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Volume 43, 2012 - [Issue 11](#)

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# Vendor-buyer inventory models with trade credit financing under both non-cooperative and integrated environments

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Pages 2050-2061 | Received 29 Jun 2010, Accepted 18 Jan 2011, Published online: 11 Apr 2011

[Cite this article](#) <https://doi.org/10.1080/00207721.2011.564322>



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## Abstract

Most researchers studied vendor-buyer supply chain inventory policies only from the perspective of an integrated model, which provides us the best cooperative solution. However, in reality, not many vendors and buyers are wholly integrated. Hence, it is necessary to study the optimal policies not only under an integrated environment but also under a non-cooperative environment. In this article, we develop a supply chain vendor-buyer inventory model with trade credit financing linked to order quantity. We then study the optimal policies for both the vendor and the buyer under a non-cooperative environment first, and then under a cooperative integrated situation. Further, we provide some numerical examples to illustrate the theoretical results, compare the differences between these two distinct solutions, and obtain some managerial insights. For example, in a cooperative environment, to reduce the total

cost for both parties, the vendor should either provide a simple permissible delay without order quantity restriction or offer a long permissible delay linked order quantity. By contrast, in a non-cooperative environment, the vendor should provide a short permissible delay to reduce its total cost.

Keywords:

inventory    trade credits    non-cooperative solution    cooperative solution    permissible delay in payments

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## Acknowledgements

The authors thank four anonymous referees for their detailed and constructive comments. This research was partially supported by the National Science Council of the Republic of China under Grant NSC 97-2221-E-007-098. In addition, the principal author's research was supported by the ART for Research from the William Paterson University of New Jersey.

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