

Ranking of Risk-Mitigation Strategies of Inventory Apprehended in Cement Industry to Foster Panache Supply Chain

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ABSTRACT

Inventory is of paramount importance when we talk of any businesses as the business laurels depends upon the apt inventory holdings. The proper supply of inventory keeps the business and the economy working as inventory only decides the business success or failure. Inventory no doubt is imperative in business, but it's not free from numerous risks. The present research paper exaggerates some of the Risk-Mitigation Strategies adopted by cement industry with the collection of primary data obtained from eight small-scale cement firms functioning in SIDCO & SICOP, registered under DIC (District Industries Center) in District Udhampur of Jammu & Kashmir State. The key Risk-Mitigation Strategies adopted by these small-scale cements firms are "Safety Stock", "Accurate Forecasting", "Collaboration with Customers", and "Transportation Advantages". The results of the ranking table revealed that the variable "Safety Stock" scored the highest mean rank, as it seems to be the basic strategy adopted in order to cure inventories and derive profits out of apt inventory holdings. The factor "Accurate Forecasting" received second rank. Subsequently, the variable "Collaboration with Customers" emerged with rank three as it can mitigate the risk successfully and finally the variable "Transportation Advantages" contoured with forth rank.

Keywords: Inventory, Risk, Control, Mitigation, Cement industry, SSI's (Small-scale Industries)

INTRODUCTION

The business growth and development mostly depends upon apt inventory control and management, as it plays crucial role in the modern businesses. This contemporary business world is encompassed with immense competition and intense threats, and is hovered with numerous challenges, so desirable inventory and inventory control system is therefore present need of the hour. Proper inventory control techniques impart varied benefits to the modern businesses as the businesses now-a-days are facing market obstructions due to inconsistent flow of required stock in market. In order to eradicate such stigmas, a technique known called as apt inventory control and dissemination had been developed resulting in abundant advantages. Effective inventory management and control assists a lot to managers. It had proved essential in terms of reducing costs (Min et al., 2007), improving the product quality, developing service quality and enhancement (Huang, 2006), developing competitive ability with progress (Wong et al., 2006), and imparting operational

flexibility through effective pull systems (Forrester, 1961; Suri, 1998). Inventory in simple words means stock held by the business for delivering its regular activities. The purpose of holding the inventory is to sell it to the ultimate customers. Suitable inventory holdings justify the significant position of inventory in the entire working capital structure of approximately all the businesses and guarantees optimal income for the business. It becomes necessary for every business to develop inventory-related risk-mitigation strategies in order to facilitate the effective flow of inventory as well as to evocate it from all sorts of risks. Risk-mitigation strategies act as catalyst and are lucrative need for the present business world as it's imperative to meet the time-based competition (Stalk, 1988) and lean manufacturing (Womack et al., 1990). Risk mitigation results in lead-time reduction such as JIT/lean production or agility (Bartezzaghi et al., 1995; Naylor et al., 1999) ultimately fostering reduction in lot sizes and proper product specification and layout (Koufteros et al. 1998). Cellular manufacturing and pull production demand inventory management and effective production planning (Schmenner, 2001). Overall proper management

ensures risk mitigation regarding inventories and imparts reliable lot sizes, cycle times, removes bottlenecks, improves lead times, and process variability (Husun & Nanda, 1995; Schmenner & Swink, 1998).

Inventory generally known as stock of the business is often sometimes called as current asset at a specific time generally for one year within which it is required to be converted into liquid cash. Several businesses establish that inventory could also be like stock of raw material, stock of work-in-process, and stock of finished goods & stores detained by the business at a meticulous epoch of time: usually one year. Therefore, inventory contours that basically its intended to be sold as being sole and integral part of regular business stuff, its the accumulation aggregate finished goods produce which is offered for sale by a business unit, its supple assets apprehended for resale, indispensable for production and for effective utilization, necessity for the long survival & soft functioning of any business. Numerous advantageous business functions are reliant on it: supportive in the lengthening of the business operations, without which, a business cannot move itself, such as merchandise, finished goods formed by the business that are prepared for trade, the associated components which are essential in making that production possible.

Inventory is the crucial and the catalyst in terms of current assets in the present competitive world and a survey had debated that presently it holds a robust figure. The Indian companies' prevalence had reported an imperative figure that inventory holds core part largely in the current assets of a business. For example to quote, private companies of India had revealed and stated that 60% of the total current assets of their business endeavor is composed of inventory and on the divergent side, it was appropriately reported by government companies that about 61% in the overall current assets is the inventory category. Now, see how important it is to manage it and evade it from all sorts of risks associated. Therefore, development of risk-mitigation strategies is keenly imperative. Consequently, inventory management, control and development of varied risk-mitigation strategies associated with holding inventories are the present talks and figures of each and every business house. This thing had really resulted into the reengineering of the position between inventory management and control, quality assurance in inventory, customer service, networking, purchasing, coordination warehousing, transportation, etc., (Lawrence, 1999; McMohan et al. 2013; Mohan & Deshmukh, 2013). The intensive use of information technology and information

dissemination is guarantying the proper handling and coming out with risk-mitigation strategies associated with the apt inventories in this cutthroat competitive global contemporary era (Larson & Gammelguard, 2001; Stank, Keller, & Closs, 2001). Inventory costs amounts to the main costs for a manufacturing unit as all the other associated costs are directly knotted with and affected by its costs such as production costs, transportation and channeling costs, warehousing and storage costs. Multifarious inventory management systems, which create inertia, are now essential to be managed properly as they can result in desirable outcome in terms of sound profits in the business (Richter & Kral, 2010). Further, corresponding and incorporating the goals and targets of the purchasing, managing and evacuating inventory from all dangers into business strategy raise the numerous functions to a planned level (Zsidisin, 2003). Therefore, it resides on the part of the business that inventories should be very cautiously predicted, purchased, managed & controlled, and sold by business. A major and indispensable thing is that inventories should be resourcefully and productively utilized, stored, and cared by a business house. Even any business should not rather overly invest profligately in inventories as it the case associated with some businesses that hey purchase more and then afterwards face immense difficulties. Therefore, it's clear from all the aspect of the literature that business houses should cogently control, manage, care, and develop strict strategies to control the risks associated with it as any wrong judgment can jeopardize its profit and overall buildup which ultimately can obstruct the growth and prosperity of businesses.

Safety Stock: Safety Stock also called as Buffer Stock is a level of extra **stock** that is maintained to alleviate risk of stockouts (shortfall in raw material or packaging) due to qualms in supply and demand or we can say that Safety stock is supplementary quantity of any item(s) held stock in order to reduce the risk that the item will be out of stock. Safety stock is called as buffer when sales of an item are more than premeditated and the supplier is unable to send extra units at the probable time. Therefore, there are additional holding costs related with safety stock. Adequate safety stock levels permit business operations to proceed according to their plans. Safety stock serves as an insurance against stockouts held when there is uncertainty in demand, supply, or manufacturing yield.

REVIEW OF LITERATURE

The role that inventory now-a-days plays cannot be overemphasized as discussed in various studies in the

inventory-management literature. It holds meticulous importance as mismanagement of it can result in varied deficiencies in the modern cutthroat competitive world. Inventory management is of overriding substance as declared & extremely valued by commendable academicians, scholars, industrialists, marketing connoisseurs, reputed authors all around the world who talk about inventory and sails on the same boat with same connotations that inventory absorbs innermost position in the contemporary businesses and even in commerce & business literature (Christopher & Peck, 2004). Efficient inventory management results in risk mitigation (Chopra & Sodhi, 2004) and reduces inventory supply uncertainties (Lee, 2002) because international materials supplies most of the times become feeble due to inconsistent factors such as geographic podium treatment, riotous transport modes, political/legal factors, and other environmental practices (Prater et al., 2001). Inventory management reduces risks, which had been portrayed by two indispensable theories, which are divulged in the existing literature: the conventional inventory management theory that respites on the postulation of inventory optimization and on the converse there is current/contemporary inventory control theory, which contemplates more on inventory minimization. Further, its regarded and stated that both the two afore-stated circumstances may not hold good to a business house as it's stated that immense inventory reduction as quoted in modern/contemporary theory can raise "corporate anorexia" in the business (Radnor & Boaden, 2004). Therefore, there must be optimal inventory business status held by the organization. Further, an European research inferred that out of aggregate total logistics costs, 13% costs are contoured to inventory costs (Establish Inc/AT Kearney, 2004) and an USA research reported that out of total logistics costs, 24% costs as (European Logistics Association/Herbert W. Davis & Co., 2005). The present research states the mean ranking of risk-mitigation strategies of inventory held in eight small-scale cement firms functioning in district Udhampur of J & K State.

OBJECTIVE OF THE STUDY

To emphasize upon the various risk-mitigation strategies adopted for inventory control in the small-scale cement industry

THE RESEARCH METHODOLOGY/ FRAMEWORK

Sampling and Data Collection

For portraying the investigative nature of the study, the primary data act as crucial elementary for the same. The primary data for the respective study, in order to fulfill the objective of the study, were collected from functioning eight small-scale cement units operating in SIDCO and SICOP, Udhampur, J & K, India. All these eight efficient units were registered with DIC (District Industries Centre), Udhampur. The eight small-scale cement units were namely: M/s Associated Cements, Zenith Cement Industry, Shivalik Cements, M/s Continental Cement Industry, Wullar Cements, M/s Shri Nath Industry, Uma Cement Industry, and Kashmir Cement Industry.

The Survey Instrument

The survey instrument is the survey tool that acts as the basis for data collection. In other words, we can call data collection form as survey instrument. A questionnaire was prepared (self-developed) with the assistance of literature review and by consulting eminent professors & scholars having rigorous knowledge in the respective subject matter. Academicians duly verified the survey instrument in order to invite necessary modifications, alterations, adorable advices, and so on. The survey instrument (questionnaire) for the research consisted of general information regarding the respondents and some statements of risk-mitigation strategies adapted to control inventory problems. Statements in the survey instrument, i.e., questionnaire were in ranking, open ended, and five-point Likert scale form.

Data Collection

The primary data for the exploratory study were collected from the owners or managers of the cements units. They were personally visited and requested to assist for the research purpose. The questionnaires were given to them and they were given an ease of answering the same and to remit it back as per their feasibility. Though rigorous efforts were made to collect the information, the respective premises were visited from three to four times in order to

attain suitable information. The research applied census method for obtaining response/data from the respective respondents (managers/owners). The secondary data from the varied parts also stood as the eminent part of the present research. This secondary information were obtained from meticulous sources such as physical books, existing profound empirical papers published in eminent journals. The study deployed very well-versed statistical tools such as mean, mode, standard deviation, and ranking methods. Ranking tables were used for furthering the study, finding the results, and maintaining the genuineness of research. The data so collected were further analyzed with the help of SPSS (Version 16.00) for decontamination, checking validity, and reliability. Ranking tables were used to elicit meaningful responses from the data so collected.

DATA ANALYSIS AND INTERPRETATION

The raw data attained gave a privilege for data analysis, which further resulted into a Table 1 portrays the mean ranking of the variables accounted for research part divulging the various risk-mitigation strategies regarding inventory adopted by the eight small-scale cement-manufacturing units. The cement industry in SIDCO and SICOP, in District Udhampur of J & K State comprises of eight small-scale cement units. Each unit response takes into consideration with due care in order to investigate the numerous inventory risk-mitigation strategies. The focus of the study was to gather the data and derive meaningful inferences, which could be assisting other industrialists. The main risk-mitigation strategies regarding inventory control are “Safety Stock”, “Accurate Forecasting”, “Collaboration with Customers”, and “Transportation Advantages”. Overall, the variable/factor “Safety Stock” scored uppermost mean rank as it appealed to be the main factor for cumbersome various risks. The variable “Accurate Forecasting” attained rank second pursued by “Collaboration with Customers” with third rank. The variable “Transportation Advantages” acquired rank fourth due to low response from NITCO and other transportation facilities in the open market of the Udhampur area. The categorization of the firms with their respective ranking regarding the variables is understated as follows:

M/s Associated Cements

The very first well-established unit in SIDCO was M/s Associated Cements. The unit-wise mean ranking of risk-mitigation strategies of inventory apprehended in

this cement industry to foster panache supply chain was that it deployed the first rank to “Safety Stock” as it was felt to be the reasonable and appreciable risk-mitigation strategy regarding inventory degradation. The next variable “Accurate Forecasting” was ranked second as this industry considers accurate forecasting to be the remedy from over inventory pitfalls. “Collaboration with Customers” was designated rank three as customers are the ultimate consumers and if the product quality is high and product is easily feasible to customers, the risk of inventory drawbacks could be constrained. The last and fourth rank was accorded to the variable “Transportation Advantages” as transportation now-a-days proved to be the only source to disseminate the product all over the world and come out of the periphery of inventory risk. So, M/s Associated cements blatantly made it clear that safety stock accounted as to the main inventory risk-mitigation strategy as it proves to be worthy.



Fig 1: Diagrammatical Representation of the Variables Ensuring Risk-Mitigation Strategies of Inventory Apprehended in Cement Industry to Foster Panache Supply Chain

Zenith Cement Industry

Zenith Cement Industry enumerated as the second appreciable respondent among all the small-scale firms operating under SIDCO (Small Industries Development Corporation). The unit-wise mean ranking of risk-mitigation strategies of inventory deployed in this cement industry to encourage elegant supply chain was that it sanctioned rank one to “Safety Stock” as this risk-mitigation strategy proved to be the main strategy regarding apt inventory upholding. The second rank was scored by the variable “Accurate Forecasting” as reasonable forecasting can prove to be a stout evocation from risk. This small-scale industry numbered “Collaboration with

Customers” as third rank for mitigating inventory risk and ultimately it paves last & fourth rank to the variable “Transportation Advantages” (Table 1).

Shivalik Cements

Another gigantic industry operating in SIDCO Udhampur (J & K) is Shivalik Cements catering the major requirements of the customers. This small-scale manufacturing firm also seeks to “Safety Stock” as the main inventory risk-mitigation strategy and thus accorded rank one to this variable. The variable that attained second rank in this manufacturing firm was “Accurate Forecasting” as the firm stressed that its stout forecasting acted as their strategy to mitigate inventory risks. Third rank was accorded to the variable “Collaboration with Customers” as this firm says that Shivalik Cements is most fabulous among local and regional customers. The last and final rank is gained by the variable “Transportation Advantages”. So, Shivalik cements’ main risk-mitigation strategy was mostly related to safety stock and least to transportation advantages as represented in Table 1.

M/s Continental Cement Industry

M/s Continental cement industry is the fourth cements unit situated in SIDCO Udhampur and represents a magnitude aspect of the firms operating in cements industry. The mean ranking of risk-mitigation strategy regarding inventory in this cement industry to encourage elegant supply chain was that it sanctioned rank one to “Safety Stock” as this risk-mitigation strategy seems to be the best according to this firm. The second rank in accordance to this firm was accorded to the variable “Accurate Forecasting”. The third rank was scored by the variable “Collaboration with Customers” as response of the customers can alleviate the risks associated with inventories and the variable “Transportation Advantages” gained the last or fourth rank. Therefore, it was clear that M/s Continental cement industry reimburses most in terms of safety stock of inventory as depicted by their mean values and is represented in Table 1.

Wullar Cements

The fifth prominent firm operating in cements industry was found to be Wullar Cements and this firm was found to be more appealing to the customers and residents of J & K. As far as the mean ranking related to inventory

risk-mitigation strategy is concerned, this firm accords rank one to the variable “Safety Stock” as it proclaims this variable to be superior among all the other related variables. The variable “Accurate Forecasting” achieved second rank due to its importance being justified by the firm portraying that only estimated accurate forecasting could prove to be the greatest inventory-risk-alleviation strategies. Taking the third rank into consideration, the variable “Collaboration with Customers” was designated with the third rank, as the firm states customers are the main targets and they ultimately fosters risk mitigation. The fourth and the last rank was scored by the variable “Transportation Advantages” as the firm considers that good and easy transportation facilities can reduce inventory and inventory-related risks.

M/s Shri Nath Industry

Stating the next imperative firm operating in the cements industry was the M/s Shri Nath Industry. This firm was operating in SIDCO since 2001. The mean ranking related to inventory risk-mitigation strategies associated of this firm was like this:

- Rank one to “safety stock”,
- Rank two to “collaboration with customers”,
- Rank three to “accurate forecasting” and
- Finally rank four to “transportation advantages”

Therefore, this unit reveals that safety stock as the main inventory risk-mitigation strategy in order to foster panache supply chain.

Uma Cement Industry

Uma cements industry stood as the seventh significant cements manufacturing firm in the cements industry in SIDCO in District Udhampur of J & K. This unit is reputed and have earned immense goodwill portraying the magnificence of the industrial units in the Udhampur District of J & K. This unit presumed and numbered rank one to the variable “Accurate Forecasting” as it concentrates more on forecasting measures in order to arrive at approachable inventory forecasting. The firm experienced and stated that “Safety Stock” is important next to the aforesaid variable. The variable “Transportation Advantages” was allotted rank three by the firm and the last rank was given to the variable “Collaboration with Customers” as per the firms’ ratings. All the stated mean rankings are exhibited in Table 1.

Kashmir Cement Industry

Kashmir Cement Industry stood as the eighth sustaining cement unit enlisted in the list of cements industry in SIDCO. This unit is also very familiar among the customers of J & K and the mean ranking related to inventory-mitigation strategies was that it ensured rank one to the variable "Transportation Advantages" as this firm stated that desirable and frequent transportation could alleviate the varied problems of inventory as inventory would be remitted to the wider areas of the markets. This firm stated that the main factor behind this rating was the support it derived from NITCO (Transportation Corporation) that DIC (District Industries Centre) provided. This support enabled the cement industry to blatant horizons of the market. The variable, which was accorded rank second, was "Accurate Forecasting" as the firm commented that they have confidence in their demand forecasting and they have wide experience in this matter for the past 24 years. The variable "Safety Stock" was given third rank by this firm and the variable "Collaboration with Customers" was accorded rank four and the last ranking as to risk-mitigation strategies adopted by the firm (Table 1).

CONCLUSION

For those engrossed with business practices now-a-days, proper inventory planning and its effective management are of chief importance as they disseminate mammoth benefits to the business and markets. Portraying some of the reimbursements of having apt inventory are appropriate balance of demand & supply, successful market treatment, adequate market ranking, product positioning in the minds of the customers, and many others. Proper inventory holdings and management enlist the dearth of risk and if this issue is not given due emphasis, it can result in production/manufacturing problems, warehousing constraints and even transportation challenges. The present research paper imbibes conclusions from the empirical study undertaken of the small manufacturing units operating in Udhampur District of J & K State. The paper divulges the various ranks acquired by eight cements small-scale units, which quote their risk-mitigation strategies regarding inventory holdings. The present research exploratory states the

various risk mitigation measures that are adopted in the eight cement small-scale industries operating in SIDCO & SICOP, under DIC (District Industries Center) in District Udhampur of J & K State. These small-scale units adopt no doubt the same sort of risk-mitigation strategies of inventory holdings as those of large-scale units, which pave the ways for small-scale units and act as counselor for small-scale units. The various risk-mitigation strategies adopted by these small-scale cements industries are "Safety Stock", "Accurate Forecasting", "Collaboration with Customers", and "Transportation Advantages". The variable "Safety Stock" scored the highest mean rank, as it seems to be the basic strategy adopted in order to cure inventories and derive profits out of apt inventory holdings. The factor "Accurate Forecasting" received second rank. Subsequently, the variable "Collaboration with Customers" emerged with rank three as it can mitigate the risk successfully and finally the variable "Transportation Advantages" contoured with fourth rank.

LIMITATIONS OF THE STUDY

The present study portrays some of the limitations of the study. First, the study is conducted in a small district, i.e., District Udhampur in J & K State, the consequences of which may not be justifiable with those industries, which are working in other parts of the States and Districts working in different environment, hospitality, and culture. Secondly, the results of the study are based upon the responses obtained from the owners/managers of small-scale cements units, though, extreme concern had been taken to acquire response by creating them the research purpose comprehensible to them in their local vernacular, but an component of prejudice cannot be ruled out which adds to the limitation.

FUTURE RESEARCH

Future research could be undertaken in medium and large-scale industries and other business sectors could be included in that such as chemical industries, food industries, gen-set, medicine industries, information communication technological industries, and even some service sectors too.

Table 1: Unit-Wise Mean Ranking of Risk-Mitigation Strategies of Inventory Apprehended in Cement Industry to Foster Panache Supply Chain

Cement Units	Safety Stock	Accurate Forecasting	Collaboration With Customers	Transportation Advantages
M/s Associated Cements	1	2	3	4
Zenith Cement Industry	1	2	3	4
Shivalik Cements	1	2	3	4
M/s Continental Cement Industry	1	2	3	4
Wullar Cements	1	2	3	4
M/s Shri Nath Industry	1	3	2	4
Uma Cement Industry	2	1	4	3
Kashmir Cement Industry	3	2	4	1
Mean & Rank	1.37 (I)	2.00 (II)	3.12 (III)	3.50 (IV)

Note: Where 1 denotes "highest rank" and 4 denotes "lowest rank"

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