Poor and inappropriate MCS can result in dysfunctional behavior, which has a negative influence on organizational performance. The most common observations of dysfunctional behavior include manipulation of actual data either to improve performance or to avoid unpleasant outcomes on account of reporting the actual data. One control mechanism that fuels such behavior is the budgetary control system, which while appearing outwardly rational, has the potential to cause dysfunctional behavior. Further, the reward systems used to improve employee performance compound these tendencies. Therefore, it is vital to identify how management control systems contribute towards improving organizational performance and profitability. Based on these facts and limiting the scope of the study, the problem statement can be presented as “**what impact do MCS have on the Return on Assets of Manufacturing Companies in Sri Lanka?**”

3. MAIN OBJECTIVE OF THE STUDY

- To identify the impact of MCS on the Return on Assets of manufacturing companies in Sri Lanka.

4. LITERATURE REVIEW

Management Controls are an essential part of management in today's dynamic business environment. Management Controls include a wide variety of tools and mechanisms. The use of management controls enable companies to measure the extent to which goals are achieved; detect deviations in performance for which corrective action needs to be taken. In addition, management controls help ensure efficient and effective use of resources in an organization. This section presents the most relevant findings from previous research on this topic.

4.1 DEFINITION OF MANAGEMENT CONTROL SYSTEMS

Management Control Systems have been defined by Anthony (1965) as the process by which managers ensure that resources are obtained and utilized efficiently and effectively in the accomplishment of organizational objectives. As per Merchant and Otley (2007), the main objective of Management Control Systems is to provide useful information for planning, evaluation and decision making in an organization. Simon (1995) defines Management Control Systems as formal information based procedures and routines that are used by management to measure and alter patterns in organizational activity. These procedures and routines include a wide variety of tools and mechanisms designed to ensure that budgetary and other policy decisions are executed properly, resources are used appropriately, that mismanagement, waste and fraud are eliminated (if not minimized), and that timely information is obtained, maintained and used for decision making. These controls are intended to help the organization motivate employees to make decisions and to use appropriate actions which are in the best interest of the organization (Chow, Shields & Wu, 1990)

4.2 IMPORTANCE OF MANAGEMENT CONTROL SYSTEMS

In recent times management control systems have been recognized as an important management tool supporting the organization, organizational learning and innovation (Bisbe and Otley, 2004; Chenhall and Langfield, 2003; Knights and Willmott, 1993; Simons, 1990). The central theme of management controls involves helping an organization achieve its objectives (Otley, 2003). Management Control Systems, therefore, can be considered as a management activity that links operational control and strategic planning (Otley, Broadbent and Berry, 1995). In today's business environment organizations are likely to experience complex challenges on account of changes in global economics, developments in technology, globalized nature of competition and the increasing dissemination of information across the planet (Drucker, 1997). The ability of management to anticipate and successfully respond to opportunities and threats on account of change has become critical for organizational success and survival (Abernethy and Brownell, 1999). Management accounting systems and the resulting information used to assist management in its decision making process is necessary to provide a comparative advantage in a dynamic environment (Chenhall and Langfield-Smith, 1998). Therefore, management control systems have become critical in organizations undergoing transformation. Furthermore a number of researchers (Argyis, 1990; Chenhall, 2003; Dent, 1990) have provided strong theoretical support for the concept that management control systems play a strategic role in shaping organizational transformation.

In the Sri Lanka context as per Abesinghe, (2009); Fonseka, Manawaduge and Senaratne, (2005) MCS are not utilized to their full potential. According to Abesinghe (2009) political interest supersedes all other interests, including financial interests and results in the basic management controls used in companies

becoming mere rituals. Fonseka et al (2005), in their study on Management Accounting (MA) practices in listed companies in Sri Lanka concluded that MA practices are mostly used for planning & control, and internal control purposes. The common MA practices in these companies are internal audits, cash flow planning, budgetary control, performance evaluation, ratio analysis, re-order levels, capital-budgeting techniques, management audits, absorption costing, variable costing, standard costing & variance analysis and CVP analysis. Ekanayake (2004) in his research “Agency Theory, National Culture and Management Control Systems” describes Management Controls as the structured facet of management. It is the formal vehicle by which the management process is executed with the end goal of achieving corporate objectives. Because employees do not always give their best efforts in achieving organizational objectives, management control systems are necessary to align the goals of the employees or subordinates (agent), with that of the company (principal).

4.3 MANAGEMENT CONTROLS: IMPACT ON ORGANIZATIONAL PERFORMANCE

Analyzing the initial Management Control Systems introduced by organizations, Sandino (2004) demonstrates that the initial MCS can be classified into four different categories based on the purpose of their introduction, namely, “Basic MCS”, such as budgets, pricing and inventory systems; “Cost MCS”, which are focused on enhancing operational efficiencies, minimizing cost and establishing financial and internal controls; “Revenue MCS”, which are focused on gathering non-financial information and responding to customers; and finally “Risk MCS”, which are a set of systems introduced to avoid risk and protect asset integrity. As per Sandino (2004) whilst “Basic MCS” are used by all firms, the use of the other categories of MCS is contingent on the specific needs of the company, the type of strategy adopted by it and its organizational structure. It is hypothesized that firms adopting differentiation strategies adopt revenue strategies with an emphasis on sales productivity controls and marketing databases; whilst decentralized firms and firms offering a more diverse assortment of products tend to place more emphasis on risk MCS.

In a 5 year retrospective longitudinal case study; Akroyd and Kober (2010) investigated the emergence and utilization of MCS in a high growth firm. The main objective of this study was to identify at which stage in their life cycle high growth firms introduce various types of control mechanisms, the manner in which these mechanisms are introduced, the firm objectives in introducing these mechanisms and the impact these control mechanisms have on the firm's growth. The study focused on HRV a high growth firm, located in New Zealand, from its start-up in March, 2003 until December 2007. The primary data collected was transcribed, analyzed and categorized according to the Simon's (1995) four levers of control, which was subsequently linked to the documents and observations made by the researchers during their investigation of the company. The stages of HRV's life cycle analyzed by the company were the company's start-up stage and growth-stage. The data from the interviews were divided into the selected life cycles by the researchers utilizing Miller and Friesen (1984) framework of firm characteristics. The findings from this research indicate that belief systems are the first control systems to be implemented in an organization, and that these belief systems are constantly reinforced, and built-upon throughout the start-up and growth stages. These findings differ significantly with the findings of other prominent researchers on the subject, such as Simons (1995) and Sandino (2004); whose MCS-based research and experience-based models concluded that internal controls and diagnostic financial controls are the initial control systems implemented in young companies.

Ho, Huang and Wu (2011) in their empirical study of Taiwanese Correctional Institutions investigated the impact of MCS on organizational efficiency and quality. The study tested whether efficiency and quality of correctional institutions with tight MCS are better than those with loose MCS. The sample population in this

study consisted of 20 prisons, 18 detention houses, 3 juvenile reformatory schools, and 16 juvenile reformatory and classification houses. The efficiency for each correctional institution was calculated by the researchers using both Data Envelopment Analysis (DEA) and Stochastic Frontier Analysis (SFA). Findings from this study indicate that correctional institutions with tight MCS have both the higher efficiency and quality as opposed to institutions with loose MCS.

Bloom et al. (2011) in their study investigated the impact of management practices on selected companies in the textile industry in India. The study, which was conducted in the form of an experiment, selected large, multi-plant Indian Textile firms and randomly divided the plants of these firms into treatment and control groups. Plants in the treatment group received five months of extensive management consulting from a large international consulting firm. The consulting firm diagnosed opportunities for improvement in a set of 38 operational practices in the plants in the treatment group in the first month. This was followed by four months of intensive training and support for the implementation of these recommendations. Plants in the control group received only one month of diagnostic consulting. The increase in productivity and annual profitability of the plants in the treatment group highlights the positive impact of management practices on company performance. In addition, the researchers also reported a transfer of expertise from the plants which participated in the experiment to other plants within the selected companies.

The use of MCS is not confined to large enterprises. In a study of Management Control Systems from a small businesses' context, Jankala (2007) examined the types of MCS used by small businesses in Finland. Whilst the traditional view is that most small businesses do not have a need or use for MCS due to their simple structures; the results of this study suggest that small firms do use a wide range of management control practices. In addition, this study reveals that the use of MCS in small firms is associated with the firm's strategy, both realized and intended, and that MCS have a very limited impact on the financial performance of these small firms. Small businesses in this study were identified as companies with less than 50 employees, which have being in operation for more than 5 years.

5. THEORETICAL FRAMEWORK

The theoretical framework is the foundation on which the entire research project is based (Sekaran, 2006). It is a logically developed, described and elaborated network of associations among the variables deemed relevant to the problem situation. Variables are anything that can take on differing or varying values (Sekaran, 2006). As indicated in Figure 1, the return on assets of manufacturing companies in Sri Lanka is the Dependent Variable (DV) and is the main variable of interest in this study. Six management control types namely; Accounting control, Internal Control, Budgeting, Auditing, Capital Investment and Performance evaluation are the independent variables and it is assumed that these independent variables have a direct impact on the performance of dependent variable.

6. HYPOTHESIS

H0 - MCS have no statistically significant impact on the return on assets of manufacturing companies in Sri Lanka

H1 - MCS have a statistically significant impact on the return on assets of manufacturing companies in Sri Lanka.

The hypothesis will be tested against the **significance of 0.05**

7. POPULATION SAMPLE

Population is the total collection of elements about which the researcher wishes to make some inferences (Cooper & Schindler, 2006). The research population for this study consisted of 83 companies in the manufacturing sector in Sri Lanka. The composition of the population for this study is indicated in Table 1. Based on the results of the pilot study, it was decided to consider 71 companies or 85.5% of the population as the research sample for the study.

8. DATA COLLECTION METHODS

Both primary and secondary data sources were used to collect data for the study. The unit of analysis for this research was at company level. Primary data for the study were collected from Chief Operating Officers of the companies studied.

For primary data collection, the study used both questionnaire and interview methods. A questionnaire was developed and forwarded to the respective Chief Operating Officers of the selected companies. The questions were framed to collect data on MCS used in the sample companies, the financial objectives of the sample companies and the achievement of these financial objectives. The MCS for primary data collection were identified by referring to recently published textbooks on management controls. In addition, one open ended question was used to identify those MCS used by the companies, which were not in the list of MCS provided to them. Subsequent to the completion of the questionnaire, interviews were conducted with the respondents to authenticate the information provided.

Secondary data was collected through the Central Bank of Sri Lanka and the annual reports of the companies studied. The information collected through secondary sources was used to analyze the performance of individual companies and the manufacturing sector as a whole. In addition, company reports were used to measure the extent to which the companies had achieved their financial objectives identified through the primary data collected.

9. DATA ANALYSIS

The hypothesis was tested using Analysis of Variance (ANOVA), Correlation Test and Regression Analysis. In order to present summaries of data, case summaries and descriptive analysis were used. Analysis on mean, range, standard deviation, and the variance in data were carried out to identify how clustered or dispersed the variables are and to understand how well the questions were framed for tapping the concept questioned in the survey instrument.

The following equation was used to assess the Return on Assets of the sample companies.

$$\text{Return on Assets} = \text{Operating (net) profits} / \text{Total assets at the year end}$$

Pearson correlation test was applied to test the strength of association between MCS (Management Controls) which is taken as the independent variable, and the Return on Assets of Manufacturing Firms which is the dependent variable. The dependent variable; Return on Assets is recognized through the aggregate average value over a five year period.

Scatter plots were utilized to identify if the relationship between two variables is linear or not. According to the constructed scatter plots, all the MCSs are **approximately linear** with the Return on Assets of the firms. Thus, Pearson Correlation test was used to test the strength of association between variables.

Statistically Pearson Correlation Coefficient lies between -1 and +1. If the value of correlation

coefficient is close to -1, it signifies that there is a strong negative correlation between variables. Similarly if the value of correlation coefficient is close to +1, it can be interpreted as a strong positive correlation between variables. If the correlation coefficient value is close to -0.5 or +0.5, there exists a moderate negative or moderate positive association among variables. Finally, if the coefficient value is very close to 0, it signifies that the relationship between variables is weak.

The sig. (2-tailed) value which is the p-value was used to determine the significance of the relationship among variables in the study. As the alternative hypothesis (H_1) is non-directional, a 2-tailed test was applied. The used confidence interval was 965% and therefore the desired level of significance was 0.05 in the analysis. A sig. (2-tailed) value less than 0.05, is recognized as a statistically significant relationship, if not (sig. > 0.05) the relationship is recognized as statistically insignificant.

10. KEY FINDINGS

Findings from the data analysis indicate a **moderate positive correlation** between return on assets and MCSs (Table 2). Even though the strength of their relationship is moderate, it is statistically significant as sig. (2-tailed) value is less than 0.05. Thus, there is enough statistical evidence to conclude that, there is a significant, moderate positive relationship between return on assets and MCSs. Alternative hypothesis is accepted.

11. CONCLUSIONS

The present study was conducted with a view to assessing the impact of MCS on the return on assetsof manufacturing companies in Sri Lanka. The data obtained from the questionnaires, interviews with the sample population have been analyzed and interpreted using various financial ratios as well as applied statistical tools. Findings from the analysis of the data indicate that MCS have a statistically significant impact on the return on assetsof manufacturing companies in Sri Lanka.The findings of this study support the findings of Bloom et al (2011) and Ho, Huang, & Wu (2011) that management controls have a positive impact on an organization's performance, and contradict the findings of Jankaka (2007) whose study indicated that management controls have little impact on the financial performance of an organization.

Figure 1: Conceptual Framework

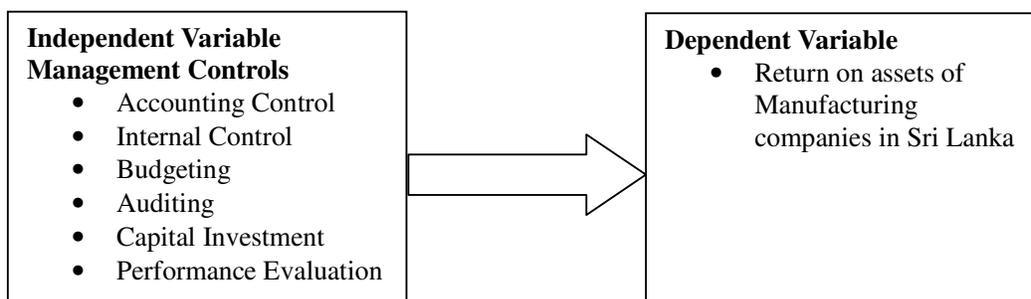


Table 1: Manufacturing Companies in Sri Lanka selected for the Study

Industry	No. of companies
Manufacturing	39
Beverage, food and tobacco	21
Chemicals and pharmaceuticals	12
Footwear and textile	07
Construction and engineering	04
Total	83

Source: Colombo Stock Exchange, 2011

Table 2: Correlations – Return on Assets and MCS**Correlations**

		Return on Assets	Management Controls
Return on Assets	Pearson Correlation	1	.619
	Sig. (2-tailed)		.027
	N	71	71
Management Controls	Pearson Correlation	.619	1
	Sig. (2-tailed)	.027	
	N	71	71

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