

**Optimal Strategy for the Integrated Vendor-Buyer
Inventory Model with Adjustable Production
Rate and Trade Credit**

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Abstract

In this paper we present a stylized model to find the optimal strategy for the integrated vendor-buyer inventory model with a price-sensitive market demand rate and adjustable production rate under the condition of trade credit. By analyzing total channel profit function, we developed an algorithm to simultaneously determine the buyer's optimal retail price, order quantity and the number of shipments per production run from the vendor to the buyer. The results of our analysis demonstrate that in an integrated vendor-buyer inventory model, the trade credit strategy can be a win-win business strategy for both the buyer and the vendor. Our study also identifies the total channel profit will increase while the vendor's production rate is close to the market demand rate.

Keywords: Integrated Inventory Model; Price-Sensitive Demand; Adjustable Production Rate; Trade Credit.