

**Economic Ordering Model for a Single-period
Perishable Commodity with Volatile Demand
Given a Multi-tier Return Rebate Policy**

Ming-Guan Huang

Shih Chien University

Abstract

A return policy is commonly recognized as an effective device for achieving channel coordination. Suppliers for perishable commodities especially tend to use return policies as incentive to encourage retailers to purchase larger quantities. Accordingly, this study focuses on developing the optimal order quantity model for retailers of such a single-period perishable commodity in situations involving volatile market demand to maximize the expected profit during the upcoming selling season. Dissimilar from previous researches, this study conceives of an effective and practical returns policy that allowances are based on a multi-tier decreasing return rebate policy, each of which is applied to one of arranged return quantity intervals to induce retailers to sell items more aggressively. Finally, a numerical example and sensitivity analysis is illustrated to verify the practicability and validity for the optimal order quantity model presented here and realize the effects of changes in the value of primary model parameters.

Keywords: Economic ordering model, inventory management, perishable commodity, return policy.