

**Economic Order Quantity Model  
Under Cash Discount and Payment Delay**

*Liang-Yuh Ouyang*

Tamkang University

R.O.C.

*Miao-Sheng Chen*

Nanhua University

R.O.C.

*Kai-Wayne Chuang*

Tamkang University

R.O.C.

**Abstract**

The purpose of this study is to investigate the impacts of trade credit in the inventory system. The supplier's regular credit terms include credit period and cash discount. In practice, the supplier allows a certain fixed credit period to settle the account for stimulating retailer's demand. Besides, the supplier also can offer cash discount to encourage retailer to pay the account quickly. This study develops an inventory model with credit period and cash discount simultaneously. The objective of this model is to determine the optimal replenishment cycle so that the total cost per unit time is minimized. Numerical examples are presented to illustrate the propose model and the sensitivity analysis of the optimal solution with respect to parameters of the system is also included.

*Keywords:* Inventory, Delay in Payments, Cash Discount.