

Pricing and return policy under various supply contracts in a closed-loop supply chain

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Advantages of a closed-loop supply chain

- 1) Sustainability
- 2) Reduced costs
- 3) Customer Loyalty
- 4) Visibility
- 5) Preparing for Future Regulation

Motivation

-Supply contract is a necessary devise that coordinate decisions of supply chain members with moral hazard is able to maximize the total supply chain profit.

Approach

-Three supply contract models (Wholesale price, Buy-back and Quantity discount contracts) that coordinate the closed-loop supply chain under moral hazard were used through numerical analysis and analysis solutions to determine retailer's pricing and return policy prices, return policies, and how they affected the resulting profits.

Results & Findings

1) Quantity Discount Contract :

- Closed loop chain can be coordinated to achieve supply chain profit first
- Suppliers achieve superior performance, free to choose wholesale prices or discount factors, regardless of coordination
- Lower sales prices and generous return policies than other models lead to higher demand and returns

2) Buy-back, Wholesale Price : Cannot coordinate closed-loop supply chain

- Buy-back - In order to predict profit performance, stable alternative for both suppliers and retailers
 - Because of a strict return policy, return requests are the least

Discussion

-Changes in consumer behavior have a greater impact on the supplier's profit performance.