

- ① Online store, one centralized warehouse
suppose annual demand = D ,
ordering cost = S , holding cost = H .

$$Q^* = \sqrt{\frac{2DS}{H}}, \quad \boxed{C_{EOQ} = \sqrt{2DSH}}$$

- ② Brick-and-mortar store, # of stores = k .
demand for each store = D/k

ordering cost = S , holding cost = H

$$EOQ_i = \sqrt{\frac{2 \cdot D/k \cdot S}{H}}, \quad C_{EOQ_i} = \sqrt{2 \cdot D/k \cdot S \cdot H}$$
$$= \frac{1}{\sqrt{k}} \cdot \sqrt{\frac{2DS}{H}} = \frac{1}{\sqrt{k}} \cdot \sqrt{2DSH}$$

$$\boxed{C_{EOQ} = k \cdot C_{EOQ_i} = \sqrt{k} \cdot \sqrt{2DSH}}$$