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**Supply chain coordination based on return contracts with a threshold ordering quantity.** (English) Zbl 1330.90008

Int. Trans. Oper. Res. 22, No. 6, 951-968 (2015).

Summary: Return contracts are commonly used by companies selling products with short life cycles and highly uncertain demand. Current research on return contracts assumes suppliers are responsible for all surplus products. In practice, retailers tend to order more than necessary and leave suppliers with large after-season returns. To mitigate the problem, a new type of return contract with a threshold ordering quantity has been developed by some enterprises. Under these contracts, suppliers specify a threshold for retailers' ordering quantity. They buy back only the portion in excess of the threshold. In this paper, we show that this new type of contract can achieve two objectives: (a) the supply chain is coordinated, and (b) both the supplier and the retailer can gain more profit than they can gain under a wholesale-price-only contract. The new contract does not require any manipulation of wholesale prices. This makes it more acceptable in practice by supply chain members. We also illustrate our findings in a numerical example.

**MSC:**

90B05 Inventory, storage, reservoirs

91A80 Applications of game theory

**Keywords:**

supply chain management; inventory theory; game theory; return contracts

**Full Text:** DOI

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