

EFFECT OF INVENTORY MANAGEMENT PRACTICES ON FINANCIAL PERFORMANCE OF SKOL RWANDA LIMITED

JEANET KAGWISAGYE¹, Dr. PATRICK MULYUNGI²

^{1,2} Jomo Kenyatta University of Agriculture and Technology

Abstract: Inventories constitute the most significant part of current asset of large majority of companies. Because of that, a considerable amount of fund is committed in it by organizations. The general objective of this study was to examine the effect of inventory management practices on financial performance of Skol Rwanda Limited. Descriptive research was considered prior to quantitative research design as it provided an overall overview as to what variables to test quantitatively. The target population of this study was seventy employees (76 employees) of Skol Rwanda Limited involved in accounting, finance, logistics, and procurement departments as shown by the Human Resource Management department of Skol Rwanda Limited. Since the target population of the study is a small number, the researcher preferred to use a census by considering the total population as sample. The researcher collected primary and secondary data. Primary data were collected through questionnaires and interview while the secondary data were collected from the Audited inventory statements of Skol Rwanda Limited for the past four years from 2014 to 2017. The collected data were first examined and checked for completeness and comprehensibility. Means, standard deviations and frequency distribution were used to analyze data. Data presentation was done by the use of frequency tables for easy understanding and interpretations. The study concluded that cost reduction is necessary for implementation of inventory management for performance of manufacturing firms also holding stocks and ordering costs may increase the performance of an organization. Cost reduction helps in preparing employees towards managing the inventory ideology and equips organization with sufficient resources and that inventory cost reduction helps in achieving profitability objective. The study also concluded that improved anticipation of future developments in manufacturing firms in Rwanda will improve their performance and new technologies are promising to save costs and thus improving the performance of the manufacturing firms. The study further concluded that Inventory Management practices is a competitive tool in the organization for realizing its corporate competitive strategy; information sharing and a channels relationship affect the performance of the manufacturing firms and enhance productivity. It is recommended that sugar manufacturing firms develop a policy framework to facilitate faster implementation of the best inventory management practices such as JIT and MRP. It is also recommended that manufacturing firms consider investing in modern technology and implement EDI and this will reduce inventory costs and improve returns.

Keywords: Inventory management practices, financial performance.

1. INTRODUCTION

Inventory management involves making decisions that are in line with basic trade off among firm's objectives, costs and other constraint. The economic order quantity theory, suggests that firms should maintain the quantity of inventory which provides the lowest total holding cost and acquiring cost (Milicevic et.al, 2012). Thus, inventory management is vital to for an effective and efficient firm. It is also important since it helps the firm in determination of the optimal amount of

materials and goods a firm can hold at any given time. Mismanagement of Inventories may lead to significant financial problems for a firm (Muhayimana, 2015). Inventory management is of high importance in financial management decision. This is because excess or shortage of this may bring danger to the company (Duru et al, 2014).

The objective of inventory management is to maintain a system that minimizes total cost, while specifically, it establishes that the amount of stock to be ordered is optimal as well as the period between orders (Anene, 2014). Excess inventory consumes a lot of space, can increase possibility of spoilage, leads to a financial burden and loss while insufficient inventory has the potential of interrupting business operations (Swaleh & Were, 2014). Inventory management is vital and needed in various areas within the firm especially in a supply network so as to protect production against any disturbance of running out of production inputs or materials and goods (Ogbo et al, 2014). Management of Inventory is crucial to a firm since it plays a decisive role to enhance efficiency and improve the firm's competitiveness ability against the firm's competitors. Effective inventory management is all about holding the right amount of inventory required by the business at any point in time (Swaleh & Were, 2014). Inventory management involve creation of a purchasing plan which will help to ensure that all items or materials are available when needed as well as and tracking the existing inventories and its use (Muhayimana, 2015).

2. STATEMENT OF THE PROBLEM

Inventory management refers to keeping or maintaining the firm's stocks at a level that a firm will only incur the least cost consistent with other management's set objectives or targets (Kwadwo, 2016). Inventory management is about ensuring that all input materials of production available to the firm are maintained at a level where production is not interrupted as well as ensuring that operational cost is kept at a minimal level without affecting operation efficiency (Eneje, Nweze, & Udeh, 2012). Inventory management entails planning, organizing, controlling and directing. All these coordinated efforts are meant to ensure achievement of efficiency in all operations of the firm. Such operations may include procurement, stocking and transportation. Mismanagement of Inventories may lead to significant financial problems for a firm (Akindipe, 2014).

In Rwanda to increase local domestic and foreign supply of manufactured goods, the government has put in place a made in Rwanda policy in order to address the short comings in the business environment by developing infrastructure, streamlining business regulations and facilitating fast moving investors, but inventory management was neglected while the most of manufacturing firms are newly settled after being relocated which can effectively affect their profitability. Thereafter, a few studies have been conducted on how various elements of inventory management impact financial performance of manufacturing firms in Rwanda (Muhayimana, 2015). Modern inventory management in alcohol and soft drinks industry utilize new and more refined techniques that provide for dynamic performance of inventories to maximize customer service with decreased inventory and lower costs. This is therefore prompting the researcher to carry out a study on the effect of inventory management practices on performance of Skol Rwanda Limited.

3. RESEARCH OBJECTIVES

3.1 General Objective

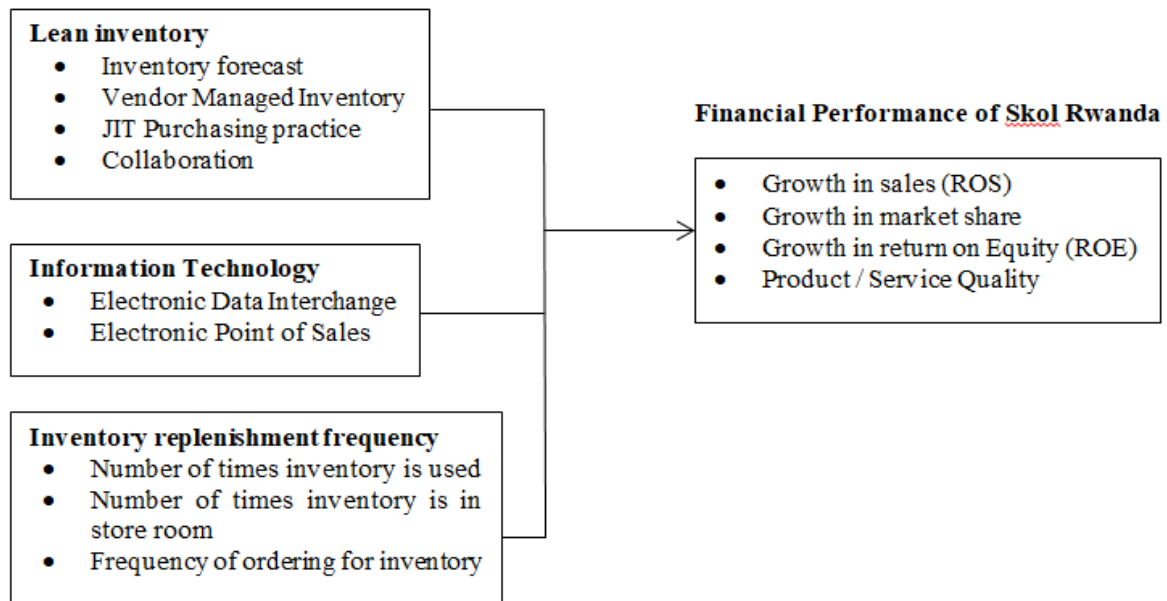
The general objective of this study was to examine the effect of inventory management practices on financial performance of Skol Rwanda Limited.

3.2 Specific Objectives

- i. To analyze the effect of lean inventory management practices on financial performance of Skol Rwanda Limited
- ii. To assess the effect of information technology in inventory management on financial performance of Skol Rwanda Limited
- iii. To investigate the effect of inventory replenishment frequency on financial performance of Skol Rwanda Limited

4. CONCEPTUAL FRAMEWORK

Inventory Management Practices



5. RESEARCH METHODOLOGY

- **Research design:** The study applied descriptive research design. The main objective of descriptive research was to provide information on characteristics of the chosen population or phenomenon. Descriptive research was considered prior to quantitative research design as it provides an overall overview as to what variables to test quantitatively.
- **Target population and Sample size:** The target population of this study was seventy employees (70 employees) of Skol Rwanda Limited involved in accounting, finance, logistics, and procurement departments as shown by the Human Resource Management department of Skol Rwanda Limited.
- **Data collection instruments:** To achieve the objective of this study, the researcher collected primary and secondary data. Primary data were collected through questionnaires while the secondary data were collected from the Audited inventory statements of Skol Rwanda Limited for the past four years from 2014 to 2017.
- **Data Analysis Technique:** The data collected were first examined and checked for completeness and comprehensibility. They were then summarized, coded and tabulated. Means, standard deviations and frequency distribution will be used to analyze data. Data presentation is done by the use of frequency tables for easy understanding and interpretations. Linear regression was used to establish the relationship between the independent and dependent variables. The multiple linear regression equation that was used for this study is: $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$. Where: Y represents the dependent variable which is financial performance, β_0 represents Constant, X_1 represents lean inventory index, X_2 represents information technology index, X_3 represents inventory replenishment frequency index, β_1 ; β_2 ; β_3 represent regression coefficient and e represents the error term.

6. SUMMARY OF RESEARCH FINDINGS AND DISCUSSION

6.1 Demographic Information

Demographic data were important in ascertaining the background of the respondents and how they contribute to influence the objectives of the study. Demographic findings therefore presented in this section included gender and age, education level, average monthly income category of enterprise and respondents main source of information about the investment market.

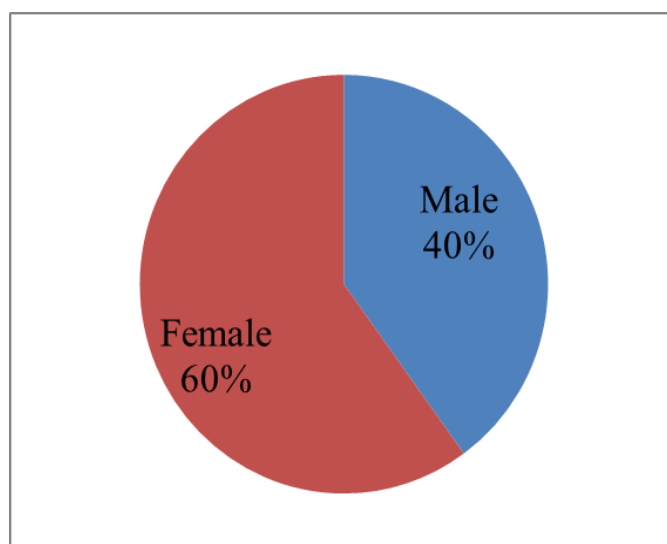


Figure 6.1: Gender distribution

The study findings from Figure 6.1 revealed that majority (60%) of the study participants were female while male participants constituted 40 % of the study sample.

Table 6.1: Distribution of respondents by age

Age group	Frequency	Percentage (%)
<30 years	5	7
31-40 years	45	64
41-50	20	29
Total	70	100.0

The study further sought to establish the distribution of age of the respondents. Data collected under age were presented in the table 6.1. Table 4.1 indicates that majority 52% of the respondents were aged between 31-40years, 25% of the respondents were aged below 30years, 23% of the respondents were aged between 41-50 years.

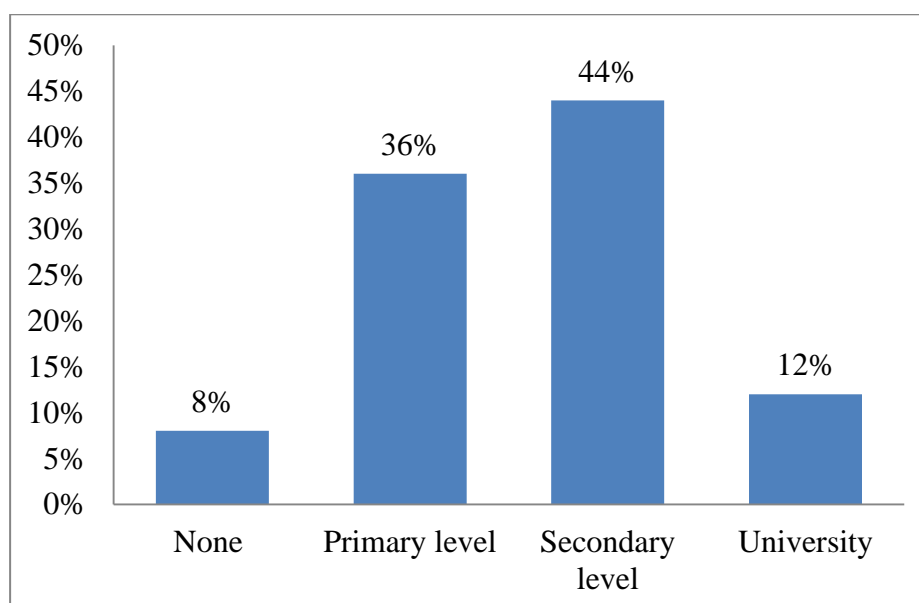


Figure 6.2: Distribution of Education level

The findings in Figure 6.2 indicates that 44% of the respondents had secondary level of education, 36% has primary level education, and 12% had attained university education level while 8% did not have any formal education.

Table 6.2: Distribution of respondents by ICT Training

Response	Frequency	Percentage (%)
Yes	33	38
No	53	62
Total	86	100

The findings in Table 6.2 revealed that the majority (62%) of the respondents reported having been formally trained on ICT applications while 38% indicated they had not received formal training on ICT. This means that majority of the respondents have the relevant system knowledge to handle lean inventory management system.

Table 6.3: Effect of lean inventory management practices on financial performance of Skol Rwanda

Statements	4	3	2
Operation of JIT purchasing system where no safety stocks are kept	20(34%)	37(53%)	13(19%)
Agreements with supplier for short cycle Deliveries	44(62%)	18(26%)	8(12%)
Accurate prediction of vendor delivery dates	45(76%)	8(9%)	17(15%)
Operation of materials Requirements planning system (MRP) – where bills of materials are 100% accurate	48(60%)	19(34%)	3(6%)
Little or no expediting	45(69%)	13(19%)	10(12%)

The findings in Table 6.3 present respondents opinion on the extent of use of the practice of lean inventory in Skol Rwanda Limited. The major determinants in Lean Inventory Practices are Materials Requirement Planning, with 34% of the respondents strongly agreed with the statement 53% just agreed while 19% disagreed with the statement, accurate prediction of vendor delivery dates, majority (67%) of the respondents strongly agreed with the statement, 9% just agreed while 13% disagreed and agreements with suppliers for short cycle deliveries with 51% of the respondents strongly agreed with the statement, 33% just agreed with the statement while 16% disagreed. MRP is the most widely used system because all manufacturing firms have to prepare master production schedules, with accurate bills of materials which are key element in MRP system. Other parameters considered to be important determinants of Lean Inventory system include little or no expediting with Majority (69%) of the respondents strongly agreed with the statement, 19% just agreed while 11% disagreed and operation of JIT purchasing system with Majority (69%) of the respondents strongly agreed with the statement 19% just agreed while 12% disagreed. In general based on the results, Lean inventory system takes a 63% showing that Skol Rwanda has employed Lean Inventory practices to some extent.

Table 6.4: Correlation between lean inventory management practices and financial performance of Skol Rwanda

		Financial performance	Lean inventory management practices
Financial performance	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	70	
Lean inventory management practices	Pearson Correlation	.621**	1
	Sig. (2-tailed)	.001	
	N	70	70

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

Table 6.4 indicates that there was a significant relationship between lean inventory management practices and financial performance ($R = .621$, $P < 0.01$). This implied that availing the company with necessary Lean inventory management practices would improve the financial performance of the company by improving the quality process. The findings concur with Ma & Tang, (2001), who argued that Management Systems helps to develop quality process based reviews for process improvements that reduce process variability and aim for "zero defect". Inventory Management Systems facilitates resource integration and decision making through cross functional teams that improve efficiency and effectiveness. One way to improve operations is to set up automated inventory tracking from the time you accept merchandise at the receiving dock or factory floor to the sale of your goods.

Table 6.5: Effect of use of information technology on financial performance of Skol Rwanda.

Statements	Strongly agree	Agree	Disagree
The firm has computerized all inventory management systems	17(20%)	33(38%)	36(42%)
The firm's computers are linked with those of suppliers in a real time environment	13(15%)		73(85%)
The firm uses Electronic Data Interchange Technology (EDI)	31(36%)	48(56%)	7(8%)
The firm uses Electronic Point of sale (EPOS)	9(10%)	29(34%)	48(56%)

The findings in Table 6.5 above show the degree to which Skol Rwanda applies information technology in inventory management. It is clear that the entire firm has computerized their systems, with 38% of the respondents agreed while 20% strongly agreed with the statement. Computers can aid in stock control by setting stock control levels and calculating the amount of stocks to hold and dispatch. Linking firms computers with those of suppliers in a Real Time environment with 56% of the respondents agreed with the statement, 36% strongly agreed while 8% disagreed and use of EDI technology with 34% agreed while 10% strongly agreed with the statement are also considered important in information technology. The remaining parameter mean for technology is 2.75, showing that Skol Rwanda has to some extent adopted information technology in their inventory management practices.

Table 6.6: Correlation between information technology and financial performance of Skol Rwanda.

	Financial performance	Use of Information technology
Financial performance	Pearson Correlation	1
	Sig. (2-tailed)	
	N	86
Use of Information technology	Pearson Correlation	.525**
	Sig. (2-tailed)	.001
	N	86

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

The results of correlation in Tables 6.6 indicate that there was a significant relationship between Information technology in inventory management and Financial performance ($r = .525$, $p < 0.01$). This implies that when the company adopts relevant information technology facilities and trainings in inventory management this would lead to improved financial performance by the company. The findings conform to Carter and Price (1995) asserts that information is the life blood of all organizations. Inventory manager needs information technology in order to succeed in his work. Computers can assist stock control in calculating the optimum amount of stocks to hold and dispatch in order to satisfy the users requirements. The computer can do this by comparing inventory variables (stock levels, demand and delivery dates). The Electronic Data interchange, EDI is a system which enables direct communication between organizations without there being any human intervention. This technology has revolutionized inventory management. Effect of lead time affects the financial performance of Skol Rwanda

Table 6.7: Effect of inventory replenishment frequency on financial performance of Skol Rwanda

Statements	Yes %	No %
Favorable and well-known time strategy affects the profitability of organization to a very large extent	63 (73%)	33 (27%)
Creation of value affect the profitability	56 (65%)	30 (35%)
Improvement in continuity of supplies and lead time can be used as a filter in terms of a consumer's perception of quality	66 (77%)	22 (23%)

The findings in Table 6.8 revealed that 73% of the study participants felt that favourable and well-known time strategy affects the profitability of organization to a very large extent. Also, 63% indicated that Creation of value affect the profitability. Further, 77% of the study participants felt that Improvement in continuity of supplies and lead time can be used as a filter in terms of a consumer's perception of quality. The study found out that favourable and well-known time strategy affects the profitability of organization to a very large extent; and that also they strongly agreed that creation of value affect the profitability of Skol Rwanda. The study further showed that improvement in continuity of supplies and lead time can be used as a filter in terms of a consumer's perception of quality which in turn affects the profitability of the company to a large extent. The findings were in collaboration with Dimitrios, (2008) who argued that Cycle-time reduction almost always means reduced costs, reduced inventory levels, improved production predictability, increased customer service, and better quality. To reduce cycle time, manufacturers need to streamline every aspect of their operations, especially the order-to-delivery process.

Table 6.8: Correlation between inventory replenishment frequency and financial performance of Skol Rwanda

		Financial performance	Inventory replenishment frequency
Financial performance	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	70	
Inventory replenishment frequency	Pearson Correlation	.698**	1
	Sig. (2-tailed)	.000	
	N	70	70

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

The findings in Table 6.8 indicate that financial performance is significantly correlated to inventory replenishment ($r=0.698$, $p<0.01$).

Table 6.9: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.853 ^a	.815	.807	12.63

a. Predictors: (Constant), (lean inventory management systems, information technology, and lead time)

According to the findings in the table above, the value of adjusted R^2 is 0.815. This indicates that a variation of 81.5 % of performance of Skol Rwanda at a confidence level of 95.

Table 6.10: ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.254	3	.751	5.690	.000 ^b
	Residual	17.843	120	.132		
	Total	21.097	123			

a. Dependent Variable: Financial performance

b. Predictors: (lean inventory management practices, use of information technology, and inventory replenishment frequency).

The significance value is 0.000 which is less than 0.05 thus the model is statistically significant in predicting how the independent variables (lean inventory management practices, use of information technology, inventory replenishment frequency) on the dependent variable (financial performance of Skol Rwanda). The F critical at 5% level of significance was 2.56. The F calculated (value =5.69) was greater than the critical value (3.567>2.56) an indication that the independent variables (lean inventory management practices, use of information technology and inventory replenishment frequency) affect performance of Skol Rwanda.

Table 6.11: Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	Sig.
	B	Std. Error	Beta	
1				
(Constant)	.415	.177		2.688 .008
Lean Inventory Management System	.250	.070	.166	1.861 .015
Information Technology	.128	.097	.096	1.112 .026
Lead time	.184	.070	.236	2.615 .010
Demand and supply	.091	.070	.237	1.113 0.15

a. Dependent Variable: Financial Performance of Skol Rwanda

The study adopted the following regression model $Y' = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + e$

Fitting the coefficients to the model, the following regression equation was generated; $Y = 0.415 + 0.250$ (Lean Inventory Management Practices) $+ 0.128$ (Use of information technology) $+ 0.184$ (Inventory replenishment frequency) $+ 0.091$.

7. CONCLUSIONS

The study concluded that cost reduction is necessary for implementation of inventory management for performance of manufacturing firms also holding stocks and ordering costs may increase the performance of an organization. Cost reduction helps in preparing employees towards managing the inventory ideology and equips organization with sufficient resources and that inventory cost reduction helps in achieving profitability objective. The study also concluded that improved anticipation of future developments in manufacturing firms in Rwanda will improve their performance and new technologies are promising to save costs and thus improving the performance of the manufacturing firms. The study further concluded that Inventory Management practices is a competitive tool in the organization for realizing its corporate competitive strategy; information sharing and a channels relationship affect the performance of the manufacturing firms and enhance productivity.

8. RECOMMENDATIONS

It is recommended that sugar manufacturing firms develop a policy framework to facilitate faster implementation of the best inventory management practices such as JIT and MRP. It is also recommended that manufacturing firms consider investing in modern technology and implement EDI and this will reduce inventory costs and improve returns.

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