International Journal of Systems Science ›
Volume 46, 2015 - Issue 7

Original Articles

Developing economic order quantity model for non-instantaneous deteriorating items in vendor-managed inventory (VMI) system

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Pages 1257-1268 | Received 16 Feb 2013, Accepted 01 Jun 2013, Published online: 09 Jul 2013

Cite this article https://doi.org/10.1080/00207721.2013.815827 Check for updates

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Abstract

This paper develops an economic order quantity model for non-instantaneous deteriorating items with and without shortages to investigate the performance of the vendor-managed inventory (VMI) system. This model is developed for a two-level supply chain consisting of a single supplier and single retailer with a single non-instantaneous deteriorating item. A numerical example and sensitivity analysis are provided to illustrate how increasing or reducing the related parameters change the optimal values of the decision variables of the two proposed models. The results show that VMI works better and charges lower cost in all conditions.

Keywords:

vendor-managed inventory | inventory | supply chain | EOQ | non-instantaneous deterioration

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