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Coordinating Supply Chains with a Credit Mechanism

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Abstract: This paper studies the supply chain coordination with a trade credit under symmetric and asymmetric information, where the retailer has an individual profit target from the business and the vendor is the decision-maker of the supply chain. We propose a coordination mechanism through credit contracts and show that a win-win outcome is achieved by redistributing the cost savings from coordination mechanism under certain constraints. Numerical examples are given to illustrate our results.

Keywords: *supply chain coordination; trade credit; contract; information asymmetry.*

Mathematics Subject Classification (2010): 90B05.

1 Introduction

In the current competitive business environment, trade credit has been widely used and represents an important proportion of firms finance. Rajan and Zingales reported that accounts payable amounted to 15% of the assets for a sample of nonfinancial U.S. firms on Global Vantage while debt in current liabilities accounted for just 7.4% [1]. In China, it was once overused, e.g., powerful buyers like WalMart, Carrefour and Gome used to allow delayed payments to their vendors for as long as one year, so that the government has made a law to ban buyers from delaying payment for more than two months. Since Goyal first developed an economic order quantity (EOQ) model under the conditions of permissible delay in payments [2], there is a great deal of literature dealing with a variety

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