44

Chapter 3
Optimal Credit Period and Lot-Size for Deteriorating Items With Fixed Life Time and Trade Credits

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ABSTRACT

To boost the sale is the prime objective for promoters. For this purpose, they generally allow credit period. In this article, we have considered an inventory model in which supplier gives credit period to retailer and to increase the sale, retailer passes it to end customers. This phenomenon is known as two level trade credits. By allowing credit period we may encounter with the issue of default risk which has been taken care of while calculating profit function for the system. Also, each and every inventory product gets deteriorated over the time as per its nature and such deteriorating products have its maximum life time as well. The present inventory model deals with such products. Quadratic demand is discussed here which is suitable for the products for which demand increases initially and after sometimes it shows decreasing pattern. Finally, retailer's total profit is maximized with respect to credit period and cycle time. Numerical examples are given to validate the model. Sensitivity analyses are done to filter significant inventory parameters.