Inventory Management and Financial Performance of Private Hospitals: A Positivist Evidence from Western Uganda.

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ABSTRACT

Purpose: This study set out to empirically examine the relationship between inventory management and private hospitals' financial performance in Western Uganda.

Methodology: The study adopted a positivist approach and a cross-sectional research design to collect data from 32 Private hospitals in Western Uganda. The study used a closed-ended questionnaire to collect data and simple linear regression for data analysis.

Findings: Results revealed inventory management as a significant predictor of private hospitals' financial performance in Western Uganda. The study recommended that private hospitals adopt robust and scientific inventory management systems and models that aim to optimise stock levels and minimise costs if they are to achieve substantial financial performance.

Contribution to Practice and Policy: The study has deep-rooted the urgent need for private hospitals to adopt more stringent inventory management systems that will ensure adequate stock levels, minimise costs and enhance superior financial performance. However, the study was positivistic, thus subject to methods bias that could have affected the results' validity.

Keywords: Inventory Management, financial performance, Private Hospitals
INTRODUCTION

Inventory management is a set of controls and guidelines that monitor inventory levels and determine the quantity of stock, when to replenish or stock up, and how much to order (Chandra, 2018). According to Kamukama et al (2017), financial performance refers to operating efficiently, profitability, survival, grow and react to environmental opportunities and threats. Financial performance is measured by how efficient the enterprise is in using resources in achieving its objectives (Arthur et al., 2013). Machiuka (2010) asserts that financial performance analysis reflects its financial position, competitiveness in the same sector, and thorough knowledge about its cost and profit centres.

Hospitals represent a significant proportion of health expenditures in Uganda, accounting for about 26 % of total health expenditure. Improving hospitals’ financial performance in Uganda can result in considerable savings devoted to expanding access to services and improving care quality (Mujasi et al., 2016). However, Ssenjonyo et al. (2018) posited that despite the government of Uganda's resource contribution to private health facilities, there are still considerable financial performance challenges regarding liquidity, profitability, and solvency. Private hospitals' financial performance in Uganda and the entire health sector cause worry (Kakooza et al., 2015). For instance, according to the credit bureau assessment of the health sector report for the period 2017-2019 by CompuScan (Credit bureau and information services provider -Uganda), private hospitals experienced the worst performance compared with the banking sector’s small and medium-sized enterprises (SMEs) lending portfolio (Banyan, 2019). Private Hospitals' failure to meet their debt obligations from financial institutions is an indicator of poor financial performance.

In today's competitive world, cost control remains a vital tool in ensuring sustainability in the market. Therefore, inventory management is an important mechanism that provides cost control in an organisation in the current fast-growing market. Inventory management aims to satisfy customer needs, keep inventory costs at a minimum level, and reduce losing sales from stock-outs. An optimal inventory level should be maintained; holding too small inventory can cause delayed services while having too much stock causes additional (Gitman, 2009).

Costs associated with inventory management include carrying or holding costs, ordering costs, and shortage costs. Holding costs relate to the costs of having physical items in stock. These include insurance, obsolescence, and opportunity costs associated with having funds elsewhere but are tied up in inventory. Ordering costs are the costs of placing an order and receiving inventory. These include determining how much is needed, preparing invoices, transport costs, and the cost of inspecting goods. Shortage costs result when demand exceeds the supply of inventory on hand (Gitman, 2009). These costs include opportunity costs of making a sale, loss of customer goodwill, late charges, and similar costs. The standard measure of inventory conversion period (ICP), according to Deloof (2013), is the time taken to convert inventory held into sales and is used as a proxy for inventory management policy. Therefore, managers in organisations that deal with stock must bear in mind the objective of satisfying customer needs and keeping inventory costs at a minimum level (Lwiki et al., 2013).

According to Peterson and Joyce (2017), return on assets (ROA) can be maximised by either reducing the material cost or reducing the current assets tied up in the inventory or increasing profits. They (Peterson and Joyce) maintain that inventory management can increase profitability...
by deciding inventory norms and control systems. Thus, firms should maximise inventory turnover, which will maximise current assets turnover and ROA (Pandey, 2015). Besides, inventory plays a significant role in the organisation's growth and survival because ineffective and inefficient stock management will mean that the organisation loses customers and sales will decline. Thus, prudent inventory management reduces depreciation, pilferage, and wastages while ensuring the materials' availability when required (Ogbadu, 2009).

From a theoretical perspective, inventory management's role in improving financial performance is supported by the Resource-Based View (RBV) (Orobia et al., 2020). As coined by Barney in 1991, the RBV argues that organisations can sustain performance by leveraging the resources they hold (Barney, 1991). The RBV suggests that a firm's resources and its capability to convert these resources to provide sustainable competitive advantage are the keys to superior performance. Inventory is the most significant component of a firm's current assets; thus, efficient stock management can enable the firm to attain a competitive advantage (Mburugu, 2020). Congruently, inventory management and control are crucial to a firm because inventory mismanagement threatens a firm's viability (Saha and Ray, 2019). Too much inventory consumes physical space, creates a financial burden, and increases the possibility of damage, spoilage, and loss. In this context, proper inventory management has been linked to improved customer service hence sustainable competitive advantage (Lwiki et al., 2013).

Empirically, scholars (Orobia et al., 2020; Rahimah et al., 2018) underscored inventory management as a predictor of an organisation's financial performance. Notwithstanding their contribution to the body of knowledge, extant studies bear inconclusive and contradictory results besides focusing on developed countries and different sectors, ignoring the health sector. For instance, a survey by Lwiki et al. (2013) revealed a significant positive relationship between the time taken to convert inventories into sales and profitability among manufacturing firms in Kenya. Accordingly, Rahimah et al. (2018) found that the number of sales inventory days determined the profitability of Malaysian public listed companies. Additionally, the debt to equity ratio, current ratio, and firm size also significantly affected its profitability. Similarly, Capkun et al. (2019), in their study, revealed a positive correlation between a company's inventory management and its financial performance. They also noted that degrees of correlation vary depending on the type of inventory and the financial performance reference. Masudin et al. (2018) also assessed inventory management and procurement practices' impact on an Organization's Performance. They found that Inventory Management improves organisational performance. On the other hand, Mburugu (2020) examined inventory management's effect on the financial performance of commercial and service firms listed at the Nairobi Securities Exchange (NSE). He established that inventory management, liquidity, and management efficiency positively and statistically influenced the NSE listed commercial and service firms' performance.

On the contrary, a study by Raheman and Nasr (2017) revealed a negative relationship between inventory management and financial performance by using inventory turnover, inventory handling, and gross profit margin and return on investment (ROI). Bratland and Hornbrinck (2013) revealed a null relationship between the Swedish firm's working capital policy and the stock return. Regarding the relation between risk and return, results indicated that working capital (WC) had a significant correlation with risk and that the aggressive policy of managing working capital is riskier. Besides, Daniel and Assefa (2018) discovered that financial performance was less
influenced by competitive advantage than by inventory management practice. Adamudanlami et al. (2015) found that inventory management is significantly related to the profitability of conglomerate companies in Nigeria. Seungjae Shin et al. (2015) revealed that a lower ratio of inventory-to-sales for a firm is associated with a higher profit margin for the manufacturing firms in the United States of America (USA). Small-sized firms can receive an immense benefit (as measured by profitability) from increased inventory efficiency compared to medium and large firms. On the other hand, Bieniasz (2016) proved that inventory management's effectiveness measured with the length of inventory cycles is enormously diversified in the food industry branches and was positively correlated with profitability in Poland.

Owing to the above contradictions and scanty literature on the financial performance of private hospitals in Uganda's context, as a contribution to this field, this study set out to establish the relationship between inventory management and financial performance of private hospitals in Western Uganda. This study, therefore, hypothesised that;

\[ H_1: \text{There is a positive relationship between inventory management and private hospitals' financial performance in Western Uganda.} \]

**METHODS**

**Research Paradigm, Design, Population, Sample and Sampling Procedure**

Through a positivist approach, quantitative data were collected and analysed following scientific procedures. Positivism enabled the study to maintain the researcher's neutrality and participants throughout the research process (Zuckweiler et al., 2016). A cross-sectional study design was followed to detect patterns between variables at a single point in time (Bell et al., 2018). A sample of 32 hospitals formed the unit of analysis, given a population of 35 private hospitals in Western Uganda (MOH, 2018). The sample size was determined using Krejcie and Morgan's table (Krejcie and Morgan, 1970). Private hospitals in Western Uganda were preferred for this study since Western Uganda is the leading region with challenges in private hospitals' financial performance in Uganda (UCMB, 2018).

The researcher first stratified private hospitals by districts and randomly selected them from each district using a simple random sampling technique to minimise the sampling bias (Lavrakas, 2020). Respondents per hospital included Hospital administrator, Accountant, storekeeper, and pharmacist. These were purposively selected based on their technical knowledge about the study's purpose and their direct involvement with working capital management (Mulajje, 2019). The study used a self-administered questionnaire for data collection. A self-administered questionnaire was chosen because it discloses the respondents' direct feedback and allows anonymity of feedback (Lewis et al., 2020). All private hospitals returned questionnaires, thus achieving a response rate of 100%.
Measurement of Variables and the Questionnaire Design

Inventory management was anchored on a five (5) point Likert scale (Likert Mcleod, 2019). The scale ranges from 1 (Strongly disagree) to 5 (Strongly agree). A 5-point Likert scale enabled the study to get a holistic view of people's perceptions and their level of agreement or disagreement on particular statements about inventory management practices (Mcleod, 2019; Orobia, 2020).

Control for Common Methods Bias

Cognizant of the negative effect of common methods bias (CMB) in questionnaire-based studies in social sciences (Field, 2006), the study controlled for CMB to avoid false internal consistency. First, the respondents' anonymity was protected so that their responses were more aligned to the study's purpose. Second, respondents were expressly assured that there are no right or wrong answers as long as the responses are honest. This aimed at reducing the respondent's apprehension over their responses hence reducing the possibility of editing their answers to give what they perceive as the best answers (Orobia et al., 2020).

Consequently, the study ran Herman's single factor test in SPSS V.22 to confirm the existence or absence of common methods bias (Podsakoff et al., 2003). All study variables were loaded into factor analysis, and the unrotated component matrix was observed. As noted by Hartman et al. (2010), the rule is that no single component should account for more than 50% of the total variance. This condition was met as all study variables accounted for less than 50% hence confirming the absence of bias in responses.

Reliability and Validity

The Cronbach's alpha coefficients were computed using SPSSv22. Inventory management items met the threshold of 0.7, indicating the questionnaire's acceptable reliability (Mohsen and Dennick, 2011). Content validity was also confirmed, considering that the variable (inventory management) yielded a content validity index (CVI) above the cutoff point of 0.7 (Lawshe, 1975 and Amin, 2005). Additionally, construct validity was also confirmed given that average variance (AV) from the exploratory factor analysis (EFA) was above 0.7 and average variance extracted (AVE) was above 0.5 (Middleton, 2016) hence confirming convergent and discriminant validity, respectively.

Data Analysis

After the treatment for missing values and outliers, the study tested and confirmed parametric assumptions of normality, linearity, and homogeneity of variance, as per the recommendations of field (2006) and Tabachnick and Fidell (2001). Congruently, with one independent variable (inventory management) in the model, simple linear regression was used in testing the effect of inventory management on financial performance (Tabachnick and Fidell, 2007). Consequently, the following analytical regression model for testing inventory management's impact on financial performance was specified.

$$FP = b_0 + b_1InvM + \epsilon$$

FP = Financial performance, $b_0$ constant, $b_1$InvM, Inventory management coefficient, and $\epsilon$ the error term.
RESULTS

The study ran a simple linear regression analysis to establish the relationship between inventory management and financial performance. Results are indicated in Table 1 below:

| Table 1: Effect of Inventory Management on Financial Performance |
|---------------------------------------------------------------|
| Standardized Beta                                             |
| Inventory Management                                          | 0.53*** |

Model Summary

|                          |       |
|--------------------------|-------|
| R                        | 0.53  |
| R-Square                 | 0.28  |
| Sig (ANOVA)              | 0.001 |

Note: *** P<0.001, Dependent Variable: Financial Performance

Results in table 1 indicate that the regression model (ANOVA) was significant at $p<.001$ level, demonstrating that results were not generated by chance thus, confirming inventory management as a strong predictor of financial performance among private hospitals in Western Uganda. Results further revealed that inventory management had a significant positive effect ($\beta=0.53, p<0.001$) on financial performance. This implies that a unit change in inventory management would increase financial performance by 0.53 units, accounting for 28% ($R^2=0.28$) of the variance in private hospitals' financial performance in Western Uganda. Results support the hypothesis that inventory management is positively associated with financial performance (H1).

DISCUSSION OF RESULTS

This study provides notable findings for the inventory management-financial performance matrix. It was established that inventory management is a strong predictor, accounting for 28% of the variation in private hospitals' financial performance in Western Uganda. By implication, these results mean that when private hospitals adopt robust inventory management systems, they will improve their financial performance. For instance, with solid inventory management systems, private hospitals can hold optimal stock levels, minimise costs and meet clients' demands on time. This will increase their sales and consequently substantial financial performance. Results agree with Gitman (2019), who posited that inventory management aims to satisfy customer needs and of this study keep inventory costs at a minimum level and reduce losing sales from stock-outs. An optimal inventory level should be kept; holding too small inventory can cause delayed services while holding too much stock causes additional holding costs. Likewise, Peterson and Joyce (2017) recognised that return on assets (ROA) could be maximised by either reducing the material cost or reducing the current assets tied up in the inventory, or increasing profits. They (Peterson and Joyce)
noted that inventory management could increase profitability by deciding inventory norms and control systems.

Additionally, this study's findings are consistent with previous investigations' results (Orobia et al., 2020; Rahimah et al., 2018; Rahimah et al., 2018; Capkun et al., 2019) that found a positive relationship between inventory management and financial performance. Likewise, in their study, Lwiki et al. (2013) revealed a significant positive relationship between the time taken to convert inventories into sales and profitability among manufacturing firms in Kenya. Furthermore, the above results support the RBV, which postulates that sustainable firm performance is contingent on a business’s unique offerings and its development over time by nurturing its core competencies (Orobia et al., 2020; Barney 1991). This study, therefore, notes that when private hospitals adopt efficient inventory management systems, they will attain a competitive advantage through reduced inventory costs and wastes, efficient service delivery, which, in turn, will enhance financial performance.

**Conclusion**

This study provides empirical evidence for a framework that identifies inventory management as a fundamental aspect of a firm's financial performance. Based on data obtained from private hospitals in Western Uganda, it can be deduced that inventory management is a significant predictor of financial performance that cannot be ignored in the health sector. The study has deep-rooted the notable role robust inventory management systems play in ensuring that hospitals maintain optimum stock levels to minimise the associated costs and improve service delivery hence attaining sustainable competitive advantage.

**Study Implications**

By implication, this study provides empirical evidence to support the literature regarding inventory management's relationship with financial performance. The results of this investigation will unravel and shed light on the understanding of how the efficient management of the inventory among private hospitals can immensely enhance their financial performance. It has unearthed the need for private hospitals to adopt scientific inventory management techniques and decision models to avoid stock-outs, minimise costs and improve service delivery.

**Study Limitation and Recommendations for Future Research**

Despite the success demonstrated, a significant limitation of this study is that based on the quantitative approach, the study could have missed out on respondents' views that could have rigorously explained the quantitative data to enhance the results' interpretation. Future studies may therefore triangulate methods to minimise the methods bias to obtain more credible results. Nonetheless, the study was still able to portray the predictive power of inventory management in explaining private hospitals' financial performance that had remained elusive all along.
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