# FACTORS AFFECTING TO THE INVENTORY MANAGEMENT OF LISTED MANUFACTURING COMPANIES IN SRI LANKA

**Wijekumara J.M.N.[1]*, Kumara P.M.S.[2]**

[1]Department of Accountancy and Finance, Faculty of Management Studies, Rajarata University of Sri Lanka, Mihintale, Sri Lanka
[2]Cantec packaging (Pvt) Ltd, Industrial Zone, Ekala, Ja-ela, Sri Lanka

*nishanthawijekumara93@gmail.com**

## ABSTRACT

Inventory Management concept is a one of integral component of the manufacturing company to utilize resources effective and efficient manner. The purpose of this study to examine what factors affecting to the inventory management with reference to the 36 listed manufacturing companies in Colombo Stock Exchange Sri Lanka, based on convenient sampling method. Data were collected through structured questionnaire distributing via e-mail and postal mail for store managers, procurement executive, stock keeper and inventory handler as respondents. Descriptive Statistics, Pearson correlation analysis and multiple leaner regression tool were adopted to test the hypotheses. The researchers have implemented the five-point Likert scale rating method (1= strongly disagree and 5 = strongly agree) for this study. The study found that Procurement procedure, Inventory Planning, Documentation and Funding are significantly influence to the inventory management practices but skills of staff is not significantly influence to the inventory management practices. Hence this study recommended that sufficient procurement procedure system with inventory planning and documentation is needed to maintain success inventory management system in listed manufacturing companies in Sri Lanka. The findings of the study hold practical implications for Policy makers, Managers, investors, procurement executive and stock keepers.

**Keywords:** *Inventory Management, Manufacturing Companies, Procurement Procedure*

## 1 INTRODUCTION

Inventory refers to the value or quantity of raw materials, supplies, work in progress(WIP) and finished stock that are kept or stored for use as the need arises (Lysons K, Gillingham M, 2003). Raw materials are commodities such as steel and timber that go into the final product. Supplies include items such as Maintenance, Repair and Operating (MRO) inventory that do not go into the final product but use as a supporting thing in the manufacturing process. Work in progress is materials that have been partly invented, but are not yet accomplished. Finished goods are completed items ready for shipment and usage.

Inventory management is an important part in making all the decisions in handling the inventory in an organization such as activities to be carried out, policies of inventory management, and procedures in handling the inventory in order to ensure enough quantity of each item is kept in the warehouse at all times (Tasmin,2017). Thus, the quality of the inventory management is directly affected to the existing lean manufacturing in the company and it reduce the level of wastage of Inventory Management. In other words, the goal of inventory management is to make sure of the availability of the resources in an organization.

It is observed from literature that making use of formal Inventory Management (IM) practices is one of the ways to acquire competitiveness among others, by effectively managing and minimizing inventory investment (Narayanapillai, 2014). However, while the critical part of IM for the endurance of manufacturing companies are recognized in theory, it is not drive in practice in the context of Sri Lankan company. When business strategies are formulated IM is generally not handled as a critical issue.

This study attempts to fill the gap and contributes to the growing literature on the short-term inventory management practices of listed manufacturing companies in Sri Lanka. The purpose of this study is to explore inventory systems/practices of the manufacturing firms. In addition to above things, it provides evidence of the SMEs approach to accounting routines, mainly regarded those routines to comply with the statutory financial requirements. Because of those significances' researcher has been got his attention to develop this research.

## 2 LITERATURE REVIEW

According to Jonsson and Mattsson (2008), planning is one of the critical factors in attaining good inventory control. Planning can be also described as a future approach in which the inventory is strategized to be controlled. Inventory control planning assists in arranging physical count requirements to cover preparations for spread sheets used to evaluate inventories at year end.

Jonsson & Mattsson (2014) as the method which is used to control and manage the inventory such as forecast the market demand make the plan for maintaining the safety quantity of materials, setting reorder point and manage the stock level in an organization. Without the coordination of sellers in inventory planning, the probability of failure in predicting the inventory requirement in the future market demands and another requirement will rise and it's affected on IM practices also.

Ondari and muturi (2016) the study established that the advantages of bureaucracy are many folds, apart from consistent employee's behavior, it eliminates overlapping or conflicting jobs or duties and behavior of the system is predicable, thus the study concludes that bureaucratic procurement procedures, Documentation, funding and skills of staff had a positive impact on the efficiency & effectiveness of inventory management practices among firms in Kisii town.

Tasmin & Chan (2017) observed that the problems of inventory management faced by manufacturing organization were underproduction, overproduction, stock out situation, delays in the delivery of raw materials and discrepancy of records. The factors, documentation/store records, planning, knowledge of employees/staff skill have shown to significantly influence the effectiveness of inventory management while the funds have shown slightly significant influence on the inventory management in manufacturing small medium enterprises.

## 3 METHODOLOGY

The main objective of this study was to identify the factors affecting to the Inventory Management in Listed Manufacturing companies in Sri Lanka. A total of 36 listed manufacturing companies were selected as a sample under the convenience sampling method and also Data were collected through structured questionnaire distributing via e-mail and postal mail for store managers, procurement executive, stock keeper and inventory handler as respondents. The conceptual framework of the study is presented in Figure 01 below.

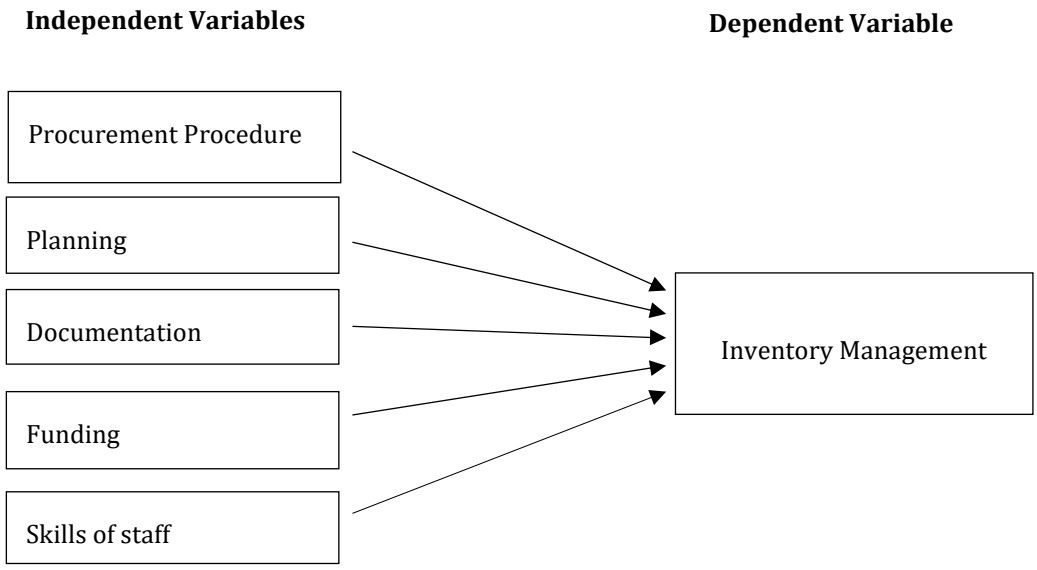


**Figure 1: Conceptual Framework**

$$\gamma = \beta_0 + \beta_1\chi_1 + \beta_2\chi_2 + \beta_3\chi_3 + \beta_4\chi_4 + \beta_5\chi_5 + \epsilon_i \quad (1)$$

Where;

$\chi_1$ = Procurement Procedure

$\chi_2$ = Planning

$\chi_3$ = Documentation

$\chi_4$ = Funding

$\chi_5$ = Skills of the staff

$\gamma$ = Inventory Management

$\beta_0$ = Constant

$\beta_1, \beta_2, \beta_3, \beta_4, and\ \beta_5,$ = Coefficients of Independent Variables

$\epsilon_i$ = Error Term

### 3.1 Population

Population of this research is Listed Manufacturing companies in Sri Lanka, which consist of several operational level companies. At present 41 manufacturing companies are listed in Colombo Stock Exchange. Therefore all manufacturing companies dropped down to the population. But availability of responses was restricted to the 36 manufacturing companies.

### 3.2 Hypotheses

**$H_1$:** Procurement procedure of the firm significantly affects to inventory management practices of the firm.

**$H_2$**: Inventory planning significantly affects to inventory management practices of the firm.

**$H_3$:** Documentation significantly affects to inventory management practices of the firm.

**$H_4$**: Funding significantly affect to inventory management practices of the firm.

**$H_5$:** The skills of the staff of the firm significantly affect to inventory management practices of the firm.

## 4 RESULTS AND DISCUSSION

### 4.1 Descriptive Statistics of the Sample

The total sample was categorized into three categories under Gender, Occupation and education (Table 1).

According to the table 01, sample was represented by Male (91.67%) under the male category. Hence male represent has been dominant place for handling & controlling inventory. When considering occupation position regarding the inventory management, half of the respondent was Stock Manager whereas more than half was qualified Degree holder (52.78) from respondent of this survey.

**Table 1: Categorization of the Sample**

| Gender | % | Occupation | % | Education | % |
|---|---|---|---|---|---|
| Male | 91.67 | Store Manager | 50.00 | (G.C.E) A/L | 13.89 |
| Female | 8.33 | Procurement Executive | 19.44 | Degree | 52.78 |
| | | Stock Keeper | 13.89 | Professional | 19.44 |
| | | Inventory Handler | 11.11 | Postgraduate | 13.89 |
| | | Other | 5.56 | | |
| | 100.0 | | 100.0 | | 100.0 |

### 4.2 Reliability of the Measures

Reliability analysis represents the consistency and strength of the questionnaire which is used for data collection. It measures the association between the questions of tools, which is assessed by Cronbach's Alpha Coefficient.

**Table 2: Summery of the Reliability Analysis**

| Variable | No of Items | Cronbach's Alpha |
|---|---|---|
| Procurement | 5 | .754 |
| Planning | 5 | .767 |
| Documentation | 5 | .758 |
| Funding | 4 | .802 |
| Skill of the Staff | 4 | .736 |
| Inventory Management | 5 | .789 |

Table 2 denotes the all variable's Cronbach's Alpha Value and it should be greater than 0.7. According to the test, all the reliability test values have been exceeded the 0.7. Hence all the data are reliable and accepted in stability and consistency of the variables.

### 4.3 Descriptive Analysis

As discussed in the conceptual framework, this study focuses to investigate what factors affect to the Inventory Management in Listed Manufacturing Companies in Sri Lanka. Thus, here check whether procurement procedure, Inventory Planning, Documentation, Funding and Skills of the staff affected to Inventory Management or not. Number of questions was developed to find solution to the above research problem. Central tendency (Mean, Mode and Medium) and measure of dispersion (Variance and Standard Deviation) include the descriptive statistics and employs to identify the nature of the research variable. Table 3 shows the mean and SD values of Variables under the research study.

**Table 3: Mean and SD Values of Variables**

| Variables | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|
| Procurement Procedure | 1.40 | 4.60 | 3.176 | 0.729 |
| Inventory Planning | 1.40 | 4.60 | 3.168 | 0.708 |
| Documentation | 1.60 | 5.00 | 3.316 | 0.765 |
| Funding | 1.50 | 5.00 | 3.495 | 0.849 |
| Skills of Staff | 1.75 | 5.00 | 3.537 | 0.674 |
| Inventory Management | 1.00 | 5.00 | 3.422 | 0.682 |

The results shown in the Table 3 suggest that the procurement procedure toward the inventory management was moderate level with the moderate mean value ($\bar{X}$ – 3.176 & SD 0.729). Inventory Planning, Documentation, Funding and Skills of the staff also toward the inventory management are moderate level like procurement procedure because all the mean values are located in between 3.00 to 3.5. Dependent variable is an inventory management practices that show Table 3, and also it presented mean value which is 3.422, furthermore Std. Deviation, minimum, and maximum value are 0.682, 1.00 and 5.00 respectively.

**Table 4: Correlation between Independent and Dependant Variable**

| | IM | PP | IP | DC | FU | SS |
|---|---|---|---|---|---|---|
| Pearson Correlation (IM) | 1.00 | .365* | .211* | .690** | .811** | .105 |
| Sig. (2-tailed) | | .000 | .216 | .000 | .000 | .544 |
| Pearson Correlation (PP) | | 1.00 | -.132 | .199 | .090 | .032 |
| Sig. (2-tailed) | | | .444 | .244 | .603 | .854 |
| Pearson Correlation (IP) | | | 1.00 | .112 | .087 | -.148 |
| Sig. (2-tailed) | | | | .515 | .615 | .665 |
| Pearson Correlation (DC) | | | | 1.00 | .559** | -.026 |
| Sig. (2-tailed) | | | | | .000 | .879 |
| Pearson Correlation (FU) | | | | | 1.00 | .473** |
| Sig. (2-tailed) | | | | | | .000 |
| Pearson Correlation (SS) | | | | | | 1.00 |
| Sig. (2-tailed) | | | | | | |
| N | 36 | 36 | 36 | 36 | 36 | 36 |

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

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

### 4.4 Correlation Analysis

The correlation table depicts relationship of each variable with other variables including dependent variable. Therefore, correlation matrix is beneficial to the researcher to ascertain initially whether there is a relationship with each variables and relationship between each dependent variables and independent variables. This can be designated as follows using the following tables. The correlation value is lie between -1 and +1. -1 represents complete negative relationship while +1 represents perfect relationship between variable. Table 04 depicts the correlation analysis between independent variable and dependent variable below.

The correlation analysis is used to determine the extent to which different inventory management factors are associated with the changes with Inventory

management. Its results are shown in Table 4. According to the table result, it is indicated that all variable are positively correlated with Inventory Management. It means that, Procurement procedure, Inventory Planning, Documentation, Funding & Skills of Staff are positively correlated with Inventory management. According to data, there is a significant positive relationship between the Procurement procedure and Inventory Management

And also, there is a positive association between Inventory Planning and Inventory Management. Documentation & Funding are positively correlated with Inventory Management whereas Skills of Staff positively correlated but it's not significant.

### 4.5 Regression Analysis

**Table 5: Analysis of Variance for Simple Linear Regression**

| Model | Sum of Squares | df | F | Significant |
|---|---|---|---|---|
| Regression | 9.250 | 5 | 1.850 | .000[b] |
| Residual | 1.935 | 30 | .065 | |
| Total | 11.186 | 35 | | |

**a.** Dependent Variable: Inventory Management

**b.** [b]Predictors: (Constant), PP, IP,DC,FU,SS

As stated by the above ANOVA table, F value has been 1.850 and significant value was 0.000 ($P<0.05$). It is denoted by significant relationship between independent variables and Inventory Management. In other word at least one of five variables of Procurement procedure, planning, documentation, funding, and skills of the staff can be used to model influence of inventory management.

**Table 6: Simple regression linear analysis - Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .909 | .827 | .798 | .2533 |

a. Predictors: (Constant), PP,IP,DC,FU,SS

In accordance with the results of above table 6, the R value shows the simple association and it was 0.909. Then it represented that there was a strong association between independent and dependent variables. Coefficient of Determination (R Square) shows the explanatory power of the selected independent variable on the dependent variable. This means 82.7% of the variation in IM is explained by independent variables. Standard deviation of the error term is around 0.2533.

**Table 7: Coefficient Analysis**

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|
| | B | Std. Error | Beta | | |
| (Constant) | -.775 | .542 | | -1.431 | .163 |
| Procurement Procedure | .400 | .114 | .276 | 3.516 | .001 |
| Inventory Planning | .251 | .086 | .275 | 2.909 | .007 |
| Documentation | .428 | .065 | .613 | 6.543 | .000 |
| Funding | .207 | .096 | .169 | 2.157 | .039 |
| Skills of Staff | .029 | .063 | .037 | .467 | .644 |

a. Dependent Variable: Inventory Management

According to the Table 7, it represents the coefficient behaviour of the variable. The regression coefficient of procurement procedure indicates that it has a positive impact on inventory Management Practices ($\beta = 0.209$, $p<0.05$), Inventory Planning also has significant impact on Inventory Management because P value of the Inventory Planning is lower than the 0.05. When considering Documentation & Funding, these two variables also significantly influence on Inventory Management practices in listed manufacturing companies in Sri Lanka whereas skills of staff of the firm is not significantly influence on inventory management in the company. According to the above table, four hypotheses (H1, H2, H3 and H4) were rejected and final hypotheses have been rejected because p value is greater than 0.05.

## 5 CONCLUSION AND RECOMMENDATIONS

Inventory Management of company accomplishes significant role for the development of the company. Thus, it's very essential to the company to adjust lean manufacturing and reduce waste of the inventory. And also inventory recognized as a sensitive assets in manufacturing companies in current business environment. Then this study emphasize to examine what factors affecting the inventory management practices in listed manufacturing companies in Sri Lanka Also, it attempted to investigate the impact of procurement procedure, Inventory planning, Documentation, Funding and Skills of Staff on Inventory management practices in listed manufacturing companies sin Sri Lanka.

The study results indicate that all the independent variable except skills of staff significantly affect to the inventory management in manufacturing companies which have been listed in Colombo Stock Exchange and correlation coefficient indicate that there is a strong and strength relationship between all the

independent variable and Inventory Management. The results of the study indicate that all independent elements are essential and act significant place in an inventory Management concept except skills of staff even there is a positive relationship with Inventory Management. Hence the study recommended that Proper Documentation should be performed, Procurement procedure should be understandable and it should be applied Top Bottom Approach, Inventory planning should be clear and sufficient fund allocation also is needed to continue sensitive inventory Management practices in Manufacturing firm because all the listed manufacturing firm listed in CSE have big capitalization and most of the companies are very large companies.

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