

Inventory Optimization

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Impact of Two Different Trade Credits Options on a Supply Chain with Joint and Independent Decision Under Trapezoidal Demand



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Abstract The traditional economic order quantity model adopts that the retailer should settle down all accounts at the time of receiving an order. In fact, allowing customers to delay payment for goods that are already delivered is a very common business practice. The supplier often offers trade credit as a promotion strategy to increase sales and decrease the on-hand inventory level. In this paper, the supply chain deals with a single supplier and a single retailer. Here, the supplier sets two trade credit options for the retailer. If the retailer settles down all the payments at the first trade credit then the supplier offers a discount on purchasing price to the retailer. But, if the retailer settles down all the payments at the time of the second credit period then the retailer will not be entitled to the discount. In this paper, the model considers price sensitive trapezoidal demand and a product with constant deterioration rate. The classical optimization is used to optimize the total profit of the supply chain with respect to selling price and cycle time and also analyzed the best scenario for the supply chain. The model is supported by numerical examples. Sensitivity analysis is done to deduce managerial insights.

Keywords Two different trade credit · Discount in purchasing price · Constant deterioration · Trapezoidal demand

1 Introduction

To boost the demand for the product, the player gives permissible delay in payment that is called trade credit. Trade credit concerns the business-to-business credit limit and has been a necessary way for trades to obtain short-term development. Buyer

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