

Decision-making strategies in supply chain management with a waste-averse and stockout-averse manufacturer

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ABSTRACT

Behavioral preferences is an important factor that affects the decision-making strategies of enterprises. Usually, the behavioral preferences will lead to decision-making that deviates from profit maximization. In this study, we investigate the influence of a dominant manufacturer's behavioral preferences on decision-making and subsequent impact on profits. This study looks at the profits of the manufacturer, retailer and the system as a whole. We construct a two-stage supply chain involving a retailer and a manufacturer who may have risk-neutral (*RN*), stockout-aversion (*SA*), waste-aversion (*WA*), and stockout- and waste-aversion (*SW*) preferences. Through a comparison and analysis of the four cases, we find that the manufacturer's wholesale price increases (decreases) with the *SA* (*WA*) coefficient, while the retailer's order quantity is completely the opposite. The manufacturer's wholesale price is the highest in the *WA* model, followed by the *RN*, *SA* and *SW* models, in that order. The retailer's order quantity is the largest and smallest in the *SA* and *WA* models, respectively, while the size of the order quantity between the *RN* and *SW* models depends on the ratio *m* (the ratio of the *SA* to the *WA*). Moreover, we also explore the changing trends of the decision-making and profits of the participants and the system profit with the degree of *SA* and *WA*, comparing the profits of the four cases.

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