

An EOQ model under trade credit and conditional cash discount

Jyh-Rong Chang

Yung-Fu Huang*

Department of Business Administration

Chaoyang University of Technology

No. 168, Jifong E. Rd.

Wufong Township, Taichung County 41349

Taiwan

R.O.C.

Abstract

This paper tries to extend Goyal (1985) to develop the retailer's inventory model under trade credit and conditional cash discount. We assume that the retailer can obtain the cash discount with a large order quantity under trade credit policy. Otherwise, the retailer will just obtain the trade credit with a small order quantity. In addition, we modify the assumption that the unit purchasing price and unit selling price were equal. Under these conditions, we want to investigate the retailer's optimal ordering policy within the EOQ framework. Mathematical models have been derived for obtaining the optimal cycle time for item so that the annual total relevant cost is minimized. Furthermore, numerical examples are given to illustrate the results developed in this paper.

Keywords : EOQ, inventory, trade credit, cash discount.

1. Introduction

The supplier offers the trade credit and the cash discount policy to stimulate the demand of the retailer. The supplier can use the marketing alternatives of the trade credit or the cash discount to promote his/her

*E-mail: huf@mail.cyut.edu.tw