An Economic Order Quantity Model with a Random Planning Horizon:
A Net Present Value Framework

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Abstract

The Economic Order Quantity (EOQ) model and its variation have received lots of attentions for a long time by researchers. However, the assumption of the infinite planning horizon is of rare occurrence because of change in product specifications and design or its abandonment or substitution by another product due to rapid development of technology. This paper studies an EOQ Model which relaxes the assumption of the infinite planning horizon. In addition, the discounted cash-flows (DCF) approach is used to properly recognize the financial implication of the cash flows in inventory analysis. We derive the general expression of the expected present value for the inventory carrying and ordering costs, and investigate the characteristics of the function for exponential and normal distributions.