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## **INFLUENCE OF INVENTORY MANAGEMENT ON PERFORMANCE OF THE PRIVATE COMMERCIAL BANKS IN KENYA**

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## INFLUENCE OF INVENTORY MANAGEMENT ON PERFORMANCE OF THE PRIVATE COMMERCIAL BANKS IN KENYA

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### Abstract

**Purpose:** The goal of the study was to examine the influence of inventory management on performance of private commercial banks in Kenya, with an aim of making recommendations on proper use of inventory management practices.

**Methodology:** This research study adopted a descriptive research design approach. The researcher preferred this method because it allowed an in-depth study of the subject. The target population was all the 220 procurement officers in the private commercial banks in Kenya. From the three strata, a sample of 142 respondents was selected using simple random sampling. Data was collected using self-administered questionnaires. The data collected was analyzed by use of descriptive and inferential statistics. Multiple regression model was used to show the relationship between the dependent variable and the independent variables.

**Results:** In regard to information technology, the regression coefficients of the study show that it has a significant influence of 0.752 on performance of private commercial banks. Second in regard to warehouse management system, the regression coefficients of the study show that it has a significant influence of 0.156 on performance of private commercial banks. With regard to the third objective, the regression coefficients of the study show inventory cycle counting has a significant influence of 0.06 on performance of private commercial banks. Lastly, in regard to the fourth objective, the regression coefficients of the study show warehousing management system has a significant influence of 0.02 on performance of private commercial banks.

**Conclusion:** The findings of the study concluded that information technology, inventory control techniques, inventory cycle counting and warehousing management system have a positive relationship with performance in private commercial banks.

**Policy recommendation:** the study recommended that private institutions should embrace inventory management practices so as to improve their performance and further researches should be carried out in other private institutions to find out if the same results can be obtained.

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*Keywords: inventory control techniques, information technology, warehouse management system, inventory cycle counting*

## **1.0 INTRODUCTION**

### **1.1 Background of the Study**

Worldwide, business organizations including the public sector are keen to managing inventory as a step towards minimizing operational costs. According to Chen, Frank and Wu (2015) business logistics costs as a percentage of US Gross Domestic Product (GDP) significantly grew to 9.5 percent and, out of a total expenditure of \$1 trillion spent on logistics, approximately 33% was absorbed to the cost of holding inventory. Moreover, McLaren, Head and Yuan (2014) noted that while inventory is a prerequisite for production, they are expensive to store and they tie up productive capital.

Inventory management is an important function of any business for several reasons. First, the sheer magnitude of performance outlays has a great impact on the economy and needs to be well managed. Indeed, in all countries in the world, estimates of the financial activities of banking inventory managers are believed to be in the order of 10% – 30 % of GDP (Koumanakos, 2008).

#### **1.1.1 Global Perspective of the Study**

World over, there have been numerous attempts to explain performance of companies in the fields of strategic management, accounting, finance, marketing and management science. Naturally each of these areas concentrates on different explanatory variables. In the US, Chen, Frank & Wu (2015) studied the effect of excess inventory on long term stock price performance of banks. The study estimated the long-run price effects of excess inventory using 900 excess inventory announcements made by publicly traded firms. These announcements are clear and unambiguous acknowledgement by affirm that it is suffering from excess inventory. He found evidence suggesting that stock market partially anticipates excess inventory situations and those firms do not recover quickly from negative effects of excess inventory. He further noted that the negative effect of excess inventory is economically and statistically significant

#### **1.1.2 Regional Perspective of the Study**

Nigerian survey revealed that 31% of inventory control system users in the banking sector experienced performance improvement. 31% of the companies surveyed claimed a decrease in customer complaints, as compared with 25% who claimed an increase in delivery speeds. This indicates that customers are satisfied not only with the better service quality, but also with the company's ability to cater to their changing needs in a timely manner (Kannan, Grigore & Senthikumar, 2013). A company may sustain competitive advantage by employing appropriate inventory control systems. According to Muiruri (2015), there is increasing need for business enterprises to embrace effective inventory management practices as a strategy to improve their competitiveness.

#### **1.1.3 Local Perspective of the Study**

Inventory plays a big part in the banking sector as it account for about 56% of the annual turnover (Abdifatah, 2012). Kenyan organizations are faced with a lot competition in the current markets.

This has led to the need for coming up with better method of managing and measuring how resources are utilized by various jobs or products, and therefore be able to eliminate any wastage in the value chain. The new cost management methods require having the right persons doing the right job (Mamiro, 2010).

#### **1.1.4 Inventory Management**

Inventory management is the art and science of maintaining stock levels of a given group of items incurring the least cost consistent with other relevant targets and objectives set by management (Otto & Kotzab, 2014). It is important that managers of organizations that deal with inventory, to have in mind, the objective of satisfying customer needs and keeping inventory costs at a minimum level. Pawlak and Malysset (2008), assert that inventory costs include holding costs, ordering costs and shortage costs. Holding costs relate to costs of having physical items in stock. These include insurance, obsolescence and opportunity costs associated with having funds which could be elsewhere but are tied up in inventory.

#### **1.2 Statement of the Problem**

Owners are thought to enter into business for mainly two basic reasons; profit or growth maximization and personal fulfillment but most importantly the financial performance especially in the private commercial banking industry (Brealey, Myers & Marcus, 2009). According to statistics from Central bank of Kenya (2014), the Kenya Commercial Bank in 2011 reported a 42.7 per cent drop in profits to Sh629 million from Sh1.64 billion a year earlier and the banking sector recorded a decline in performance in some banks the total operating expenditure increased by 2% compared to similar period in 2011.

Private commercial banks play a very key role in the economic growth of any country. The sector contributed 5.4% of the GDP in 2010 with a potential to contribute 8% to 15% (CBK, 2014) compared to 22% in South Africa and Ghana at 28%. In addition, they hold assets worth 63% of the GDP. Buxey (2016) believes that inventory management is the central instrument to assist the efficient management of resources in an organization. Many inventory management models have been developed, most of the Kenyan private commercial banks run fully developed inventory management departments (KBA, 2011).

Due to non-recognition of the inventory management contribution in the banking industry by management, gaps do exist on how the function is managed from the point of identification of the need, sourcing for suppliers, delivery of the need and after delivery activities of the need (Wambui, 2010). As a result the function itself, if not well managed has increased organization cost-: in terms of inflated pricing by corrupt purchasing officers, stock out cost, poor quality which results to poor customer service levels, ad hoc buying, inefficiencies in the supply chain among other costs.

However, private commercial banks are faced with a challenge of increasing stakeholders' satisfaction, and notably, the wealth maximization of shareholders. With the increasing competition in the private banking industry, management does not have direct control over the income streams of the bank and thus the need to focus on the management of the institutions' expenditures (Gitman, 2013). Given the contractual nature of personnel expenditures, management is left with only the inventory management related expenditures and thus the need for this study.

Locally a number of studies have been done on the role of inventory management on performance in other industries other than the banking industry in Kenya (Waweru, 2013; Birchogo, 2015). A few examples of studies on private commercial banks in Kenya include Tarus (2015) and Simeka (2016). Despite the numerous studies on the role of inventory management benefits on performance, the private banking industry has been largely neglected therefore this study is intended to bridge the knowledge gap and seeks to determine the role of inventory management on performance of the private commercial banks in Kenya.

### **1.3 Objectives of the Study**

1. To assess the influence of information technology on performance of the private commercial banks in Kenya.
2. To evaluate the influence of inventory control techniques on performance of the private commercial banks in Kenya.
3. To determine the influence of inventory cycle counting on performance of the private commercial banks in Kenya.
4. To establish the influence of warehouse management system on performance of the private commercial banks in Kenya.

## **2.0 LITERATURE REVIEW**

### **2.1.1 Information Technology**

The potential of information technology in enhancing performance has already been proven in a number of studies (Chen *et al.*, 2015). According to these studies, inventory management practices specifically adoption of information technology enables companies to decentralize operational processes and centralize strategic processes as a result of the transparency provided by the systems. The implementation of IT to enhance the management of inventory is no longer something new. The implementation of IT technologies such as Electronic Data Interchange (EDI) has evolved to the current web technologies such as Business to Business technologies and collaborative commerce technologies (Berg, 2009).

### **2.1.2 Inventory Control Techniques**

Lyson (2016) argues that inventory control techniques have to be managed well to achieve the performance goals. A noticeable trend in inventory management research is the increasing application of mathematical models / computer technology, raising awareness on the economic benefits of robust inventory management, but significant research directed at comprehensively characterizing inventory management techniques (IMTs) has been rather sparse, despite its importance for sustainable financial management.

Markland *et al.*, (2014) used mathematical modeling to show that inventory management system performed better when operated under Material Resource Planning (MRP) and showed the potential of reducing the traditional inventory holding costs. Ming-Ling and Shaw (2015), analyzed the warehouse and inventory management system in Shell Petroleum Development Company (SPDC) in Nigeria and demonstrated the utility of ICT through Enterprise resource



Planning (ERP) as a veritable value-added tool in inventory management practice. Robert (2010) also tried to justify the use of modified Just in Time (JIT) logistic-based approach to managing inventory of perishable products.

### **2.1.3. Inventory Cycle Counting**

Mattson (2009), notes in his study that inventory cycle counting facilitates more efficient inventory management as well as more timely identification of significant issues. Specifically, cycle counting involves making regular counts of inventory and using samples that are small relative to the amount of inventory the company carries at any point. By capturing and monitoring results on a frequent basis, a company can significantly improve the accuracy of its inventory quantities and financial reporting. His study concluded that when conducted in a routine, systematic manner, cycle counting provides reliable numbers and can eliminate the burden of full physical counts.

### **2.1.4 Warehouse Management System**

Arrowsmith et al., (2013), argue that warehousing capabilities is an essential aspect of both inventory management and performance in order for an organization to achieve competitive advantage. According to a study done by Berg (2009), warehousing takes up to between 2% and 5% of the cost of sales of a corporation and with today's highly competitive global business environment organizations are emphasizing on return on assets, and hence minimizing warehousing costs has become an important business issue.

Many firms are automating their basic warehousing functions to achieve the increase in throughput rates or inventory turns required for their warehousing operations to be cost effective (Brealey et al., 2009). It is necessary to allocate warehouse resources efficiently and effectively to enhance the productivity and reduce the operation costs of the warehouse. One vital area determining the efficiency of warehouse is the determination of the proper storage locations for potentially thousands of products in a warehouse.

### **2.1.5 Performance of Private Commercial Banks**

Poor performance is a major hindrance to entities growth since it causes the delay of delivery, increase of defects, delivery of low quality goods or non-delivery at all (Silver, 2008). According to Gunasekaran (2013), despite the fact that there are various studies that focus on performance many inventory management activities suffer from neglect, lack of direction, poor co-ordination, lack of open competition and transparency, differing levels of corruption and most importantly not having a cadre of trained and qualified procurement specialists, who are competent to conduct and manage such procurements, in a professional, timely and cost effective manner. Theories on determinants of bank performance are varied. Studies on performance have largely employed the structure-conduct-performance (SCP), and the market power hypotheses.

## **2.2 Theoretical review**

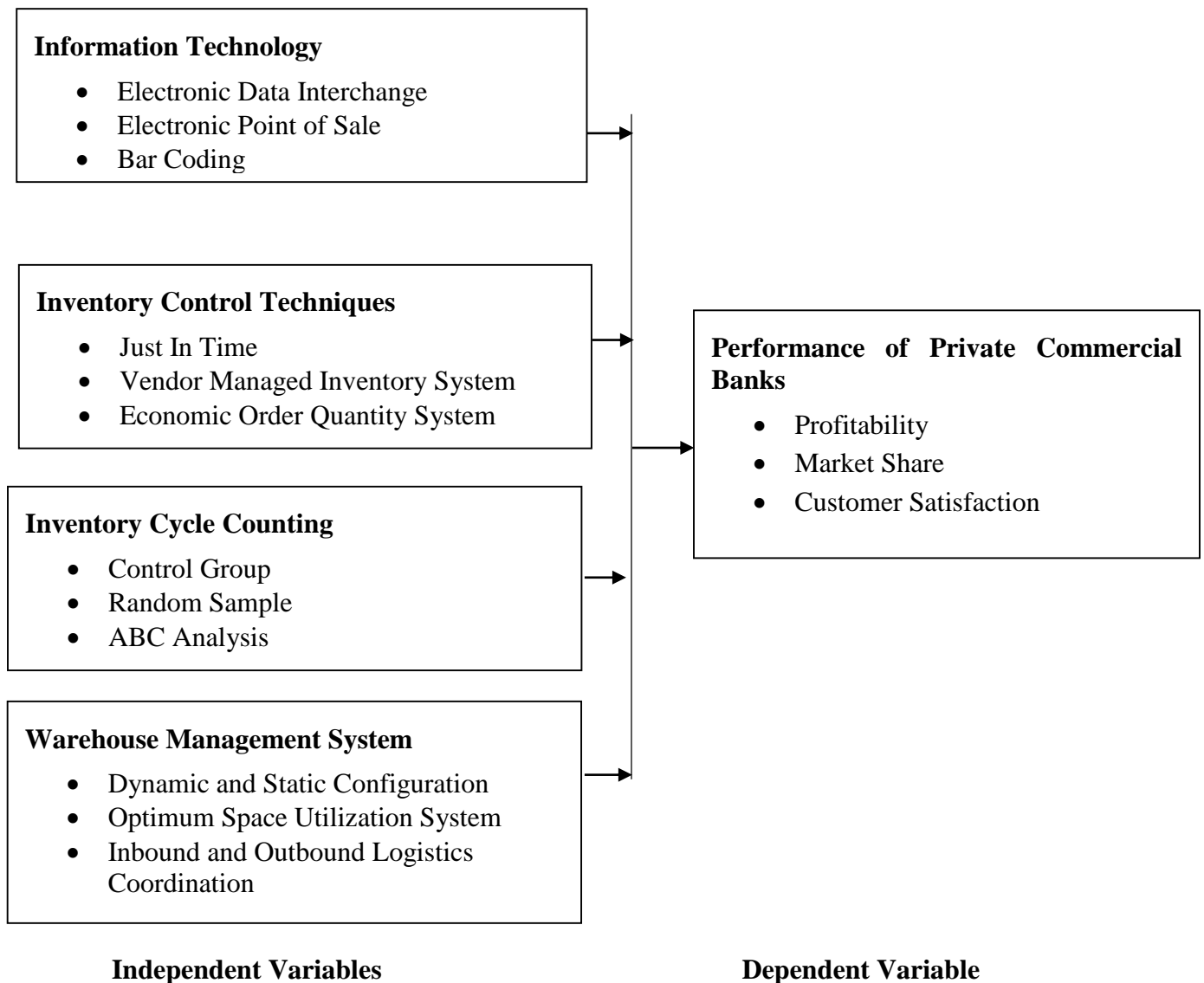
### **2.2.1 Diffusion of innovations**

Diffusion of innovations is a theory that seeks to explain how, why, and at what rate new ideas and technology spread. Everett Rogers, a professor of communication studies, popularized the theory in his book *Diffusion of Innovations*; the innovation must be widely adopted in order to self-sustain. Diffusion of Innovation (DOI) theory is a popular model used in information systems

research to explain user adoption of new technologies. Rogers defines diffusion as ‘the process by which an innovation is communicated through certain channels over time among the members of a social society’ (Ming-Ling & Shaw, 2015). An innovation is an idea or object that is perceived to be new.

According to DOI, the rate of diffusion is affected by an innovation’s relative advantage, complexity, compatibility, trialability and observability. Johnson, Scholes and Whittington (2008) define relative advantage as ‘the degree to which an innovation is seen as being superior to its predecessor’. Complexity, which is comparable to perceived ease of use construct, is ‘the degree to which an innovation is seen by the potential adopter as being relatively difficult to use and understand.

### 2.3 Conceptual Framework



## Figure 1: Conceptual Framework

### 3.0 METHODOLOGY

This research study adopted a descriptive research design approach. The researcher preferred this method because it allowed an in-depth study of the subject. The target population was all the 220 procurement officers in the private commercial banks in Kenya. From the three strata, a sample of 142 respondents was selected using simple random sampling. Data was collected using self-administered questionnaires. The data collected was analyzed by use of descriptive and inferential statistics. Multiple regression model was used to show the relationship between the dependent variable and the independent variables.

### 4. 0 RESULTS FINDINGS

#### 4.1 Response Rate

A sample of 142 respondents were interviewed using questionnaires that allowed the researcher to drop the questionnaire to the respondents and then collect them at a later date when they had filled the questionnaires. A total of 142 questionnaires were distributed to employees. Out of the population covered, 133 were responsive representing a response rate of 93.66%. This was above the 50% which is considered adequate in descriptive statistics according to (Mugenda & Mugenda, 2014).

**Table 1: Response Rate of Respondents**

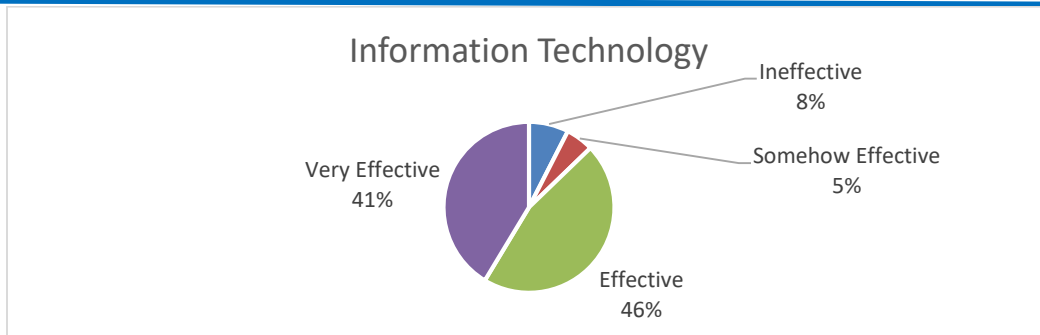
Response	Frequency	Percentage
Actual Response	133	93.66%
Non-Response	9	6.33%
<b>Total</b>	<b>142</b>	<b>100%</b>

#### 4.2 Descriptive Statistics

##### 4.5.1 Information Technology

The first objective of the study was to assess the influence of information technology on performance of the private commercial banks in Kenya. The respondents were asked to indicate to what extent information technology influenced performance of the private commercial banks in Kenya. Results indicated that majority of the respondents 46% said it was effective, 41% said that it was very effective, 8 % said it was ineffective, while 5% said it was somehow effective.





**Figure 2: Information Technology**

The respondents were also asked to comment on statements regarding the influence of information technology on performance of the private commercial banks in Kenya. The responses were rated on a likert scale and the results presented in Table 1 below. It was rated on a 5 point likert scale ranging from; 1 = strongly disagree to 5 = strongly agree. The scores of 'strongly disagree' and 'disagree' have been taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of 'neutral' has been taken to represent a statement agreed upon, equivalent to a mean score of 2.6 to 3.4. The score of 'agree' and 'strongly agree' have been taken to represent a statement highly agreed upon equivalent to a mean score of 3.5 to 5.

Results indicated that majority of the respondents 57.9 % agreed on the statement that electronic data interchange systems plays a significant role in profitability improvement. Further results indicated that 51.2% of the respondents were in agreement that electronic point of sale systems play a significant role in profitability improvement. 57.9% of the respondents agreed that bar coding plays a significant role in profitability improvement.

78.9% of the respondents expressed agreement on the statement that electronic data interchange systems play a significant role in expanding market share. Results indicated that majority of the respondents 78.9% agreed on the statement that electronic point of sale systems play a significant role in expanding market share. Results indicated that majority of the respondents 82.7% agreed on the statement that bar coding plays a significant role in expanding market share.

Results also indicated that majority of the respondents 75.2% agreed on the statement that electronic data interchange systems play a significant role in attaining higher customer satisfaction. Results indicated that majority of the respondents 67.7% agreed on the statement that electronic point of sale systems play a significant role in attaining higher customer satisfaction. Results indicated that majority of the respondents 76% agreed on the statement that bar coding plays a significant role in attaining higher customer satisfaction.

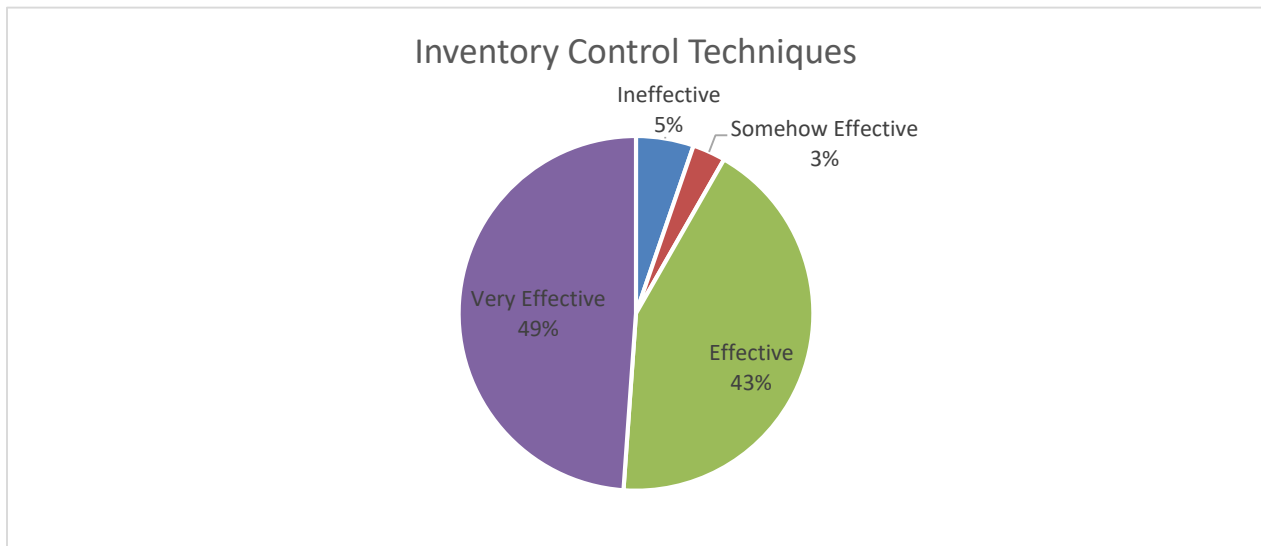
The average mean of all the statements was 3.88 indicating that majority of the respondents agreed with the statement that information technology had an influence on performance of the private commercial banks. However the variations in the responses were varied as shown by a standard deviation of 1.123. The findings agree with Gachon and Fisher (2010) that using information technology when managing inventory can be smart but if not done well can prove to be expensive and time consuming.

**Table 1: Information Technology**

<b>Statements</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Mean</b>	<b>Std. Deviation</b>
Electronic data interchange systems plays a significant role in profitability improvement	9.00%	3.80%	29.30%	37.60%	20.30%	3.56	1.131
Electronic point of sale systems play a significant role in profitability improvement	9.00%	6.80%	33.10%	24.10%	27.10%	3.53	1.216
Bar coding plays a significant role in profitability improvement	9.80%	6.00%	26.30%	27.80%	30.10%	3.62	1.247
Electronic data interchange systems play a significant role in expanding market share	6.80%	3.80%	10.50%	32.30%	46.60%	4.08	1.155
Electronic point of sale systems play a significant role in expanding market share	6.80%	6.80%	7.50%	36.80%	42.10%	4.01	1.177
Bar coding plays a significant role in expanding market share	0.00%	7.50%	9.80%	38.30%	44.40%	4.2	0.9
Electronic data interchange systems play a significant role in attaining higher customer satisfaction	7.50%	6.00%	11.30%	33.10%	42.10%	3.96	1.209
Electronic point of sale systems play a significant role in attaining higher customer satisfaction	0.00%	0.00%	32.30%	34.60%	33.10%	4.01	0.812
Bar coding plays a significant role in attaining higher customer satisfaction	8.30%	8.30%	7.50%	31.60%	44.40%	3.95	1.266
<b>Average</b>						<b>3.88</b>	<b>1.123</b>

#### 4.5.2 Inventory Control Techniques

The second objective of the study was to evaluate the influence of inventory control techniques on performance of the private commercial banks in Kenya. The respondents were asked to indicate to what extent the effect of inventory control techniques had on performance of the private commercial banks in Kenya. Results indicated that majority of the respondents 49% agreed that it was very effective, 43% said that it was effective, 5% said it was ineffective, while somehow effective was at 3%.



**Figure 3: Inventory Control Techniques**

The respondents were also asked to comment on statements regarding effect of inventory control techniques on performance of the private commercial banks in Kenya. Results indicated that majority of the respondents 65.4% agreed on statement that just in time sourcing played a significant role in profitability improvement. Further results indicated that 71.4% of the respondents were in agreement that vendor managed inventory system plays a significant role in profitability improvement. 73.6% of the respondents agreed that economic order quantity system plays a significant role in profitability improvement.

76.7% of the respondents expressed agreement on the statement that just in time sourcing plays a significant role in expanding market share. Results indicated that majority of the respondents 82% agreed on the statement that vendor managed inventory system plays a significant role in expanding market share. Results indicated that majority of the respondents 39.9% agreed on the statement that economic order quantity system plays a significant role in expanding market share.

Results indicated that majority of the respondents 45.8% agreed on the statement that just in time sourcing plays a significant role in attaining higher customer satisfaction. Results indicated that majority of the respondents 50.4% agreed on the statement that vendor managed inventory system plays a significant role in attaining higher customer satisfaction. Results indicated that majority of

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the respondents 46.6% agreed on the statement that economic order quantity system plays a significant role in attaining higher customer satisfaction.

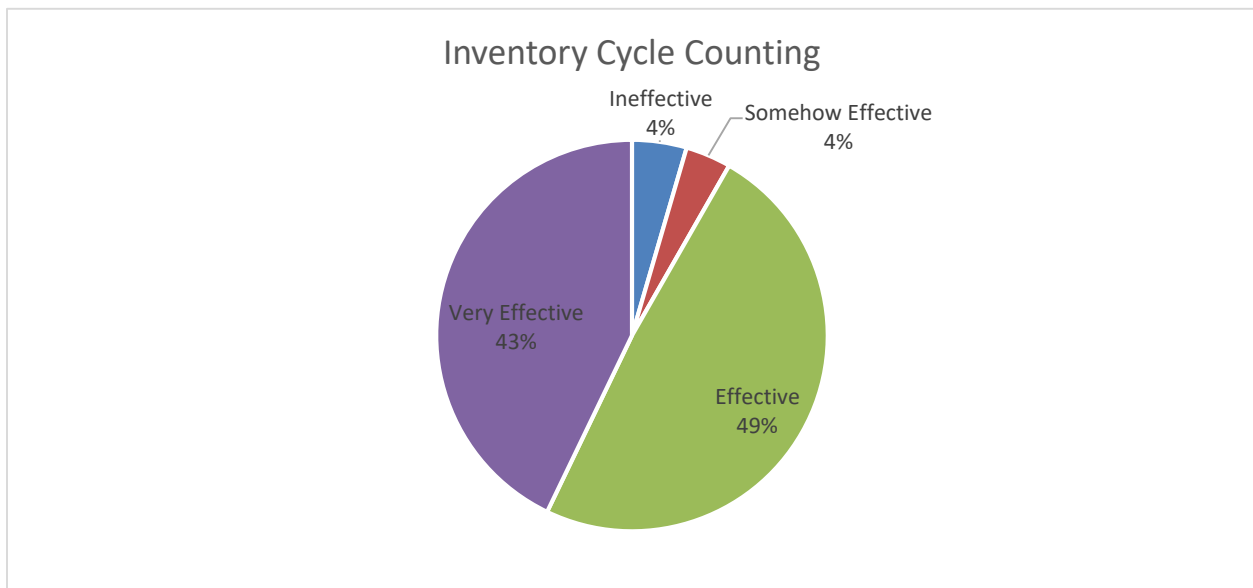
The average mean of all the statements was 3.58 indicating that majority of the respondents agreed on inventory control techniques had an influence on performance of the private commercial banks in Kenya. However the variations in the responses were varied as shown by a standard deviation of 1.231. These findings indicate that through inventory control techniques, the management could improve the inventory management capacity, attain additional cost reductions, faster deliveries, better quality and better performance. They agree with Gunasekaran (2013) that organizations must look toward their inventory control techniques improvements. The opportunities for cost savings and inventory control techniques improvements can be enormous as the impact on margins and bottom line is considerable.

**Table 2: Inventory Control Techniques**

<b>Statements</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Mean</b>	<b>Std. Deviation</b>
Just in time sourcing plays a significant role in profitability improvement	11.30%	7.50%	15.80%	37.60%	27.80%	3.63	1.276
Vendor managed inventory system plays a significant role in profitability improvement	6.80%	4.50%	17.30%	33.80%	37.60%	3.91	1.158
Economic order quantity system plays a significant role in profitability improvement	9.80%	4.50%	12.00%	39.80%	33.80%	3.83	1.226
Just in time sourcing plays a significant role in expanding market share	8.30%	7.50%	7.50%	33.80%	42.90%	3.95	1.248
Vendor managed inventory system plays a significant role in expanding market share	6.80%	5.30%	6.00%	31.60%	50.40%	4.14	1.173
Economic order quantity system plays a significant role in expanding market share	12.80%	19.50%	27.80%	18.80%	21.10%	3.16	1.313
Just in time sourcing plays a significant role in attaining higher customer satisfaction	12.00%	20.30%	21.80%	26.30%	19.50%	2.78	1.458
Vendor managed inventory system plays a significant role in attaining higher customer satisfaction	0.00%	27.80%	21.80%	23.30%	27.10%	3.5	1.165
Economic order quantity system plays a significant role in attaining higher customer satisfaction	0.00%	27.10%	26.30%	29.30%	17.30%	3.37	1.062
<b>Average</b>						<b>3.58</b>	<b>1.231</b>

### 4.5.3 Inventory Cycle Counting

There was also need to determine the influence of inventory cycle counting on performance of the private commercial banks in Kenya. The respondents were asked to comment on extent of inventory cycle counting on performance of the private commercial banks in Kenya. Results indicated that majority of the respondents 49% agreed that it was effective, 43% said that it was very effective, while ineffective and somehow effective tied at 4%.



**Figure 4: Inventory Cycle Counting**

Results indicated that 75.9% agreed on the statement that control group counting system plays a significant role in profitability improvement. Majority of the respondents 55.6% agreed on the statement that random sample counting system plays a significant role in profitability improvement. Further results indicated that 70.7% of the respondents were in agreement ABC analysis system plays a significant role in profitability improvement.

64% of the respondents agreed that Control group counting system plays a significant role in expanding market share. 63.1% of the respondents expressed agreement on the statement that random sample counting system plays a significant role in expanding market share. Results indicated that majority of the respondents 69.2% agreed on the statement that ABC analysis system plays a significant role in expanding market share.

Results indicated that majority of the respondents 48.1% agreed on the statement that control group counting system plays a significant role in attaining higher customer satisfaction. Results indicated that majority of the respondents 90.9% agreed on the statement that random sample counting system plays a significant role in attaining higher customer satisfaction. Results indicated that



majority of the respondents 87.3% agreed on the statement that ABC analysis system plays a significant role in attaining higher customer satisfaction.

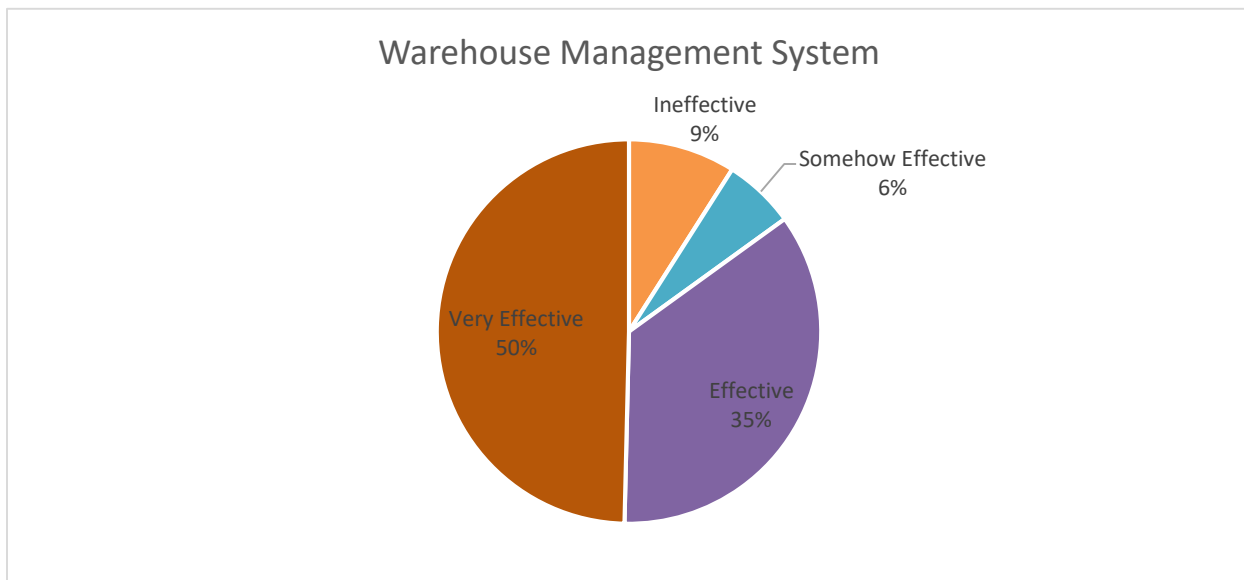
The average mean of all the statements was 3.89 indicating that majority of the respondents agreed on inventory cycle counting having an influence on performance of the private commercial banks in Kenya. However the variations in the responses were varied as shown by a standard deviation of 1.146. These findings imply that through inventory cycle counting, companies can improve competitive positioning, supplement critical inventory management skills and share the risk or cost of major pilferages that may occur without occasional inventory counts (Kimutai, 2010).

**Table 3: Inventory Cycle Counting**

<b>Statements</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Mean</b>	<b>Std. Deviation</b>
Control group counting system plays a significant role in profitability improvement	6.00%	4.50%	13.50%	30.80%	45.10%	4.05	1.147
Random sample counting system plays a significant role in profitability improvement	5.30%	5.30%	33.80%	18.00%	37.60%	3.77	1.165
ABC analysis system plays a significant role in profitability improvement	3.00%	6.80%	19.50%	33.10%	37.60%	3.95	1.058
Control group counting system plays a significant role in expanding market share	3.80%	6.80%	25.60%	22.60%	41.40%	3.91	1.131
Random sample counting system plays a significant role in expanding market share	8.30%	6.00%	22.60%	27.80%	35.30%	3.76	1.232
ABC analysis system plays a significant role in expanding market share	3.00%	3.80%	24.10%	27.80%	41.40%	4.01	1.041
Control group counting system plays a significant role in attaining higher customer satisfaction	18.00%	21.10%	12.80%	20.30%	27.80%	3.19	1.493
Random sample counting system plays a significant role in attaining higher customer satisfaction	6.00%	3.00%	0.00%	39.80%	51.10%	4.27	1.053
ABC analysis system plays a significant role in attaining higher customer satisfaction	3.80%	5.30%	3.80%	44.40%	42.90%	4.17	0.996
<b>Average</b>						<b>3.89</b>	<b>1.146</b>

#### 4.5.4 Warehouse Management System

There was also need to establish the influence of warehouse management system on performance of the private commercial banks in Kenya. The respondents were also asked to comment on statements regarding warehouse management system on performance of private commercial banks in Kenya. Results showed that 50% of respondents indicated it was very effective, effective were at 35 %, ineffective was 9%, while somehow effective was at 6%.



**Figure 5: Warehouse Management System**

Results indicated that majority of the respondents 78.9% agreed on the statement that warehouse dynamic and static configuration plays a significant role in profitability improvement. Further results indicated that 88% of the respondents were in agreement that warehouse space utilization system play a significant role in profitability improvement. An 85% of the respondents agreed that warehouse inbound and outbound logistics coordination plays a significant role in profitability improvement.

87.3% of the respondents expressed agreement on the statement that warehouse dynamic and static configuration plays a significant role in expanding market share. Results indicated that majority of the respondents 89.5% agreed on the statement that warehouse space utilization system plays a significant role in expanding market share. Results indicated that majority of the respondents 86.5% agreed on the statement that warehouse inbound and outbound logistics coordination plays a significant role in expanding market share.

80.4% of the respondents expressed agreement on the statement that warehouse dynamic and static configuration plays a significant role in attaining higher customer satisfaction. Results indicated that majority of the respondents 85% agreed on the statement that warehouse space utilization system plays a significant role in attaining higher customer satisfaction. Results indicated that

majority of the respondents 91% agreed on the statement that warehouse inbound and outbound logistics coordination plays a significant role in attaining higher customer satisfaction.

The average mean of all the statements was 4.19 indicating that majority of the respondents agreed warehouse management system had an influence on performance of the private commercial banks in Kenya. However the variations in the responses were varied as shown by a standard deviation of 1.029. The results imply that an organization benefits greatly when warehouse management system is embraced to reduce inventory costs, introduce optimum space utilization systems designed to address the organization's needs, and work with the organization to streamline warehouse management system (Koumanakos, 2008).

**Table 4: Warehouse Management System**

<b>Statements</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Mean</b>	<b>Std. Deviation</b>
Warehouse dynamic and static configuration plays a significant role in profitability improvement	8.30%	6.80%	6.00%	26.30%	52.60%	4.08	1.268
Warehouse space utilization system play a significant role in profitability improvement	3.80%	5.30%	3.00%	42.10%	45.90%	4.21	1
Warehouse inbound and outbound logistics coordination plays a significant role in profitability improvement	3.00%	5.30%	6.80%	44.40%	40.60%	4.14	0.97
Warehouse dynamic and static configuration plays a significant role in expanding market share	4.50%	1.50%	6.80%	42.90%	44.40%	4.21	0.97
Warehouse space utilization system plays a significant role in expanding market share	2.30%	4.50%	3.80%	43.60%	45.90%	4.26	0.904
Warehouse inbound and outbound logistics coordination plays a significant role in expanding market share	6.00%	3.80%	3.80%	33.10%	53.40%	4.24	1.102
Warehouse dynamic and static configuration plays a significant role in attaining higher customer satisfaction	8.30%	1.50%	9.80%	35.30%	45.10%	4.08	1.165
Warehouse space utilization system plays a significant role in attaining higher customer satisfaction	4.50%	4.50%	6.00%	37.60%	47.40%	4.19	1.046
Warehouse inbound and outbound logistics coordination plays a significant role in attaining higher customer satisfaction	1.50%	3.80%	3.80%	42.10%	48.90%	4.33	0.841
<b>Average</b>						<b>4.19</b>	<b>1.029</b>

### 4.3 Pearson's Correlations

Correlation analysis was used to determine both the significance and degree of association of the variables and also predict the level of variation in the dependent variable caused by the explanatory variables. The correlation technique is used to analyze the degree of relationship between two variables. The results of the correlation analysis are summarized in Table 5

**Table 5: Summary of Pearson's Correlations**

		Information Technology	Inventory Control Techniques	Inventory Cycle Counting	Warehouse Management System	Performance
<b>Information Technology</b>	Pearson Correlation Sig. (2-tailed)	1				
<b>Inventory Control Techniques</b>	Pearson Correlation Sig. (2-tailed)	.513** 0	1			
<b>Inventory Cycle Counting</b>	Pearson Correlation Sig. (2-tailed)	.544** 0	.456** 0	1		
<b>Warehouse Management System</b>	Pearson Correlation Sig. (2-tailed)	.510** 0	.810** 0	.427** 0	1	
<b>Performance of Private Commercial Banks in Kenya</b>	Pearson Correlation Sig. (2-tailed)	.626** 0.000	.555** 0.000	.559** 0.000	.527** 0.000	1

\*\* Correlation is Significant at the 0.05 Level (2-tailed)

The correlation summary shown in Table 5 indicates that the associations between each of the independent variables and the dependent variable were all significant at the 95% confidence level. The correlation analysis to determine the relationship between information technology and performance of the private commercial banks in Kenya, Pearson correlation coefficient computed and tested at 5% significance level. The results indicate that there is a positive relationship ( $r=0.626$ ) between information technology and performance of private commercial banks in



Kenya. In addition, the researcher found the relationship to be statistically significant at 5% level ( $p=0.000$ ,  $<0.05$ ).

The correlation analysis to determine the relationship between inventory control techniques and performance of private commercial banks in Kenya, Pearson correlation coefficient computed and tested at 5% significance level. The results indicate that there is a positive relationship ( $r=0.555$ ) between inventory control techniques and performance of private commercial banks in Kenya. In addition, the researcher found the relationship to be statistically significant at 5% level ( $p=0.000$ ,  $<0.05$ ).

The correlation analysis to determine the relationship between inventory cycle counting and performance of private commercial banks in Kenya, Pearson correlation coefficient computed and tested at 5% significance level. The results indicate that there is a positive relationship ( $r=0.559$ ) inventory cycle counting and performance of private commercial banks in Kenya. In addition, the researcher found the relationship to be statistically significant at 5% level ( $p=0.000$ ,  $<0.05$ ).

The correlation analysis to determine the relationship between warehouse management system and performance of private commercial banks in Kenya, Pearson correlation coefficient computed and tested at 5% significance level. The results indicate that there is a positive relationship ( $r=0.527$ ) between warehouse management system and performance of private commercial banks in Kenya. In addition, the researcher found the relationship to be statistically significant at 5% level ( $p=0.000$ ,  $<0.05$ ).

#### **4.4 Regression Analysis**

In this study multivariate regression analysis was used to determine the significance of the relationship between the dependent variable and all the independent variables pooled together. Regression analysis was conducted to find the proportion in the dependent variable (performance of private commercial banks in Kenya) which can be predicted from the independent variables (information technology, inventory control techniques, inventory cycle counting and warehouse management system).

Table 6 presents the regression coefficient of independent variables against dependent variable. The results of regression analysis revealed there is a significant positive relationship between dependent variable and the independent variable. The independent variables reported R value of 0.897 indicating that there is perfect relationship between dependent variable and independent variables. R square value of 0.804 means that 80.4% of the corresponding variation in performance of private commercial banks in Kenya can be explained or predicted by information technology, inventory control techniques, inventory cycle counting and warehouse management system.

The adjusted R square in the table 0.798 is called the coefficient of determination which indicates how performance of private commercial bank in Kenya varied with variation in effects of factors which includes; information technology, inventory control techniques, inventory cycle counting and warehouse management system. The results of regression analysis revealed that there was a significant positive relationship between dependent variable and independent variable at ( $\beta = 0.1000$ ),  $p=0.000 <0.05$ ).

**Table 6: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.897a	.804	.798	.1000

- a) **Predictors: (constant), Information Technology, Inventory Control Techniques, Inventory Cycle Counting and Warehouse Management System**  
 b) **Dependent Variable: Performance of Private Commercial Banks**

**Table 7: ANOVA**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.256	4	1.314	131.255	.000 <sup>b</sup>
	Residual	1.281	128	0.01		
	Total	6.537	132			

- a) Predictors: (constant), Information Technology, Inventory Control Techniques, Inventory Cycle Counting and Warehouse Management System  
 b) Dependent Variable: Performance of Private Commercial Banks

The significance value is 0.000 which is less than 0.05 thus the model is statistically significant in predicting how key performance indicators, monitoring and evaluation, balanced scorecard and governance structures influence procurement performance among county governments in Kenya. The F critical at 5% level of significance was 119.907.

The regression equation above has established that taking all factors into account (information technology, inventory control techniques, and inventory cycle counting and warehouse management system) constant at zero, performance of private commercial banks in Kenya will be an index of 0.098. The findings presented also show that taking all other independent variables at constant, a unit increase in information technology will lead to a 0.752 increase in performance of private commercial banks in Kenya. The P-value was 0.000 which is less than 0.05 and thus the relationship was significant.

The study also found that a unit increase in inventory control techniques will lead to a 0.02 increase in performance of private commercial banks in Kenya. The P-value was 0.042 and thus the

relationship was slightly significant. In addition, the study found that a unit increase in inventory cycle counting will lead to a 0.06 increase in the performance of private commercial banks in Kenya. The P-value was 0.000 and thus the relationship was significant.

Lastly, the study found that a unit increase in warehouse management system will lead to a 0.156 increase in the performance of private commercial banks in Kenya. The P-value was 0.000 and hence the relationship was significant since the p-value was lower than 0.05. The findings of the study show that, information technology contributed most to the performance of private commercial banks in Kenya.

**Table 8: Coefficients of Determination**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	0.098	0.281		0.349	0.000
	Information Technology	0.752	0.078	0.563	9.672	0.000
	Warehouse Management System	0.156	0.039	0.307	4.041	0.000
	Inventory Cycle Counting	0.06	0.016	0.19	3.682	0.000
	Inventory Control Techniques	0.02	0.045	0.034	0.452	0.040

a) Predictors: (constant), Information Technology, Inventory Control Techniques, Inventory Cycle Counting and Warehouse Management System

b) Dependent Variable: Performance of Private Commercial Banks

The research used a multiple regression model

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$$

The regression equation will be;

$$Y = 0.098 + 0.752X_1 + 0.02X_2 + 0.06X_3 + 0.156X_4$$

Where Y= Performance of Private Commercial Banks

$\beta_0$ = Constant

$X_1$ = Information Technology

X2= Inventory Control Techniques  
X3= Inventory Cycle Counting  
X4= Warehouse Management System  
 $\epsilon$ = Error Term at 95% confidence level.

## **5. 0 SUMMARY, CONCLUSION AND RECOMMENDATIONS**

### **5.1 Summary of Findings**

#### **5.2.1 Information Technology**

The study sought to assess influence of information technology on performance of private commercial banks in Kenya as the first objective of the study. A majority of respondents were found to highly agree that private commercial banks had embraced information technology with regard to its inventory management activities. Bar coding and electronic points of sale were common among private commercial banks. Correlation and regression results revealed that this was the most important variable that could perhaps be explained by the observation from the findings that information technology was an important factor in influencing performance of private commercial banks.

#### **5.2.2 Inventory Control Techniques**

The study sought to assess influence of inventory control techniques on performance of private commercial banks in Kenya as the second objective of the study. A majority of respondents were found to highly agree that private commercial banks had embraced inventory control techniques with regard to its inventory management activities. VMI and JIT were common among private commercial banks. Correlation and regression results revealed that this was an important variable that could perhaps be explained by the observation from the findings that inventory control techniques was an important factor in influencing performance of private commercial banks.

#### **5.2.3 Inventory Cycle Counting**

The study sought to assess influence of inventory cycle counting on performance of private commercial banks in Kenya as the third objective of the study. A majority of respondents were found to highly agree that private commercial banks had embraced inventory cycle counting with regard to its inventory management activities. ABC analysis and random sampling were common among private commercial banks. Correlation and regression results revealed that this was an important variable that could perhaps be explained by the observation from the findings that inventory cycle counting was an important factor in influencing performance of private commercial banks.

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### **5.2.4 Warehouse Management System**

The study sought to assess influence of warehouse management system on performance of private commercial banks in Kenya as the last objective of the study. A majority of respondents were found to highly agree that private commercial banks had embraced warehouse management system with regard to its inventory management activities. Dynamic and static configurations together with optimum space utilization system were common among private commercial banks. Correlation and regression results revealed that this was the most important variable that could perhaps be explained by the observation from the findings that warehouse management system was an important factor in influencing performance of private commercial banks.

### **5.2.5 Performance of Private Commercial Banks**

The study endeared to determine influence of inventory management on performance with reference to private commercial banks in Kenya. The regression results revealed that inventory management practices identified in the study, that is, information technology, inventory control techniques, inventory cycle counting and warehouse management system combined could explain approximately 80.4% of the variations in the performance of private commercial banks. The other 19.6% may be attributed to other strategies not explained by the model or the variables.

Quality of goods purchased recorded positive growth, timely purchases and stock out reduction further recorded positive growth, cost reductions due to minimal or no reworks also recorded positive growth. From inferential statistics, a positive correlation is seen between each determinant variable and performance of private commercial banks. The strongest correlation was established between inventory management and performance of private commercial banks. All the independent variables were found to have a statistically significant association with the dependent variable at ninety five percent level of confidence.

### **5.4 Recommendations of the study**

To ensure that private commercial banks have better performance they should focus more on using their information technology tools so as to ascertain the realistic financial capacity of suppliers, their realistic technical capacity and ensure that there is consistency of quality in goods supplied. In the same regard, they should outsource consultants to enable them to come up with information technology appraisals that articulate with their organization objectives.

With regard to the second objective, it would be salutary for private commercial banks to invest more in inventory control techniques to reduce the cost of procurement through unnecessary stock breakdowns and ensure suppliers get it right the first time. This should be done consistently with the training, improvement of their inventory communication channels, processes and capacity as well as enabling them financially to acquire the up to date inventory control technique equipment.

In relation to inventory cycle counting, the organizations should form strategic alliances with their suppliers so as to have a more improved working relationship characterized by a shared mindset

and good financial and funds flow. If private commercial banks embrace systems integration among its suppliers then there will be cost reduction and timing of delivery will improve.

Concerning warehouse management system, there is need for private commercial banks to always set aside a substantial part of their resources for activities that consume a huge amount of total costs, which is in the warehouse management process. This is because decisions made in the warehouse have major effects on the resulting product or service costs. In the same regard, they should outsource consultants to enable them to come up with warehouse management strategies that articulate with their organization objectives

#### **5.4 Areas for further studies**

The study is a milestone for further research in the field of performance of private commercial banks in Africa and particularly in Kenya. The findings demonstrated the important inventory management practices to performance in private commercial banks to include; information technology, inventory control techniques, inventory cycle counting and warehouse management system. The current study should therefore be expanded further in future in order to include inventory management practices that may as well have a positive significance to performance of private commercial banks. Existing literature indicates that as a future avenue of research, there is need to undertake similar research in other institutions and public sector organizations in Kenya and other countries in order to establish whether the explored practices herein can be generalized to affect performance in other private institutions.

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