SUPPLY CHAIN INVENTORY MODEL FOR OPTIMAL ORDERING AND PRICING POLICIES UNDER RETAILER PARTIAL TRADE CREDIT SCENARIO IN DECLINING MARKET

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Abstract. In this research article, the retailer's ordering and pricing policies are analyzed under two levels of trade credit in declining market. It is assumed that the retailer is dominant player in supply chain. The supplier offers credit period to the retailer and the retailer offers partial trade credit to his customer. The objective is to maximize total profit of the retailer's inventory system with respect to selling price and ordering policy. The numerical examples are given to validate the proposed model and managerial issues are derived.

Keywords: Supply chain, Partial trade credit, Demand declining market.

1   Introduction

To attract more customer and increase the sales, the supplier offers his retailer credit period to settle the account against his dues. Goyal (1985) pioneered the concept of delay in payments. Chung (1998) discussed results to determine the EOQ under the condition of trade credit. Shah (1993a, 1993b, 2004) and Aggarwal and Jaggi (1995) derived the ordering policy when units in inventory are subject to constant rate of deterioration. Chang et al. (2002) extended this issue for time dependent deterioration. Liao et al. (2000) and Sarker et al. (2000a) studied inventory system under inflation and allowable trade credit. Jamal et al. (1997) and Chang and Dye (2001) considered shortages. Hwang and Shinn (1997) developed retailer's ordering and pricing policies for an item with an exponentially distributed life-time; i.e., item that deteriorates at a constant rate under permissible trade credit. Jamel et al. (2000) and Sarker et al. (2000b) obtained optimal payment time under scenario of permissible trade credit and units in inventory system deteriorate at a constant rate. Teng (2002) assumed that the interest earned should be calculated on selling price which is higher than the purchase price to rectify Goyal's model (1985). Shinn and Hwang (2003) computed the retailer's optimal selling price and ordering policy simultaneously under the condition