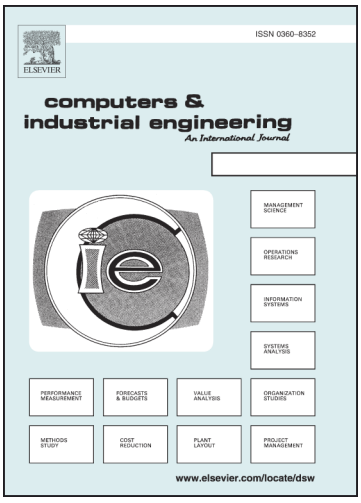

Trade credit and replenishment decisions considering default risk

Yu-Chung Tsao

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Trade credit and replenishment decisions considering default risk

Yu-Chung Tsao*
Department of Industrial Management, National Taiwan University of Science and Technology
Email: yctsao@mail.ntust.edu.tw

Abstract

This paper determines the optimal credit period and replenishment decisions when credit period affects demand rate and default risk. This study uses the compounded interest formula to calculate the present value of expected profit and treats the rate of default risk as uncertainty. The problem is solved from both risk-neutral and risk-averse perspectives. Two risk-averse approaches, rate constraint and revenue constraint, are proposed, which limit the solution space to the set of credit periods which guarantee an upper bound of the expected rate of default risk and guarantee an expected revenue level when facing default risk. Numerical analyses are carried out to illustrate some management insights. We show that setting lower rate constraint or revenue constraint results in shorter credit period, longer replenishment cycle time and lower default risk. These approaches are useful for the case of a low-probability high-consequence contingency event.

Keywords Trade credit; Inventory; Default risk; Replenishment