INTELLIGENCE Journal of Multidisciplinary Research
(A Peer-Reviewed, Open Access International Journal)
ISSN 2822-1869 (Print); ISSN 2822-1877 (Online)
Volume 2, Issue 1, March 2023, pp 61-68
Research Management Cell, Pokhara Multiple Campus, TU, Pokhara, Nepal
Email: research.intelligencepmcrmc021@gmail.com
URL: www.pmcpokhara.edu.np

Article History
Received: 10 December 2022
Revised: 2 February 2023
Accepted: 22 February 2023

Impact of Inventory Management on Profitability of the Manufacturing Company: Empirical Evidence from Himalayan Distillery Limited

[1]Rashesh Vaidya

Abstract

Better inventory management is essential for preventing excess costs and waste of money for the distillery. The funds used in managing inventory could be used in branding and marketing the products. Hence, the paper tries to find an impact of inventory management on the profitability of one of the listed companies of Nepal, Himalayan Distillery Limited. A paper followed a correlation research design using secondary data for the sampled company. The paper found a high degree of positive correlation between closing stocks and raw materials and also closing stocks with packaging and other materials. A regression analysis reflected no significant relationship or statistical association between the inventory-related variables and the profitability of the sample company.

Keywords
Distillery
Inventory management
Manufacturing company
Nepali
Profitability

A STABILITY OF manufacturing company depends on the consistency on its production process. For this purpose, a manufacturing company should maintain a better inventory level of raw materials. A perfect level of inventory is essential, as excess level of inventory is also a misuse of fund. A fund used in a storage of inventory can be diverted to other activities of the manufacturing company. Nevertheless, a manufacturing company should maintain an optimum level of inventory for the smooth running of production process. Alongside, the above factor, if the manufacturing company production procsess depends on the imported raw materials for the manufacturing process, a good level of inventory is to be maintained, if not, the production process might come to halt if timely dispatch of the inventory does not take place. Hence, an inventory management is an essence for the manufacturing company. Inventory is one of the important aspects of the working capital management of every manufacturing company. It is one of the major components of current assets. The term inventory refers to the stock

1. PhD Scholar, Faculty of Management, Tribhuvan University.
Email : vaidyarashesh@gmail.com

of goods which are held for future use. As per the nature of the organization, inventories differ from one to another (Koirala et al., 2021). Hence, for the smooth functioning of manufacturing industry, sufficient amount of stock is the must. If the inventory comes short, production halts, and then, ultimately distribution sales of finished goods also halts.

Inventories form a link between the production and sale of a product. A connection of a final product in the hand of a customer with a raw material relies on how well a manufacturing company handles inventory management. Inventories form a link between the production and sale of a product. Without them, each production stage would have to wait for the preceding stage to complete a unit. Bulk inventories allow efficient servicing of customer demands. Present and future sales may be lost if a certain product is temporarily out of stock (Van Horne & Wachowicz, 2009). This shows a chain reaction in the production process of manufacturing industry. A production of a product starts with a proper input of raw materials. If at the stage of managing a proper raw materials distracted, then ultimately final products quality might also come to question.

Failure of inventory management in any company may lead to an increase in the number of losses. This can affect a company's financial performance and be detected by increasing stock losses. If no action is taken for improvement, it will create many loopholes in internal control (Skaife et al., 2013; Omar et al., 2016; Zakaria et al., 2016) and a waste of resources (Rahim et al., 2016).

The delivery of goods to the customer and third-party warehouses, lack of communication between departments, lack of coordination between the supply chain department and the plant and operations department, fluctuation in price, and lack of timely attention from all parties involved might hamper better inventory management. This negligence will affect the company's performance as customers will not hesitate to find other manufacturers and suppliers (Karim et al., 2018). Hence, neglegence at handling the inventory at every stage of the production of goods might lead the manufacturing company towards failure.

In the context of Greek food, textiles, and chemical industries, Koumanakos (2008) found that the companies demonstrating effective inventory management arising from lean operations produced higher returns and superior financial indicators. Well-manged inventory-associated costs like storage costs, insurance costs, ordering costs, obsolete stock, and other related costs will be at the optimal level (Samad et al., 2006). Gołaś (2020) found that an improvement in inventory management efficiency positively correlated with the financial performance of the Polish food industry. Keeping on side importance of inventory management for the manufacturing industries, the Nepalese distillery, and brewery must compulsorily submit the inventory record to Inland Revenue Department as per the provisions of Excise Duty Rules, 2002. The Nepalese distillery must also maintain proper inventory management to determine the excise duty amount and for renewal of industry registration. Hence, in these backdrops, the paper tries to see the impact of inventory management on the profitability of one of the manufacturing and processing companies listed in the Nepalese stock market.

Empirical Review

An entry of the inventory of raw materials to the inventory of finished goods brings to an end the production process. The distribution of goods through channels of distribution in the mar-

ket to reach the hand of customers brings a return for the manufacuring industry. Nwakaego et al. (2014) indicated that inventory turnover had a significant negative impact on Nigerian industries that manufactures building materials, chemical, and paint, while sales growth rate and debt ratio had a non-significant and negative effect on profitability.

NdiranguKung'u (2016) discovered a significant positive and strong relationship between inventory control practices and industrial profitability for Kenyan industrial and allied industries. In the context of US manufacturing industries, Shin et al. (2016) discovered that a lower inventory level, measured as an inventory-to-sales ratio, had a significant positive effect on industry profitability. This research also showed that not all inventories, when divided by fabrication stage, contribute equally to raising industrial profitability. For instance, decreases in completed goods inventories helped the primary and fabricated metal industries' profitability, whereas a decline in work-in-process stocks mostly impacted the profitability of the petroleum and coal products business.

Proper use of inventory and the conversion duration of inventory to finished goods determine the profitability of the manufacturing industry. Nnubia et al. (2017) examined the effect of inventory control on the profitability of listed Nigerian manufacturing companies and found that raw material position, inventory conversion period, and inventory turnover had a significant impact on the return on assets, while the storage cost of inventory had an insignificant impact on profitability.

A technique that a manufacturing company follows in inventory management also determines to manage risk associated with the production and even determines the cost of goods manufactured Mishra and Salunkhe (2018) found the ‘just-in-time’ (JIT) technique seems to be better for managing time and inventory holding costs for Linamar India Pvt. Ltd., Pune, which helps reduce the company's risk of failure. At the same time, the EOQ technique of inventory management was seen as satisfactory by the sampled company.

According to research by Bawa et al. (2018), inventory management had little bearing on the performance of the firm and was only tangentially related to the success of 14 listed manufacturing companies listed on the Ghana Stock Exchange.

Investors of the listed companies have a concern on the profitability indicators of the companies. A profitability of manufacturing companies are highly determined by the sales volume. A proper inventory control and use leads to better production process, which ultimately brings a smooth distribution of goods in the market. Ultimately, the proper flow of product in the market lead to goodwill of the company and enhance the sales of the company. Yankah et al. (2020) revealed that stock control under inventory management is a key factor affecting customer satisfaction at Kumasi Metropolis industrial enterprises. Dave et al. (2021) revealed that the finished goods inventory, though having a negative relationship with operating profit, was the most significant variable influencing operating profit for Indian pharmaceutical companies. Similarly, Anisere-Hameed and Bodunde (2021) studied Nigerian manufacturing companies, where the paper revealed that inventory management significantly impacted companies' return on assets, investment, net operating margin, and net income.

Goulap et al. (2022) found a positive and significant association between effective inventory management in the steel industry and its profitability. The paper stated that there is an inter-

dependence among the departments of industry related to inventory, procurement, and storage management. Hence, a weak interdepartmental relationship might lead to a negative impact on the overall performance of the industry.

In the setting of Nepalese manufacturing industries, Karki (2020) demonstrated the beneficial effect of effective inventory management on the profitability of Unilever Nepal Limited in a setting of the Nepalese manufacturing industry. Risla and Acharya (2021) also discovered no connection between the profitability and inventory control of the sampled Nepalese manufacturing public enterprise.

Research Methods

There are altogether six companies listed under the 'manufacturing and processing' sector at the Nepal Stock Exchange Limited (NEPSE). Among them, only one of the listed distillery companies, Himalayan Distillery Limited (HDL), is taken as a sample for the paper to see the impact of inventory management on the profitability of the sampled company.

The paper used published data related to inventories and the net profit margin from fiscal years 2012–13 to 2021–22. The value of the net profit margin is taken as a proxy for profitability. Similarly, the value of closing stocks, semi-finished goods, finished goods, raw materials, packaging, and other materials is taken as a proxy for inventory management at the sampled company. The paper used a correlation and regression analysis to see the impact of inventory management on the profitability of the sampled company.

Results and Discussion

1.1. Correlation Coefficient Matrix

The most common statistical tool to measure an association between two variables is the correlation coefficient. A correlation coefficient indicates the strength and direction of a linear association between two random variables. The correlation coefficient (r) ranges between -1.00 and +1.00. A correlation of 0.00 indicates the absence of a linear association between two variables. A correlation coefficient matrix is a matrix of 'r' values that shows the correlation between two variables. The correlation coefficient matrix for the variables used in the paper is presented in Table 1.

The relationship with a high degree of positive correlation (+0.88) at a significant level of one percent is between closing stocks and raw materials. Similarly, a high degree of positive correlation (+0.66) exists between closing stocks and packaging and other materials at a significant level.

None of the variables related to inventory management was significantly related to the profitability of the sampled company, i.e., Himalayan Distillery Limited. There is no significant relationship between inventory management and the profitability indicators of HDL.

1.2. Normality Test of Variables

The normality test is one of the assumption test in linear regression under the ordinary least square (OLS). The logic behind testing normality is whether the residuals are normally dis-

tributed or not. Nevertheless, an assumption of normality is violated, and further OLS technique could be considered for analysis of the variables.

Table 1

Correlation Coefficient Matrix

Variables	Net profit	Semi-finished goods	Finished goods	Closing stocks	Raw materials	Packaging and other materials
Net Profit	1.000					
Semi-finished Goods	+0.014 (0.970)	1.000				
Finished Goods	+0.121 (0.740)	-0.507 (0.135)	1.000			
Closing Stocks	-0.045 (0.901)	+0.259 (0.469)	-0.037 (0.920)	1.000		
Raw Materials	-0.093 (0.798)	+0.340 (0.336)	+0.035 (0.925)	+0.884** (0.001)	1.000	
Packaging and Other Materials	+0.055 (0.879)	-0.167 0.644	+0.261 (0.467)	+0.659* (0.038)	+0.495 (0.145)	1.000

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

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

Table 2

Testing Normality

Variables	Kolmogorov-Smirnovaa		Shapiro-Wilk	
	Statistic	Sig.	Statistic	Sig.
Net Profit	0.205	0.200*	0.827	0.031
Semi-finished Goods	0.199	0.200*	0.920	0.360
Finished Goods	0.172	0.200*	0.945	0.609
Closing Stocks	0.208	0.200*	0.918	0.338
Raw Materials	0.149	0.200*	0.922	0.378
Packaging and Other Materials	0.210	0.200*	0.899	0.214

**This is a lower bound of the true significance.*

[a]*Lilliefors Significance Correction*

The normality test shows non-normality for all the variables. According to the Kolmogorov-Smirnova and Shapiro-Wilk tests, none of the variables is non-normal.

1.3. Regression Analysis Result

A regression analysis, thus, is a statistical technique used to derive an equation that

relates a single criterion variable to one or more predictor variables. The table below shows the regression analysis results for the defined variables.

Table 3

Summary of Regression Analysis

Variables	ß	t	p-value	VIF
(Constant)	67.407	+0.707	0.947	
Semi-finished Goods	10.656	+0.368	0.732	1.813
Finished Goods	2.615	+0.375	0.727	1.628
Closing Stocks	0.677	+0.128	0.904	7.544
Raw Materials	-3.655	-0.336	0.753	5.778
Packaging and Other Materials	1.286	+0.154	0.885	2.463
R-square	0.066			
Adjusted R-Square	-1.101			
F-Statistics	0.057			
	(0.996)			
Durbin-Watson Statistics	0.313			

Dependent variable: Net profit margin

The regression results for the variables are insignificant. The explanation for the negative adjusted R-square value is that the response is extremely low or negligible. There is no significance to the explanatory variables in the regression analysis. An overall model is not significant, as the F-statistics are also insignificant. Similarly, all the coefficients for the model are also insignificant.

Discussion

Goulap et al. (2022) revealed a positive and significant association between inventory management and the profitability of the steel industry. Similarly, earlier studies on the impact of inventory management on profitability in the context of Nepalese manufacturing industries found no relation. As Risla and Acharya (2021) found no relationship between inventory management and profitability for Nepalese public enterprises, the current paper on a study on Himalayan Distillery Limited also found no connection between inventory management-based variables and the profitability of the company.

Conclusion and Implications

Raw material has a significant role in the manufacturing process. A shortage of raw materials halts the overall manufacturing process of an industry. If the manufacturing process halts, a company cannot run the sales and delivery processes in a smooth way, which ultimately hampers the profitability of the company. In this context, proper inventory management is essential to maintaining a good financial position for the manufacturing and processing company. Hence, a paper took a sample of one of the listed manufacturing companies, namely, Himalayan Distillery

Limited, to see the impact of inventory management on the profitability of the company.

A paper found no significant relationship between the inventory management-related variables and the profitability of the sampled manufacturing company. Nevertheless, a high degree of positive correlation is seen between closing stocks and raw materials as well as between closing stocks and packaging and other materials, respectively. Although a positive relationship was reflected, no significant relationship or statistical association was seen between the inventory-related variables and the profitability of the sampled company. Hence, only a devalued inventory could hurt profit margins, and the issue could be managed through an increase in the total sales volume of the company. Ultimately, the value of the sales volume is a more important factor in determining the profitability of the manufacturing and processing company than the inventory valuation.

References

Anisere-Hameed, R.A. & Bodunde, T.D. (2021). The impact of inventory management on the profitability of manufacturing companies in Nigeria. *International Journal of Innovation Research and Advanced Studies, 8*(1), 9- 15.

Bawa, S., Asamoah, G.E. & Kissi, E. (2018). Impact of inventory management on firm performance: A case study of listed manufacturing firms in Ghana. *International Journal of Finance and Accounting, 7*(4), 83-96. https://doi.org/10.5923/j.ijfa.20180704.01

Dave, T., Joshi, A.B. & Dave, A. (2021). An impact of inventory management on the profitability of pharmaceutical companies: Evidences from India. *Turkish Online Journal of Qualitative Inquiry, 12*(3), 1827-1835.

Gołaś, Z. (2020). Effect of inventory management on profitability: evidence from the Polish food industry: Case study. *Agricultural Economics-Czech, 66*(5), 234-242. https://doi.org/10.17221/370/2019-AGRICECON

Goulap, J.B., Elifneh, Y.W. & Belew, A.Z. (2022). The impact of materials management on profitability of manufacturing companies in Ethopia: The Case of Walia Steel Industry PLC. *International Journal of Engineering and Management Research, 12*(1), 49-59. https://doi.org/10.31033/ijemr.12.1.7

Karim, N.A., Nawawi, A. & Salin, A.S.A.P. (2018). Inventory management effectiveness of a manufacturing company: Malaysian evidence. *International Journal of Law and Management, 60*(5), 1163-1178. https://doi.org/10.1108/ IJLMA-04-2017-0094

Karki, C.B. (2020). Effect of inventory management: Empirical evidence from Unilever Nepal Limited. *Journal of Management, 3*(1), 35-43. https://doi.org/10.3126/jom.v3i1.30910

Koirala, M.R., Lamsal, R., Shrestha, S., Gautam, K.R., Adhikari, P.R., Mishra, S., Chapai, I., Ghimire, S.R., Ghimire, I.P. & Sapkota, L. (2021). *Fundamentals of financial management*. KEC Publication and Distribution (P.) Ltd.

Koumanakos, D.P. (2008). The effect of inventory management on firm performance. *International Journal of Productivity and Performance Management, 57*(5), 355-369. https://dx.doi.org/10.1108/17410400810881827

Mishr, A. & Salunkhe, H.A. (2018). A study of inventory management system of Linamar India Pvt. Ltd., *Amity Journal of Operations Management, 3*(1), 35-41.

NdiranguKung'u, J. (2016).Effects of inventory control on profitability of industrial and allied firms in Kenya. *IOSR Journal of Economics and Finance, 7*(6), 9-15.

Nnubia, I.C., Omaliko, E.L., Vanessa, O.N. & Etuka, C.E. (2017). The effect of inventory contorl on profitability of manufacturing companies in Nigeria. *Journal of Nigeria Association of Vocational and Technical Education, 10*(1), 134-149.

Nwakaego, D.A., Dorathy, O.C. & Ikechukwu, O. (2014). Inventory management on the profitability building materials and chemical and paint companies in Nigeria. *World Journal of Management and Behavioral Studies, 2*(2), 21-27. https://doi.org/10.5829/idosi.wjmbs.2014.2.1.1307

Omar, M., Nawawi, A. & Salin, A.S.A.P. (2016). The causes, impact and prevention of employee fraud: A case study of an automotive company. *Journal of Financial Crime, 23*(4), 1012-1027. https://doi.org/10.1108/JFC-04-2015-0020

Rahim, S.A.A., Nawawi, A. & Salin, A.S.A.P. (2016). Internal control weaknesses in a cooperative body: Malaysian experience. *International Journal of Management Practice, 10*(2), 131-151. https://doi.org/10.1505/IJMP.2017.083 082

Risal, N. & Acharya, S. (2021).Inventory management and financial performance of Nepalese public enterprises. *Journal of Business and Social Sciences, 3*(1) 45-63. https://doi.org/10.3126/jbss.v3i1.40855

Samad, R.A., Wahab, R.A. & Christabel, S. (2006) *Financial management for beginners*. McGraw Hill Education.

Shin, H., Wood, C.C. & Jun, M. (2016) .Does effective inventory management improve profitability? : Empirical evidence from U.S. manufacturing industries. *International Journal of Information Systems and Supply Chain Management, 9*(34), 26-45.https://doi.org/10.4018/IJISSCM.2016070102

Skaife, H.A., Veenman, D. & Wangerin, D. (2013). Internal control over financial reporting and managerial rent extraction: Evidence from the profitability of insider trading. *Journal of Accounting and Economics, 55*(1), 91-110. https://doi.org/10.1016/j.jacceco.2012.07.005

Van Horne, J.C. & Wachowicz, J.M. (2009). *Fundamentals of financial management*. Pearson Education Limited.

Yankah, R., Osei, F., Owusu-Mensah, S. & Agyapong, P.J. (2020). Inventory management and the performance of listed manufacturing firms in Ghana. *Open Journal of Business and Management, 10*, 2650-2667. https://doi.org/10.4236/ojbm.2022.105132

Zakaria, K.M., Nawawi, A. & Salin, A.S.A.P (2016). Internal control and fraud: Empirical evidence from oil & gas company. *Journal of Financial Crime, 23*(4), 1154- 1168. https://doi.org/10.1108/JFC-04-2016-0021