

# 摘要

近年來由於科技發展日新月異、全球市場競爭激烈，市場需求不確定性大幅增加，零售商因庫存過多造成嚴重虧損的報導時有所聞，因此零售商經常在簽訂購買契約時要求製造商能夠在一定的條件下保證退貨，較常見的產業例如書籍、雜誌、音樂、電腦硬體與軟體、賀卡等市場。文獻上已經有許多的研究針對退貨問題建構數學模型，假設的基本環境多數為「零售商以較高的價格要求當訂購的商品過剩時，製造商能夠保證退貨」，而且多以零售商利潤最佳化的角度建立模型，其在客觀上欠缺考慮製造商的立場，因為製造商可能沒有足夠的誘因接受退貨，本論文將嘗試探討買賣雙方的交易行為，並從中找出可能的解決方案。本論文以賽局理論建立模型，希望所得到的解決方案能夠充分兼顧買賣雙方的利益，進而達到雙贏的境界。本論文從以下三個主題切入，並建立相關模型：（1）為了改善供銷系統次佳化的情況，在模型中考慮要求零售商能夠在下訂單時，除了零售價格外，額外提供生產份額預定金；（2）為了增進供銷系統效率，在模型中考慮製造商建構數量折扣-退貨保證價格表；（3）為了提供足夠的誘因使製造商接受退貨，在傳統的退貨保證模型中加入數量折扣的機制。針對每個提出的退貨保證模式皆會個別舉出一個應用案例以便說明論點，冀望本論文的提出能夠使退貨保證模式的理論更為完整，並且在實務上提供業界參考以做出臻於完善之決策。

**關鍵詞：**不確定需求、退貨保證、數量折扣、供銷系統次佳化。

# ABSTRACT

Developments in global competition, technology innovation, and transportation systems mean that people can now purchase a greater variety of products at lower prices much more easily. However, this makes it difficult for a retailer to forecast demand and to place orders accordingly. As a result, many retailers request that manufacturers honor the return of unsold goods to avoid the risks that are inherent in volatile demand. Early models of such return arrangements were characterized by an understanding that a retailer might request a manufacturer to buy back unsold goods. In turn, the manufacturer, to compensate for his or her increased costs, would charge higher wholesale prices. However, these studies have either focused on optimization from the retailer's perspective only, or ignored the fact that the manufacturer might have no incentive to accept returns. This dissertation tries to overcome these drawbacks and extend the traditional return contracts to following three topics: (1) Take account of option premium to improve supply chain decentralized problem. (2) Take account of a menu of discount-return combinations to maintain channel efficiency. (3) Take account of the self-interest of both the retailer and the manufacturer, and demonstrates that a quantity discount scheme should provide the manufacturer with incentive to accept returns. For each topic, the model will be established and the numerical example to illustrate the scheme will be given.

*Keywords: Stochastic demand; Return policy; Quantity Discount; Decentralized control*