

## Improving Order Quantity Model with Emergency Safety Stock (ESS)

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**Abstract :** This study considers the problem of calculating safety stocks in disaster situations inventory systems that face demand uncertainties. Safety stocks are essential to make the supply chain, which is controlled by forecasts of customer needs, in response to demand uncertainties and to reach predefined goal service levels. To solve the problem of uncertainties due to the disaster situations affecting the industry sector, the concept of Emergency Safety Stock (ESS) was proposed. While there exists a huge body of literature on determining safety stock levels, this literature does not address the problem arising due to the disaster and dealing with the situations. In this paper, the problem of improving the Order Quantity Model to deal with uncertainty of demand due to disasters is managed by incorporating a new idea called ESS which is based on the probability of disaster occurrence and uses probability matrix calculated from the historical data.

**Keywords :** Emergency Safety Stocks, safety stocks, Order Quantity Model, supply chain

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