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INVENTORY LEANNESS IMPACT ON COMPANY PERFORMANCE

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ABSTRACT
The analysis of manufacturing company's data reveals that inventory leanness and company performance relationship is varied substantially. Inventory performance relationship is significant in the most of industries. Lean inventory strategies are economically viable in some industries. This strategy is not amenable due to their particular product, production technology, supply or demand characteristics. In most of these instances, the relationship is concave, suggesting that there is an optimum level of inventory leanness beyond which firm performance deteriorates. This paper deals with inventory leanness impact on company performance

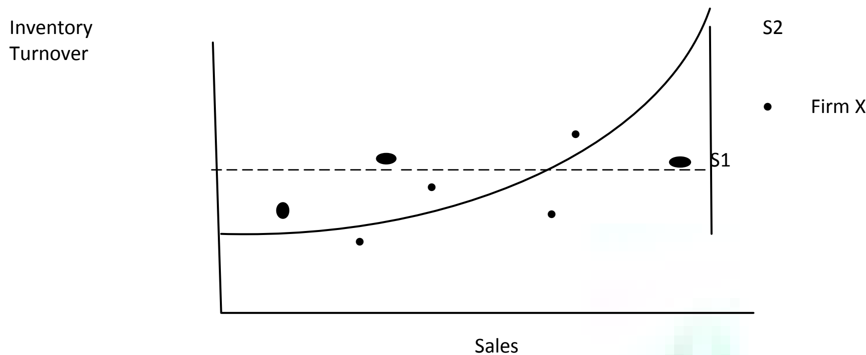
KEYWORDS
Inventory, lean, Manufacturing, Firm, Performance.

INTRODUCTION
Inventories are represented as short-term assets in the balance sheet. Inventory can be defined as assets that are held for the purpose of sale. It refers to an asset held for conversion to a form which can be sold. It also refers to assets held for assisting in the production of goods which will be sold. Inventory refers to the stock held by an organization at any point of time, which possess economic value. These resources can be manpower, machines, capital goods or materials at various stages. An inventory valuation allows a company to provide a monetary value for items that make up their inventory. The valuation needs to be objective, confirmed and accurate. Accurate inventory valuation requires accurate inventory record keeping. If companies use an accurate costing method for valuation of inventory, it will be a waste of time if the record accuracy level is poor. Maintaining accurate record is also important, because companies are striving for leaner production and processes. Inventory leanness effect firms performance.
In this paper section A consists related work section B deals with critical analysis and Section C consist development of the leanness indicator and conclusion.

RELATED WORK
Matthias Holweg et al. have reviewed that the lean concept is the outcome of a dynamic learning process. It is based on the practices adopted by automotive and textile sectors in Japan [12]. Fullerton et al. have maintained that lean production is typically conceptualized as a multi-dimensional construct composed of multiple lean practices such as total quality control, total productive maintenance, and just-in-time. Implementation of lean production results in improved operational performance in terms inventory management, process control, information flows, human factors, delivery, flexibility and quality. Financial performance is positively affected by the implementation of lean production practices [10]. Bradly R. Staats et al. have discovered that lean principles can apply to others sectors also [5].Womack et al. mentioned that to improve firms performance lean production relies on a set of practices including Kanban, total quality management, to minimize waste like excess inventories, scrap, rework [17]. Tyson R. Browning et al. have said that implementation of lean practices will reduce waste and thereby decrease costs. Novelty, complexity, instability, and buffering affect the relationship between lean implementation and production costs [15]. Rachna Shah et Al. propose a conceptual definition of lean production and identified ten factors of lean system [13]. Balakrishnan et al. have compared the financial performance of a group of firms that had adopted lean production and an equal number of similar firms that had not. He observe a significant increase in inventory turnover in the treatment group as compared to the control group, He find no significant differences in ROA between these two groups. His studies note that small firms do not benefit from lean production adoption as much as large firms [1]. Kinney et al. have observed that there is improvement in profitability for firms that adopt lean production relative to those that do not [11]. Swamidass et al. have investigates the effects of lean production adoption on inventory-performance of U.S. manufacturing firms. After grouping firms by performance, he finds that better performing firms have improved their inventory management performance, as measured by total inventory-to-sales ratio [14]. Cannon et al. have uses a hierarchical linear model to explore the effects of changes in inventory turnover on firm performance measured by ROA, ROI, market value added, and Tobin's Q. He concludes that improvements in inventory management do not lead to improved firm performance [6]. Capkun et al. have analyzed firm-level data on U.S. manufacturing firms from 1980 to 2005 to estimate the effect of inventory management on firm performance. Their results indicate that total inventory levels, as well as raw materials, work in- process inventory, and finished goods, have a positive effect on firm performance [7]. Womack et al. have said that inventory is a type of waste which should be minimized [16]. Chan et al. have discovered that by adopting lean production inventory holding is decreased [8]. Zipkin, P.H et al. have mentioned that lean inventory management can be compared to good inventory management. A lean strategy may not be appropriate for all firms [18]. David L. Cooke et al. analysis supports a view that management should not arbitrarily push inventories lower simply to improve the balance sheet [9].

CRITICAL ANALYSIS OF EXISTING INVENTORY LEANNESS MEASURES
Econometric studies rely on various measures as proxy for inventory leanness. These measures can be classified into three groups A, B and C: [A]absolute measures, including average inventory levels and maximum inventory levels are absolute in nature. It is important to measure inventory leanness with respect to size adjusted industry average as absolute measures of inventory management effectiveness can be misleading. The economic benefit of increased inventory leanness depends on a firm's status quo and industry-specific inventory management characteristics. [B] Standardized measures, such as inventory turnover and its variant. These are the most widely used measures of a firm's inventory leanness. However, such measures ignore economies of scale in inventory management. Ignoring these economies of scale results in biased estimates of a firm's inventory leanness, which, in turn, yields biased estimates of the marginal effect of inventory leanness on firm performance. To illustrate this point, consider firm X in Diagram. Line S1 represents the mean of inventory turnovers across firms in the same industry and line S2 represents the industry average of inventory turns adjusted for sales. In other words, firms with lower sales are expected to have lower inventory turnover while firms with higher sales should have higher inventory turnover, all other things being equal. At first glance, inventory turnovers for firm X appears to be above the unadjusted industry average, but they are actually below the industry average when economies of scale are considered.

FIGURE 1: RELATIONSHIP BETWEEN SALES AND INVENTORY VALUATION

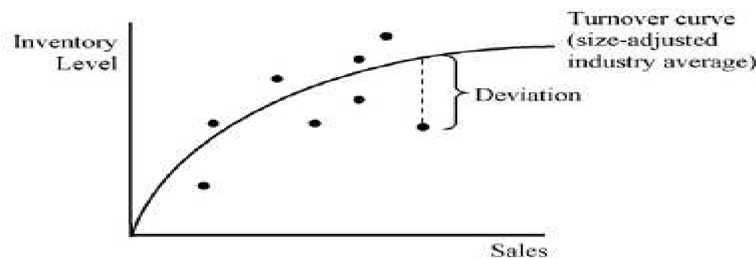


[C]Complex measures based on fuzzy set theory data envelopment analysis and require expertise in solving such models and interpreting the results. These measures are not well suited for widespread use by managers.

DEVELOPMENT OF LEANNESS INDICATOR

Ballou has described the specific nature of the relationship between sales and inventories in multiple stocking locations of a firm, thereby identifying economies of scale in inventory holding. In this work, I = $\beta\lambda^{\alpha}$ is used to estimate a turnover curve. An estimate of shape parameter $\alpha < 1$ indicates economies of scale (increasing inventory turnover), $\alpha > 1$ diseconomies of scale (decreasing inventory turnover), and $\alpha = 1$ a constant inventory turnover. Ballou's has explained that the coefficient estimates of α is typically around 0.6. The (LI) lean indicator is then calculated as the residual estimated during the fitting of the turnover curve for a given industry. The LI is a measure of inventory leanness that is rooted in inventory theory and, unlike inventory turnover, accounts for economies of scale in inventory management. Moreover, the LI inherently controls for industry-specific inventory management characteristics which make it particularly suitable for use in cross sectional studies.

FIGURE 2: RELATIONSHIP BETWEEN SALES AND INVENTORY LEVEL



CONCLUSION

This paper investigates the effect of inventory leanness on company performance. The analysis of a large sample of manufacturing firms over time period indicates that the significance and shape of this relationship varies greatly from one industry to another. Some of the industries exhibit no significant effect of inventory leanness on firm performance.

The impact of inventory leanness on firm performance is mostly positive and generally nonlinear. In most instances, the effect of inventory leanness is concave implying in line with inventory control theory that there is an optimal degree of inventory leanness beyond which the marginal effect of leanness on financial performance becomes negative.

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Sd/-

Co-ordinator

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