EFFECT OF INVENTORY CONTROL STRATEGIES ON PROFITABILITY OF MANUFACTURING FIRMS IN RWANDA: CASE OF SKOL BREWERIES RWANDA LIMITED

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Abstract: **The purpose of this study was to examine the effects of inventory management practices on the performance of Skol Rwanda because poor inventory management leads to poor financial performance of manufacturing firms. In addition, inventory management is a significant asset in any business enterprise and its effective management is a key task in the operations of a business. However, many organizations consider inventory management a difficult task (Ogbo, 2011) as it involves a complex of decisions due to the many forms it takes and functions it provides. Researcher achieved this study by use of three specific objectives; examined inventory management practices used by Skol Rwanda; investigated the level of business performance of Skol Rwanda; and examined the effect of inventory management practices on performance of Skol Rwanda. Literature by different scholars on the effects of inventory management on the performance of organizations was analyzed. The study used a descriptive study based on both qualitative and quantitative approach. The population of the study was 90 and sample size to be selected was 75 respondents. The researcher used both primary and secondary source of data in order to enough information for the purpose of the study. SPSS software was used for data processing and analysis done by frequency, percentages, mean and Standard deviation and Anova table to establish relationship between inventory management and financial performance of Skol Rwanda limited. In the finding it was established that inventory management strategies like VED analysis model strategy analyses vital stock before purchase, analyses essential stock before purchase and analyses desirable stock before purchase which improve organization profitability. MRP analysis model strategy analyses prices of different products before buying, determines minimum stock required in the organization, determines maximum stock required in the organization and analyses value and durability of the products. ABC analysis model strategy analyses the types of materials used in the company, analyses the average rate of consumption of the material used in the company, analyses the behavior of the customers in consumption of the goods company and analyses the value of the product before purchase. The analysis further shows the relationship between Inventory management strategies and Skol Rwanda limited profitability. Significant level is 0.01, the results indicate that independent variable has Positive high correlation to dependent variable equal to. 825** and the p-value is .000 which is less than 0.01. When p-value is less than significant level, therefore researchers conclude that variables are correlated. This means that there is a significant relationship between Inventory management strategies and Skol Rwanda limited profitability by 82.5%.**

Keywords: **inventory management, organizations, business, profitability.**

1. INTRODUCTION TO THE STUDY

1.1 Background of the Study:

Inventory has been a big component of management within so many organizations in dealing with goods and materials, or those goods and materials themselves, held available in stock by a business. Inventory control strategies commonly used are Economic reorder level, VED analysis model, ABC analysis models, just in time techniques, LIFO, FIFO and many

others which improves organization stock operations (Pandey, 2015). The techniques or strategies covers issues like determining the level of stock to order, when to order, establishing receipt and inspection procedures and providing proper storage facilities.

According to Pandey (2015) an inventory control technique is a system of maintaining optimum levels of investment in inventory, through controlling costs associated with stock on hand, work in progress, and finished goods. Inventory in a management involves having in place material control systems, proper and systematic recording of inventory and storage of right amount of inventory (Drury, 2015). Inventory management also includes various techniques used to ensure that the right quantity of an item is used at the right time and place (Saleemi 2013). According to him the objective of having an effective inventory management system include:- To maintain a large size of inventory for efficient and smooth production and sales operations, o maintain a minimum investment in inventory to maximize profitability.

Without proper stock control procedures in place, firms are likely to face two undesirable inventory levels, that is to say excessive/high levels of inventory or inadequate/ low levels of inventory hence affecting its profitability as they fail to satisfy their customers demand. This definition was also supported by Schroeder (2010) who stressed that inventory control strategies has an impact on all business functions including finance and accounting department. He established that there are three motives for holding inventories, which are transaction, precautionary and speculative motives. The transaction motive occurs when there is a need to hold stock to meet production and sales requirements hence promoting financial performance of the organization.

The scope of inventory management concerns the fine lines between replenishment lead time, carrying costs of inventory, asset management, inventory forecasting, inventory valuation, inventory visibility, future inventory price forecasting, physical inventory, available physical space for inventory, quality management, replenishment, returns and defective goods and demand forecasting. Balancing these competing requirements leads to optimal inventory levels, which is an on-going process as the business needs shift and react to the wider environment. The aim of inventory management is to hold inventories at the lowest possible cost, given the objectives to ensure uninterrupted supplies for ongoing operations (Wilberforce, 2009).

When making decision on inventory, management has to find a compromise between the different cost components, such as the costs of supplying inventory, inventory-holding costs and costs resulting from insufficient inventories (Hugo, Baden horst- Weiss and Van Rooyen 2012). According to Wild (2012), inventory control is the activity which organize the availability of items to the customers. It coordinates the purchasing, manufacturing and distribution functions to meet the marketing needs. This role includes the supply of current sales items, new products, consumables; spare parts, obsolescent items and all other supplies. Inventory enables a company to support the customer services delivery, logistic or manufacturing activities in situations where purchasing or manufacturing is too protracted, or because quantities cannot be provided without stocks hence improved profitability of the organization.

With increasing need for effective operations management, firm's now requires that costs and cost centers be well managed and controlled. Consequently stores as a cost centers must be well managed, if not then it will affect organization financial performance. Poor inventory managed has made many manufacturing firms to make losses instead of making profit; this is because of different cost involved (Saleemi 2013). For example holding costs, operational cost and ordering cost hence therefore firms have to be more vigilant and have effective inventory control strategies /techniques in order to improve its profitability of manufacturing firms in Rwanda inform of profitability, return on investment, cash flow and return asset.

Researcher has decided to take a case of Skol Brewery Rwanda Limited. The company was formerly known as Brasserie des Mille Collines Ltd. and changed its name to Skol Brewery Limited in October 2012, following acquisition by Unibra S.A. SKOL Africa owns the SKOL brand and is responsible for consumer brand marketing initiatives. We operate under three business models: Brewing and distributing through our own Breweries, SKOL Brewery Ltd in Rwanda and Zebidar Brewery Share Company in Ethiopia. Licensing SKOL to partners, who brew, merchandise and distribute SKOL with their own product range. Our partners are Groupe Castel in Congo RDC, Guinea and Madagascar and BRALICO in Congo RDC. Exporting from Belgian or our own African breweries to distributors in countries where we have no manufacturing footprint.

Skol Brewery Rwanda Limited started in October 19, 2012, it is one of the only two local breweries in Rwanda and has been in the market since 2010 when the shareholding company first bought 50 percent of BMC Ltd and later upped this to fully own the company.

It is against the above background that is why the researcher is prompted to research on the effects of inventory management techniques on financial performance of manufacturing organization in Rwanda.

1.2 Statement of the Problem:

Poor inventory control strategies have led to low profitability of business organization through much costs that the organization incur (Ogbo, 2011). Without inventory management strategies and techniques to manage inventory effectively they are bound to incur many challenges in the following areas; replenishment lead time, carrying costs of inventory, asset management, inventory forecasting, inventory valuation, inventory visibility, future inventory price forecasting, physical inventory, available physical space for inventory, quality management, replenishment, returns and defective goods and demand forecasting, If not well managed they will incur costs which in turn affects profitability, return on investment, liquidity and return on asset of business organizations(Fayol, 2009).

Many manufacturing organization face big challenges in managing inventory effectively which have brought issues in order fulfillment, organizations have failed to meet customers demand by providing the right goods, at the right time, in the right quality and cost hence customers shifting to organizations which can meet its demand easily as required (Zipkin, 2010), If a customer's moves from one organization to another then sales return reduces and as sales return reduces return on investment will reduce hence affecting profitability of the organization.

It based on the above problem that is why the researcher is prompted to analyze the relationship between inventory management practices and financial performance of manufacturing organization in Rwanda with specific reference to Skol Rwanda Limited.

1.3 Objectives of the study:

1.3.1 General objective:

To establish the effect of Inventory Control Strategies on profitability of manufacturing firms in Rwanda; a case study of Skol Breweries

1.3.2 Specific objectives:

1. To examine the effect of VED analysis model strategy on profitability of Skol Rwanda Limited.

2. To assess the effect of Material Requirement planning strategy on profitability of Skol Rwanda Limited.

3. To establish the effect of ABC analysis model strategy on profitability of Skol Rwanda Limited.

1.4 Hypothesis of the Study:

H0: VED analysis model strategy has no significant effect on profitability of Skol Rwanda Limited

H1: Material Requirement planning strategy has significant effect on profitability of Skol Rwanda Limited.

H2: ABC Analysis model Strategy has significant effect on profitability of Skol Rwanda Limited.

1.5 Scope of the study:

The scope of the study included subject scope, geographical scope and time scope

The subject scope examined the effect of inventory control strategies on profitability of Skol Rwanda Limited. The study was limited to Skol Rwanda Limited, located at Kigali City Rwanda. Mainly the administration, finance and accounting, procurement and store department were considered. The study considered inventory Control Strategies used by Skol Rwanda Limited for the past 3 years; that is 2015 to 2017 in order to ascertain the recent effect of the strategies on profitability..

1.6 Significance of the study:

The research is significant to the researcher, Skol Rwanda limited and JKUAT.

The study will help the researcher to acquire knowledge on of inventory control strategies on profitability of manufacturing organization in Rwanda. The research report will also be used by the researcher as a partial requirement for the award of degree in procurement. Furthermore, the study will be useful to the Skol Rwanda limited especially if they put recommendation of this study into practice. A copy of the report will be kept in University library to help students

who will be interested to research in the same area of interest. Therefore it will act as a source of information for future researchers. Lastly, It will help them to formulate policy on of inventory control strategies of especially if they adopt the recommendation of the study.

1.7 Limitations of the Study:

Like any other research, the researcher may encounter some challenges:

Unavailability or inaccessibility of the information due to professional secrecy under its performance may delay research schedule.

2. RESEARCH METHODOLOGY

2.1 Introduction:

This chapter presents the methodology that was used in the study; it gives research design and the methods that to be used to collect data from the field. It gave a summary of the research design, sample population and size, data collection instruments, data type, data processing and presentation and the anticipated problems during the process of data collection and analysis.

2.2 Research Design:

Research design is the blue print on how one goes about answering the objectives of the study (Bryman and Bell, 2007). It refers to the way in which the study was designed and the method that were used in carrying out the research. The study is a descriptive design based on both qualitative and quantitative approach. A quantitative approach is linked to deductive method of testing theories while qualitative approach is characterized with inductive testing (Saunders, et al., 2003). The study focused more on the qualitative approach but in some instances, quantitative approach was employed in order to get better understanding and more insightful interpretation of the results. For this study, the quantitative method shall investigate the effects of inventory control strategies on profitability of Skol Rwanda limited. The qualitative data collection method on the other hand shall investigate the extent to which the inventory control strategies affected the profitability of Skol Rwanda limited.

2.3 Target population:

According to Ngechu (2014), a population is a well-defined or set of people, services, elements and events, group of things or households that are being investigated. This definition ensures that population of interest is homogeneous. The study was carried out in Skol Rwanda Limited located in, Kigali city, within selected departments, Accounting and Finance, Procurement, Administration and Logistics and Stores constituting a total population of 90. The choice of manufacturing is due to the fact that the manufacturing have always carried out stock management from time to time hence as a result the researcher believes to collect the required information with ease.

2.4 Sample design:

A sample design is a definite plan for obtaining a sample from a given population. It refers to the technique or the procedure the researcher would adopt in selecting items for the sample (Kothari, 2004).

2.4.1 Sample size determination:

When it is not possible to study an entire population but the population is known, a smaller sample is taken from strata by purposive sampling technique. Slovin's formula allows a researcher to sample the population with a desired degree of accuracy (Stephanie, 2013). Slovin's formular was used to calculate the sample size.

With regard to the level of accuracy, we used a confidence level of 95% as suggested by Kothari (2004), this means that there are 95 chances in 100 (or .95 in 1) that the sample results represent the true condition of the population within a specified precision range against 10.05 chances in 100 (or .05 in 1) that it does not. The slovin's formula is calculated as follows:

$$n = \frac{N}{1 + Ne^2}$$

Stephanie (2013) n=Number of samples or sample size, N= Total population, e= Error tolerance

The population size of this research is 90 employees of Skol Rwanda limited. We take a sampling error of 5%, and then the sample size was:

n = 90/1+90(0.0.05*0.05), n = 90/ 1+90*0.0025, n = 90/1+0.2 n=90/1.2 **n = 75**

Therefore the sample size was 75 respondents.

2.4.2 Sampling Techniques and procedures:

A list of employees was obtained from Skol Human Resource Office and it is this list that was used to group the employee into strata (department). Then the researcher followed by purposive sampling method in order to avoid bias and reduce the chances of error. The researcher asked the management or key supervisors, where names was provided to the researcher and screened on the parameter of performance. Some groups was purposively selected in order to explore most of the research questions especially accountants.

2.5 Data Collection:

2.5.1 Data Source:

Data is facts or things certainly known and from which conclusions was made. The main sources of data collection referred to when conducting this study was both primary and secondary sources of data. The survey questionnaire was used as the main data collecting instrument, and the secondary data was gathered from project report.

2.5.2 Data Collection Instruments:

Questionnaires:

Kothari (1991) said that a questionnaire is justifiable in data collection mainly because; it enables the researcher to collect large amount of data within a short time period, it also provides opportunity for respondents to give frank, anonymous answers. One set of questionnaire is designed for the community members; it included both open and closed ended set of questions that to be answered. The questionnaire was written in a simple and clear language for the respondent to feel free while answering. In addition to that the use of questionnaire is considered vital to the research since it provides accurate information regarding the study.

Documentary Review:

This researcher reviewed literature obtained from the case organization. This literature includes annual reports, inventory reports and financial statements of the organization. This method is chosen because it is vital in providing background information and facts about the organization before primary data could be collected.

2.5.3 Validity and Reliability of instruments

The validity of instruments was used to test validity of the instruments to be used. This includes item analysis that is to be carried out with the aid of the supervisor, research experts knowledgeable about the themes of the study. The process involves examining and assessing each item in each of the instruments to establish whether the item brings out what it is expected to do.

Item analysis is conducted using the scale that runs from relevant(R), neutral (N), to irrelevant (IR). This assessment gave a content validity ratio (CVR) for each instrument which is computed using the formula:

CVR=R/(R+N+IR)

Where CVR, R, N, AND IR are as mentioned above. The CVR obtained will be greater than 0.5, implying that the instruments were valid.

The reliability of the questionnaire was computed using the Cronbach method of internal consistency. From the computation, the value of the coefficient greater than 0.5, shall imply that the results from the instruments are reliable.

2.6 Data Analysis:

The data collected was processed and analyzed using SPSS (Version 22). This involved data coding, editing and tabulation especially quantitative data. The purpose of all these is to make the information clear and understandable for other people. Qualitative analysis techniques were used. The Qualitative analysis techniques complemented with some statistics that will mainly be obtained from the secondary data that was obtained through documentary analysis from the case study organization. The SPSS established relationship between the independent variable and dependent variables (Inventory control strategies and Profitability).

After confirming that all data were correctly entered, descriptive statistics were used to analyze quantitative data. Descriptive statistics included percentages, measures of central tendencies (mean) and frequency distribution. Tables, bar charts and pie charts were used to present the data. Descriptive statistics facilitate the meaningful distribution of measurements and to also describe, summarize data and organize (Mugenda & Mugenda, 2003).

Qualitative data was thematically coded and then statistically analyzed. Qualitative data which is from the open ended questions was analyzed using content analysis. The findings from the qualitative data were then presented in a prose form.

A multivariate regression analysis was used to determine the relationship between the dependent and the independent variables.

The multivariate regression model was:

$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \varepsilon$

Where:

Y = Profitability; β_0 = Constant Term; β_1, β_2, and β_3 = Beta coefficients; X_1= VED Analysis Model; X_2= Economic Reorder Level; X_3= ABC Analysis Model; ε = Error term

The study used a 95% confidence level. A 95% confidence interval reflects a significance level of 0.05. This shows that for an independent variable to have a significant effect on the dependent variable, the p-value should be below the significance level (0.05).

Chi square (X^2) statistics will be used to investigate whether distributions of categorical variables differed from one another. The ANOVA table was used to compare the tallies of categorical responses between the Inventory control strategies and Profitability.

3. ANALYSIS AND DISCUSSION OF FINDINGS

3.1 Introduction:

This chapter analyses the field data by use of SPSS and the data was interpreted according to both profile of the respondents and specific objectives.

Profitability of Skol Rwanda Limited:

This section describes profitability of Skol Rwanda limited inform of net and gross profit

Table 3.1: Profitability of Skol Rwanda Limited

Profitability of Skol Rwanda Limited	Response						Mean	Std. Deviation
	Strongly Agree		Agree		Not sure			
	Freq	%	Freq	%	Freq	%		
Skol Rwanda net profit has improved in the last three years	30	40.0	39	52.0	6	8.0	4.3200	.61863
Skol Rwanda gross profit has improved in the last three years	33	44.0	37	49.3	5	6.7	4.3733	.61012

Source: Primary data, 2018

The analysis reveals that cumulatively 92% of the respondents agreed that Skol Rwanda net profit has improved in the last three years as further indicated by strong mean of 4.3200 and heterogeneity standard deviation of .61863. This implies that Skol Rwanda net profit has improved in the last three years. Lastly, cumulatively 93.3% of the respondent agreed that financial Skol Rwanda gross profit has improved in the last three years as indicated by strong mean of 4.3733 and heterogeneity standard deviation of .61012. This implies that Skol Rwanda gross profit has improved in the last three years.

Vital Essential Desirable Analysis Model and Profitability of Skol Rwanda Limited:

This section analyzes Vital Essential Desirable Analysis Model and Profitability of Skol Rwanda Limited and it shows how the two variables are related.

Table 3.2: Assessment of Vital Essential Desirable Analysis Model in Skol Rwanda limited.

Assessment of Vital Essential Desirable Analysis Model in Skol Rwanda limited	Response						Mean	Std. Deviation
	Strongly Agree		Agree		Not sure			
	Freq	%	Freq	%	Freq	%		
Skol Rwanda limited analyses vital stock before purchase	33	44.0	40	53.3	2	2.7	4.4133	.54756
Skol Rwanda limited analyses essential stock before purchase	24	32.0	48	64.0	3	4.0	4.2800	.53423
Skol Rwanda limited analyses desirable stock before purchase	30	40.0	42	56.0	3	4.0	4.3600	.56089

Source: Primary data, 2018

The analysis reveals that out of total respondents 97.3% agreed that Skol Rwanda limited analyses vital stock before purchase as further indicated by strong mean of 4.4133 and homogeneity standard deviation of .54756. This implies that Skol Rwanda limited analyses vital stock before purchase in order to sustain their production level. Cumulatively 96% of the respondent agreed that Skol Rwanda limited analyses essential stock before purchase as also indicated by strong mean of 4.2800 and heterogeneity standard deviation of .53423. This implies that Skol Rwanda limited analyses essential stock before purchase. Lastly cumulative percentages show that the 96% of the respondents agreed that Skol Rwanda limited analyses desirable stock before purchase as indicated by strong mean of 4.3600 and heterogeneity standard deviation of .56089. This implies that Skol Rwanda limited analyses desirable stock before purchase.

Regression Analysis on Inventory Management strategies:

A multivariate regression analysis was used to establish the relationship between the dependent and the independent variables.

The multivariate regression model was:

$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \varepsilon$

Where; Y = Profitability

$\qquad \beta_0$ = Constant Term

$\qquad \beta_1, \beta_2,$ and β_3 = Beta coefficients

$\qquad X_1$= VED analysis model

$\qquad X_2$= MRP analysis model

$\qquad X_3$= ABC analysis model

$\qquad \varepsilon$ = Error term

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.944[a]	.891	.889	.40151
a. Predictors: (Constant), Inventory Management strategies				

R-square p=0.891 (89.1). 89.1% variations in profitability have been captured by the model used. Since the p-value is 0.000, the model erformance is statistically significant

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	96.178	1	96.178	596.588	.000[b]
	Residual	11.769	73	.161		
	Total	107.947	74			
a. Dependent Variable: Profitability						
b. Predictors: (Constant), Inventory Management strategies						

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	-.801	.391		-2.047	.044
	VED Analysis model	.727	.030	.944	24.425	.000
a. Dependent Variable: Profitability						

From the table above, the researcher deduces the regression equation

Where; Y = Profitability;

B_1 = Constant Term

β_1= Beta coefficients

X_1 = VED Analysis model

Y= -.801+0.727X_1 (VED Analysis model)……………………………………..Equation (i)

The results indicate that VED Analysis model have a relationship with profitability. The significance is 0.000 which indicates that there is positive relationship (0.727) between VED Analysis model and profitability. These results provide reasonable evidence to the consistent view that, there is increase in profitability of the organization. The beta of VED Analysis model is 0.944 with a t-statistic of 24.425. The positive coefficients mean a unit change in VED analysis model leads to a 0.727 units increase in profitability while keeping MRP analysis model and ABC analysis model are kept constant and since the P- value = 0.000 < 0.05, the positive t-statistic value indicates that the effect is statistically significant at 5 % test level reject H0 in favor of Hi the alternative.

Material Requirement Planning Analysis Model and Profitability of Skol Rwanda Limited:

This section analyzes Material Requirement Planning Analysis Model and Profitability of Skol Rwanda Limited.

Table 3.3: Material Requirement Planning Analysis Model

Assessment of Material Requirement Planning Analysis Model	Response						Mean	Std. Deviation
	Strongly Agree		Agree		Not sure			
	Freq	%	Freq	%	Freq	%		
Skol Rwanda have analyses prices of different products before buying	24	32.0	47	62.7	4	5.3	4.2667	.55345
Skol Rwanda determines minimum stock required in the organization	27	36.0	45	60.0	4	4.0	4.3200	.54920
Skol Rwanda determines maximum stock required in the organization	34	45.3	39	52.0	2	2.7	4.4267	.54953
Skol Rwanda analyses value and durability of the products	35	46.7	37	49.3	3	4	4.4267	.57359

Source: Primary data, 2018

The analysis reveals that cumulatively 94.7% of the respondents agreed that Skol Rwanda have analyses prices of different products before buying and further indicated by strong mean of 4.2667 and heterogeneity standard deviation of .55345. This implies that to a large extent Skol Rwanda have analyses prices of different products before buying. Cumulatively 96% of the respondent agreed that Skol Rwanda determines minimum stock required in the organization as also indicated by strong mean of 4.3200 and homogeneity standard deviation of .54920. This implies that Skol Rwanda determines minimum stock required in the organization. Furthermore, 97.3% of the respondents agreed that Skol Rwanda determines maximum stock required in the organization as indicated by strong mean of 4.4267 and heterogeneity standard deviation of .54953. This implies that Skol Rwanda determines maximum stock required in the organization as per the standard deviation and lastly the finding shows that 96% of the respondents agreed that Skol Rwanda analyses value and durability of the products indicated by strong mean of 4.4267 and heterogeneity standard deviation of .57359. This implies that Skol Rwanda analyses value and durability of the products as seen in the standard deviation.

Regression Analysis on MRP Analysis Model and Profitability of Skol Rwanda:

A multivariate regression analysis was used to establish the relationship between the dependent and the independent variables.

The multivariate regression model was:

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$

Where; Y = Profitability;

β_0 = Constant Term β_1, β_2, and β_3 = Beta coefficients , X_1= VED analysis model, X_2= MRP analysis model , X_3= ABC analysis model, ε = Error term

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.943[a]	.890	.889	.40301
a. Predictors: (Constant), MRP analysis model				

R-square =0.890(89%). 89% variations in Profitability have been captured by the model used. Since the p-value is of 0.000, the model performance is statistically significant /very good.

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	96.090	1	96.090	591.619	.000[b]
	Residual	11.857	73	.162		
	Total	107.947	74			
a. Dependent Variable: Profitability						
b. Predictors: (Constant), MRP Analysis model						

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	-.768	.392		-1.961	.054
	MRP analysis model	.543	.022	.943	24.323	.000
a. Dependent Variable: Profitability						

From the table above the researcher deduces the regression equation

Where; Y = Profitability;

B_2 = Constant Term

B_2= Beta coefficients

X_2 = MRP analysis model

Y= -.768 + 0.543X$_2$ (MRP analysis model)………………………………Equation (ii)

The results indicate that MRP analysis model has relationship with profitability. The significance is 0.000 which indicates that there is positive relationship (.543) between MRP analysis model and profitability. These results provide reasonable evidence to the consistent view that, there is increase in net profit and gross profit hence they improved profitability. The beta of MRP analysis model is .943 with a t-statistic of 24.323. The positive coefficients mean a unit change in MRP analysis model leads to a 0.543 units increase in profitability while keeping VED analysis model and ABC analysis model constant and since the P- value = 0.000 < 0.05 the positive t-statistic value indicates that the effect is statistically significant at 5 % test level. The effect of MRP analysis model on profitability is statistically significant; reject H0 in favor of Hi the alternative.

Annual Based Consumption Analysis Model and Profitability of Skol Rwanda Limited:

This section describes Annual Based Consumption Analysis Model and Profitability of Skol Rwanda Limited.

Table 3.4: Assessment of ABC Analysis Model and Profitability of Skol Rwanda Limited

Assessment of Annual Based Consumption Analysis Model and Profitability of Skol Rwanda Limited	Response						Mean	Std. Deviation
	Strongly Agree		Agree		Not sure			
	Freq	%	Freq	%	Freq	%		
Skol Rwanda analyses the types of materials used in the company	33	40.7	37	49.3	5	6.7	4.3733	.61012

Skol Rwanda analyses the average rate of consumption of the material used in the company	32	42.7	37	49.3	6	8.0	4.3467	.62587
Skol Rwanda analyses the behavior of the customers in consumption of the goods company	39	52.0	34	45.3	2	2.7	4.4933	.55443
Skol Rwanda analyses the value of the product before purchase	34	45.3	37	49.3	4	5.3	4.4000	.59275

Source: Primary data, 2018

The analysis reveals that 95% of the respondents agreed that Skol Rwanda analyses the types of materials used in the company and further indicated by strong mean of 4.3733 and homogeneity standard deviation of .61012. This implies that Skol Rwanda analyses the types of materials used in the company. Cumulate 92% of the respondent agreed that Skol Rwanda analyses the average rate of consumption of the material used in the company, also indicated by strong mean of 4.3467 and heterogeneity standard deviation of .62587. This implies that Skol Rwanda analyses the average rate of consumption of the material used in the company. Findings further shows that 97.3% of the respondents agreed that Skol Rwanda analyses the Skol Rwanda analyses the behavior of the customers in consumption of the goods company as indicated by strong mean of 4.4933 and heterogeneity standard deviation of .55443. This implies that Skol Rwanda analyses the behavior of the customers in consumption of the goods company and lastly the finding shows that 94.7% of the respondents agreed that Skol Rwanda analyses the value of the product before purchase and this was indicated by strong mean of 4.4000 and heterogeneity standard deviation of .59275. This implies that Skol Rwanda analyses the value of the product before purchase.

Regression Analysis on ABC Analysis Model and Profitability of Skol Rwanda:

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.976[a]	.952	.951	.26733
a. Predictors: (Constant), Independent Variable2				

R-square =0.952 (95.2%). 95.2% variations in profitability have been captured by the model used. Since the p-value is of 0.000, the model performance is statistically significant or very good.

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	102.730	1	102.730	1437.485	.000[b]
	Residual	5.217	73	.071		
	Total	107.947	74			
a. Dependent Variable: Profitability						
b. Predictors: (Constant), ABC Analysis Model						

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	-.349	.240		-1.451	.151
	ABC Analysis Model	.513	.014	.976	37.914	.000
a. Dependent Variable: Profitability						

From the table 4.2.2 the researcher deduces the regression equation

Where; Y = School performance;

B_3 = Constant Term

B_3= Beta coefficients

X_3 = ABC Analysis Model

Y= -0.349 + 0.513X_3 (ABC Analysis Model)…………………………………Equation (iii)

The results indicate that ABC Analysis Model has a relationship with organization profitability. The significance is 0.000 which indicates that there is positive relationship (0.513) between ABC Analysis Model and profitability. These results provide reasonable evidence to the consistent view that, there is profitability. The beta of Operational equipments is .976 with a t-statistic of 37.914. The positive coefficients mean a unit change in ABC Analysis Model leads to a 0.513 units increase in profitability while keeping VED Analysis Model and MRP Analysis Model constant and since the P- value = 0.000 < 0.05 the positive t-statistic value indicates that the effect is statistically significant at 5 % test level. The effect of ABC Analysis Model on organisation performance is statistically significant; reject H0 in favor of Hi the alternative.

From Equations:

$Y= -.801+0.727X_1$ (VED Analysis model)………………………………….Equation (i)

$Y= -.768 + 0.543X_2$ (MRP Analysis model)…………………………………..Equation (ii)

$Y= -0.349 + 0.513X_3$ (ABC Analysis Model)…………………………………Equation (iii)

The multivariate regression model formed:

$Y= -.801+0.727X_1 + -.768 + 0.543X_2 + -0.349 + 0.513X_3 + \varepsilon$…………………….Equation (iv)

The regression equation above established that taking all factors into account, organization profitability results of (VED Analysis model, MRP analysis model, ABC Analysis Model) at Zero organization profitability a Constant Term.

Relationship between Inventory management strategies and profitability:

The table 4.5 shows analysis of the relationship between Inventory management strategies and Skol Rwanda limited profitability.

Table 3.5: Relationship between Inventory management stratégies and profitability

			Inventory management strategies	Profitability
Spearman's rho	Inventory management strategies	Correlation Coefficient	1.000	.825[**]
		Sig. (2-tailed)	.	.000
		N	75	75
	Profitability	Correlation Coefficient	. 825[**]	1.000
		Sig. (2-tailed)	.000	.
		N	75	75
**. Correlation is significant at the 0.01 level (2-tailed).				

The analysis shows the relationship between Inventory management strategies and Skol Rwanda limited profitability. Significant level is 0.01, the results indicate that independent variable has Positive high correlation to dependent variable equal to. 825** and the p-value is .000 which is less than 0.01. When p-value is less than significant level, therefore researchers conclude that variables are correlated. This means that there is a significant relationship between Inventory management strategies and Skol Rwanda limited profitability by 82.5%.

Challenges of Inventory management strategies affecting profitability of Skol:

The following challenges were observed; organization holds too much inventory which ends up expiring and making organization to incur losses. Inadequate collaboration between suppliers, organization and customer's hence ineffective service delivery, poor storage facilities which affects stock of the organization and poor planning and analysis of customers behavior which affects organization sales and profitability effectively.

4. SUMMARY, CONCLUSION AND RECOMMENDATIONS

4.1 Summary of findings:

The findings was summarized according to the three specific objectives which includes; To examine the effect of VED analysis model strategy on profitability of Skol Rwanda Limited; to assess the effect of Material Requirement planning strategy on profitability of Skol Rwanda Limited and to establish the effect of ABC analysis model strategy on profitability of Skol Rwanda Limited.

4.2 VED analysis model strategy and profitability of Skol Rwanda Limited:

The analysis reveals that out of total respondents 97.3% agreed that Skol Rwanda limited analyses vital stock before purchase, cumulatively 96% of the respondent also agreed that Skol Rwanda limited Rwanda analyses essential stock before purchase and lastly 96% of the respondents agreed that Skol Rwanda limited Rwanda analyses desirable stock before purchase which improve organization profitability. The results indicate that VED Analysis model have a relationship with profitability. The significance is 0.000 which indicates that there is positive relationship (0.727) between VED Analysis model and profitability. These results provide reasonable evidence to the consistent view that, there is increase in profitability of the organization. The beta of VED Analysis model is 0.944 with a t-statistic of 24.425. The positive coefficients mean a unit change in VED analysis model leads to a 0.727 units increase in profitability while keeping MRP analysis model and ABC analysis model are kept constant and since the P- value = 0.000 < 0.05, the positive t-statistic value indicates that the effect is statistically significant at 5 % test level reject H0 in favor of Hi the alternative.

4.2.1 MRP analysis model strategy and profitability of Skol Rwanda Limited:

The analysis reveals that cumulatively 94.7% of the respondents agreed that Skol Rwanda have analyses prices of different products before buying, cumulatively 96% of the respondent also agreed that Skol Rwanda determines minimum stock required in the organization. Furthermore, 97.3% of the respondents agreed that Skol Rwanda determines maximum stock required in the organization and lastly the finding shows that 96% of the respondents agreed that Skol Rwanda analyses value and durability of the products. The results further indicate that MRP analysis model has relationship with profitability. The significance is 0.000 which indicates that there is positive relationship (.543) between MRP analysis model and profitability. These results provide reasonable evidence to the consistent view that, there is increase in net profit and gross profit hence they improved profitability. The beta of MRP analysis model is .943 with a t-statistic of 24.323. The positive coefficients mean a unit change in MRP analysis model leads to a 0.543 units increase in profitability while keeping VED analysis model and ABC analysis model constant and since the P- value = 0.000 < 0.05 the positive t-statistic value indicates that the effect is statistically significant at 5 % test level.

4.2.2 ABC analysis model strategy and profitability of Skol Rwanda Limited:

The analysis reveals that 95% of the respondents agreed that Skol Rwanda analyses the types of materials used in the company, 92% of the respondent also agreed that Skol Rwanda analyses the average rate of consumption of the material used in the company, 97.3% agreed that Skol Rwanda analyses the behavior of the customers in consumption of the goods company and lastly the finding shows that 94.7% of the respondents agreed that Skol Rwanda analyses the value of the product before purchase. The results further indicate that ABC Analysis Model has a relationship with organization profitability. The significance is 0.000 which indicates that there is positive relationship (0.513) between ABC Analysis Model and profitability. These results provide reasonable evidence to the consistent view that, there is profitability. The beta of Operational equipments is .976 with a t-statistic of 37.914. The positive coefficients mean a unit change in ABC Analysis Model leads to a 0.513 units increase in profitability while keeping VED Analysis Model and MRP Analysis Model constant and since the P- value = 0.000 < 0.05 the positive t-statistic value indicates that the effect is statistically significant at 5 % test level. The effect of ABC Analysis Model on organization performance is statistically significant.

4.3 Conclusions:

In conclusion the finding show that inventory management strategies like VED analysis model strategy analyses vital stock before purchase, analyses essential stock before purchase and analyses desirable stock before purchase which improve organization profitability. MRP analysis model strategy analyses prices of different products before buying, determines minimum stock required in the organization, determines maximum stock required in the organization and analyses value and durability of the products. ABC analysis model strategy analyses the types of materials used in the company, analyses the average rate of consumption of the material used in the company, analyses the behavior of the customers in consumption of the goods company and analyses the value of the product before purchase. The analysis further shows the relationship between Inventory management strategies and Skol Rwanda limited profitability. Significant level is 0.01, the results indicate that independent variable has Positive high correlation to dependent variable equal to. 825** and the p-value is .000 which is less than 0.01. When p-value is less than significant level, therefore researchers conclude that variables are correlated. This means that there is a significant relationship between Inventory management strategies and Skol Rwanda limited profitability by 82.5%

4.4 Recommendations:

The researcher has observed the following recommendations in order to boast organization profitability.

   i. The organization should order goods at the time they need them (just in time) in order to avoid holding inventory which becomes costly.

  ii. The organization should establish collaborative planning and demand forecasting by use of information system in order to help them plan effectively.

 iii. The organization should thorough analyze the behavior of the customers in order to provide right product at the right time and place.

  iv. The organization should only hold vital items which are not perishable in order to avoid losses.

4.5 Areas of further studies

   i. The researcher has identified the following areas for further studies;

  ii. Effect of inventory techniques on productivity of organization

 iii. Effect of inventory techniques on service delivery of organization

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