The Effect of Inventory Management on Company Performance Reference to Listed Manufacturing Companies in Sri Lanka

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Abstract
Inventory management is generally recognized to be of sufficient importance to warrant the appointment of a person to carry specific responsibility for it. The study investigated the relationship between company performance and inventory management. The researcher used inventory days as a dependent variable and gross profit and net profit as an independent variable. Now a days most of companies highly consider about inventory management some of the organization implement different tool such as JIT some are applied ERP, SAP systems to control their inventory efficiently and effectively hence the study employed descriptive analysis, correlation analysis and regression analysis using STA package to investigate effect of inventory management, on the listed manufacturing company performance. According to the analysis result in the researcher identified inventory management and gross profit had a positive relationship, net profit had a netative relationship and inventory management significantly affect to gross profit margin and net profit margin. Hence organizations have to take a correct decision regarding the inventory management administrative cost and another relevant cost to increase the performance of the organization.

Key Words: Inventory Management, Financial Performance, Listed Manufacturing Company

Introduction
Managing inventory in a volatile business environment is rather difficult than challenging. Many organizations confront arrays of problem-related to inventory with permanent temporariness of business processes and activate. Inventory is either buffer stock of raw material which is to be sent for production or materials which are still on the process or finished foods that is waiting to be sold, represents heart of business process and directly connected with liquidity, assets and liabilities of organization, is considered as one of critical activities of the organization. In traditional settings, raw materials, work-in-progress and finished goods inventories being kept speculating against the sudden emergencies. However, a large stock of any form of inventories may generate unseen costs and expenses. Generally, inventory maintains the cost of ordering, holding, stock maintaining and uncountable cost of stock absence. The cost elements were effectively controlled through properly calculated Economic Order Quantity (EOQ) in the past, however effect of other disciplines and multiple changed occurred in the operation process itself have increased complexity and requested new form of inventory management such as Material Requirements Planning Systems (MRPS), Just-In-Time (JIT) and ERP methods to inventory control. Many developed countries are applying such an advanced techniques to control inventory relates expenses, but the room is not fully opened for developing nations due to inherent nature of the business and social conditions of counties. Prevailing low technology, little demand, poor infrastructures, the vibrancy of political environment, running policy changes keep developing nations away from such an advanced application for business operations. However, the importance of attention to be given and strategies to be prepared to maintain an optimal level of quantity where organization enjoys maximum profit at minimum cost has been now increasingly recognized by many organizations in the country.

Ample of literature had evident mixed result of inventory management on business performance around the world. Therefore the topic is still hot and debatable. Albu and Albu (2012) claimed that the most of accounting and non-accounting techniques developed based on the foreign settings cannot be replicated to other nations completely due to the cultural and structural changes, therefore customized approached is more beneficial to

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every nation. Plethora of studies addressed to the issue of how much inventory a firm should hold in terms of raw material, work in progress and finished good covering different industries around the world (Womack et al., 1990; Rajagopalan and Kumar, 1994; Herer et al., 2002; Wickramatilleke et al., 2006) however the impact of inventory management on organizational performance is received a little concern by global academics in which application of such mechanism at manufacturing sector of Sri Lanka was rarely touched. Due to the sphere amount of research in the area, examining the impact of inventory management on company performance based on listed Manufacturing companies in Sri Lanka was selected as the topic of the study.

The remainder of the study proceeds as follows. The following section presents a brief literature review of the inventory management on company performance. Details of data collection and study methodology are presented in section three. Findings are discussed in section four, and the conclusion is offered in section five.

**Literature Review**

Inventory management is a process of stock recording and stock controlling, hence, stock recording and stock controlling works as basic fillers of an inventory management system (Howard, 1974). Organizations maintain stock records on raw materials, working process and finished good accurately in terms of receipts, issues, balance on hand, orders, assignments, balance unassigned, returns, amendments to orders, and adjustments. Mismatch report is also prepared when the physical stock of inventory unequal to book value. Aforementioned records were manually maintained in the past, however, at present organization applies a different kind of information systems to handle inventories of organization with technical developments. Inventory management basically ties to minimize its inherent stock controlling cost which is raised at any stage of inventory such as costs involved in procuring stock, holding stock and out of stock cost. Procuring stock cost includes the cost of ordering, cost of communication with a supplier. Cost of holding arise because of the existence of inventory and which also vary directly with inventory size (Howard, 1974). The cost occurs when demand for cost exceeds the existing stock. If organizations face big order shortage at that moment, they will face large out-of-stock cost (Howard, 1974).

Past literature evident that many studies have done on investigating the impact of inventory management on company performance around the world using different methodologies. Deloof, M. (2003) investigated how does working capital management affect profitability of Belgian firms? using an-financial Belgian firms during the period 1992-1996 as a sample. The result of the study reflected a negative relationship between gross operating income and number of inventory holding days. Accordingly, the study concluded that shareholder value could be increased minimizing inventory holding period to a greater extend. Boute et al. (2004) investigated the just-in-time management system and behavior of inventory ratios in Belgium. In addition to that, a few years later, they analyzed inventory turnover ratio in Belgian manufacturing industry with respect to wholesale and retails’ financial impact of inventory reduction. The study discovered that companies with very high inventory ratios have more likelihood to show bad financial performers performance relatively than that of low inventory ratio holding companies. Shin & Soenen, (1998) also confirmed the result further through their study. They examined the efficiency of working capital and corporate profitability of American public firms, and they confirmed the existing negative relation between the cash conversion cycle and corporate profitability of American public firms.

Capkun et al. (2009) examined the relationship between inventory and financial performance in manufacturing companies based on financial information of US manufacturing firms over the 26-years of the period from 1980 to 2005. The found a significant positive correlation between inventory performance and financial performance in the manufacturing industry. However, the correlation between inventory and financial performance significantly varies on inventory types. Raw material inventory had the highest correlation with all financial performance measures. Gaur et al. (2005) and Capkun et al. (2009) confirmed that the improvement in INV over the 1980-2005 periods caused due to improvements in WIP inventory performance, a lesser extent RMI

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performance and due to no change occurred in FGI performance. Accordingly, studies recommended the reduction in inventory in the retail sector is much better.

Research Question and Methodology

The study investigates the relationship between financial performance and inventory management. According to the above literature, a review study developed the following hypothesis:

H₁: A firm’s inventory performance will be positively correlated with the firm’s financial performance.

H₂: The correlation between a firm’s inventory performance and financial performance will be present across manufacturing industries.

The study used firm level data for the analysis which contains financial information on all manufacturing and the sample period extends from 2013 to 2017. After eliminating firms with insufficient data and unbalanced panel data observation include thirty three companies over the 2013-2017 period. Collected data were analyzed using STATA Package.

A number of days inventories is calculated as \([\text{inventories} \times 365]/\text{cost of sales}\). Profitability is measured with two slightly different accounting ratios in order to obtain a greater insight into our sample firms’ operational activity. The first is gross margin which is defined as sales minus cost of goods sold divided by sales and the second is net operating margin which is calculated as net operating income divided by sales plus other operating income.

Results and Discussion

To test the relationship between inventory management and financial performance researcher employed different test to identify relationship clearly.

Table 01: Descriptive Statistic Result

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPM</td>
<td>22.92848</td>
<td>17.74977</td>
<td>-85.28</td>
<td>97.76</td>
</tr>
<tr>
<td>NPM</td>
<td>2.89344</td>
<td>36.56182</td>
<td>-272.91</td>
<td>39.26</td>
</tr>
<tr>
<td>IM</td>
<td>129.9815</td>
<td>169.7695</td>
<td>3.18</td>
<td>1171.8</td>
</tr>
</tbody>
</table>

According to the descriptive analysis gross profit margin mean value is 22.92, the net profit margin is 2.89 and inventory management is 129.98. Maximum inventory management level is 1171.8 this kind of highest inventory level occurred due to the reason of some of the manufacturing companies grip a large number of stocks at their where a house like jewelry shop, therefore, inventory management reflect highest amounts.

Table 02: Correlation Analysis

\[
\begin{array}{ccc}
\text{GPM} & \text{NPM} & \text{IM} \\
\hline
\text{GPM} & 1.0000 & 0.4547 \\
\text{NPM} & 0.6477 & 1.0000 \\
\text{IM} & -0.4547 & -0.7498 & 1.0000 \\
\end{array}
\]

According to the table 02 correlation coefficient of inventory management (IM) with gross profit margin (GPM) and net profit margin (NPM) were -0.4547 and –0.7498 respectively and all were statistically significant at 0.05 percent level.
The correlation coefficient of net profit margin with gross profit margin was 0.6477. Those result reflected inventory management had a negative relationship with gross profit margin and net profit margin however net profit margin had a positive relationship with a gross profit margin.

Table 03: Fixed effect

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>Number of obs = 125</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>2014897.76</td>
<td>2</td>
<td>1007448.88</td>
<td>F( 2, 122) = 78.84</td>
</tr>
<tr>
<td>Residual</td>
<td>1558992.91</td>
<td>122</td>
<td>12778.6304</td>
<td>Prob &gt; F = 0.0000</td>
</tr>
<tr>
<td>Total</td>
<td>3573890.67</td>
<td>124</td>
<td>28821.699</td>
<td>R-squared = 0.5638</td>
</tr>
</tbody>
</table>

| IM     | Coef  | Std. Err | t     | P>|t|  | 95% Conf. Interval |
|--------|-------|----------|-------|------|-----------------|
| NPM    | -3.641| 0.3644   | 0.99  | 0.000| -4.362[-2.919] |
| GPM    | 0.508 | 0.7506   | 0.68  | 0.049| -0.977[1.994]  |
| _CONS  | 128.851| 19.392 | 2.64  | 0.000| 90.461[167.24]|

According to the above table, the f value is less than 0.05 then the model is ok. This is a test (F) to see whether all the coefficients in the model are different from zero. The explanatory power of the model R² value is 0.5638, suggesting that the model explains 55 percent of the variance in the inventory management. Adj R-squared shows the same as R-squared but adjusted by the number of cases and number of variables. When the number of variables is small, and the number of cases is very large, then Adj R-squared is closer to R squared.

T -values test the hypothesis that each coefficient is different from 0. To reject this, the t-value has to be higher than 1.96 (for a 95% confidence). If this is the case, the variable has a significant influence on the dependent variable (IM). The higher the t-value, the higher the relevance of the variable. All the t-values are less than 1.96 which reflects all the variables such as net profit margin; gross profit margin was significantly influenced by inventory management.

Two-tail p-values test the hypothesis that each coefficient is different from 0. To reject this, the p-value has to be lower than 0.05 which reflects independent variables had a significant influence on the dependent variable (IM) According to the above result Coefficients of the repressors indicate how much Gross Profit Margin and Net Profit Margin changes when Inventory Management increases by one percent. The result reflected when Inventory management increase by one percent Gross Profit margin increase by 0.508 but when increase inventory management by one percent net profit margin decreased by 3.641. All independent variables statistically significant with the dependent variable however result revealed that Inventory Management and Gross Profit Margin had a positive relationship but Inventory Management and Net profit Margin had a negative relationship.

By contrast, the above result is not as evident in basic commodities and process industries where relatively inventory management plays an important role on gross profit margin, but inventory management role on net profit margin was not a good signal to the organization. According to the result due to the inventory management gross profit positively change by 0.508 but due to the inventory management net profit margin negatively change by 3.641. Which reflect when an organization manages their inventory they can control the cost of production. As a result organization gross profit positively effects to the organization but when they are managing inventory organization have to spend other expenses such as holding expenses, inventory maintenance cost, etc. therefore organization operation cost increased. As a result organization inventory management negatively affect the net profit margin.
Conclusion and Recommendation

The purpose of this study was the investigation of the relationship between inventory management and firm performance. The result of the study confirms the existence of a robust positive relationship between inventory management and gross profit margin but inventory management and net profit margin had a negative relationship. According to the correlation analysis, inventory management had a statistically significant relationship with gross profit margin and net profit margin.

The current study is based on firm-specific financial data; it has certain limitations that can be addressed in future research using more detailed datasets. Another limitation is data collected from financial accounting report hence the validity of the data is questionable therefore Future research examining whether or not the reported in the financial statements earnings and inventory levels are manipulated would lead to a better understanding of the relationship. However collected data were support to interpret inventory management had a positive relationship with gross profit margin and a negative relationship with net profit. Most of the previous studies also reflected positive relationship through the reduction of inventory within the organization. According to current study managing of inventory was good for the gross profit but not the net profit and impact also high when compared with gross profit, therefore, organizations have to manage their inventory management administration and inventory related other cost to eliminate disadvantages. For everyday managers of manufacturing companies, the underlining message of this study is important for both short term and long term decision of the manufacturing organization.

Reference


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