

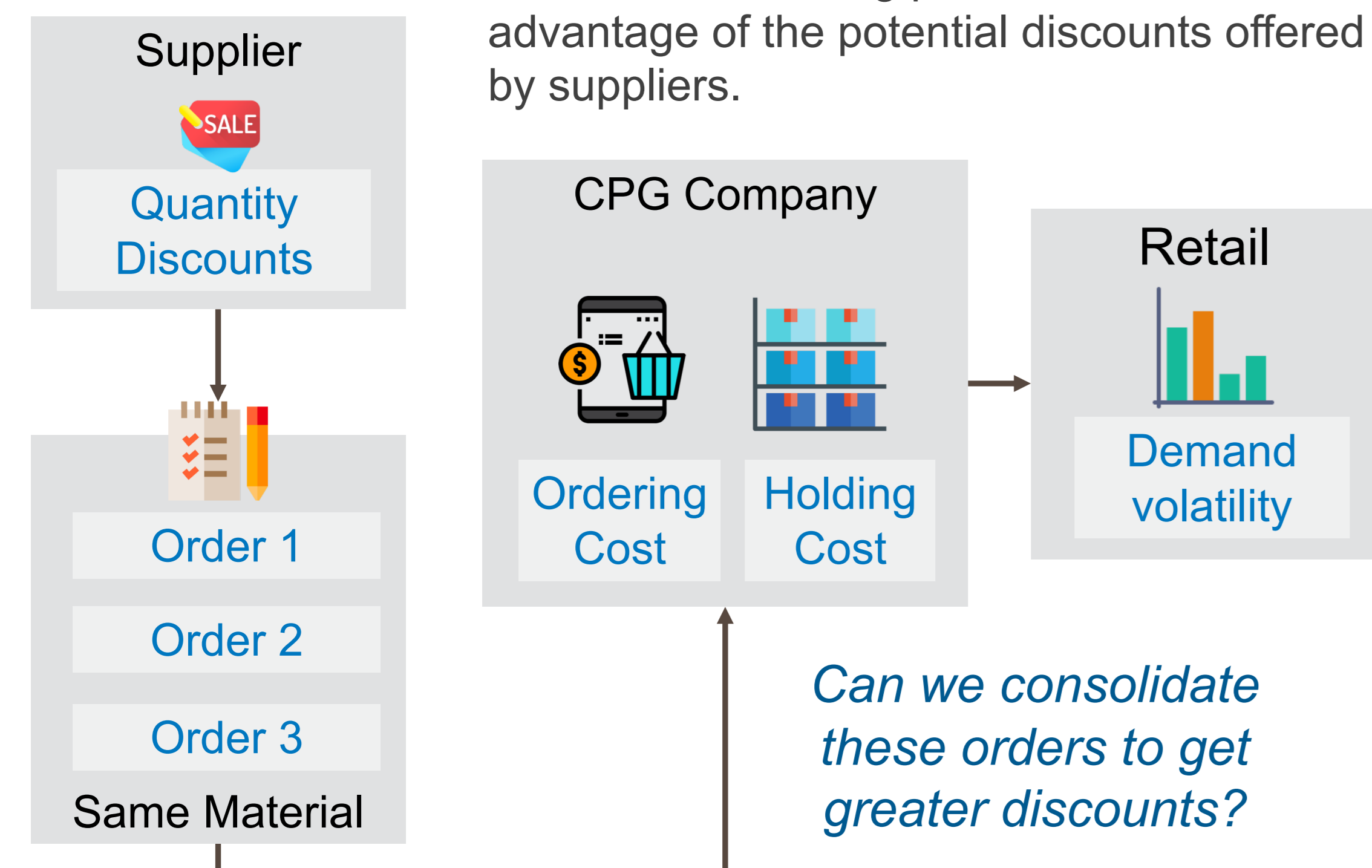
# Switching Rules for Optimal Ordering

## Motivation / Background

High-value CPG with strong spikes in demand.

Raw material suppliers offer incremental discounts for larger order sizes. However, large orders mean higher inventory levels and have associated costs.

The current ordering process does not take advantage of the potential discounts offered by suppliers.



Walk a Tightrope Between Ordering and Holding Cost

## Key Objective

How much raw material should we order?

Material Ordering Cost

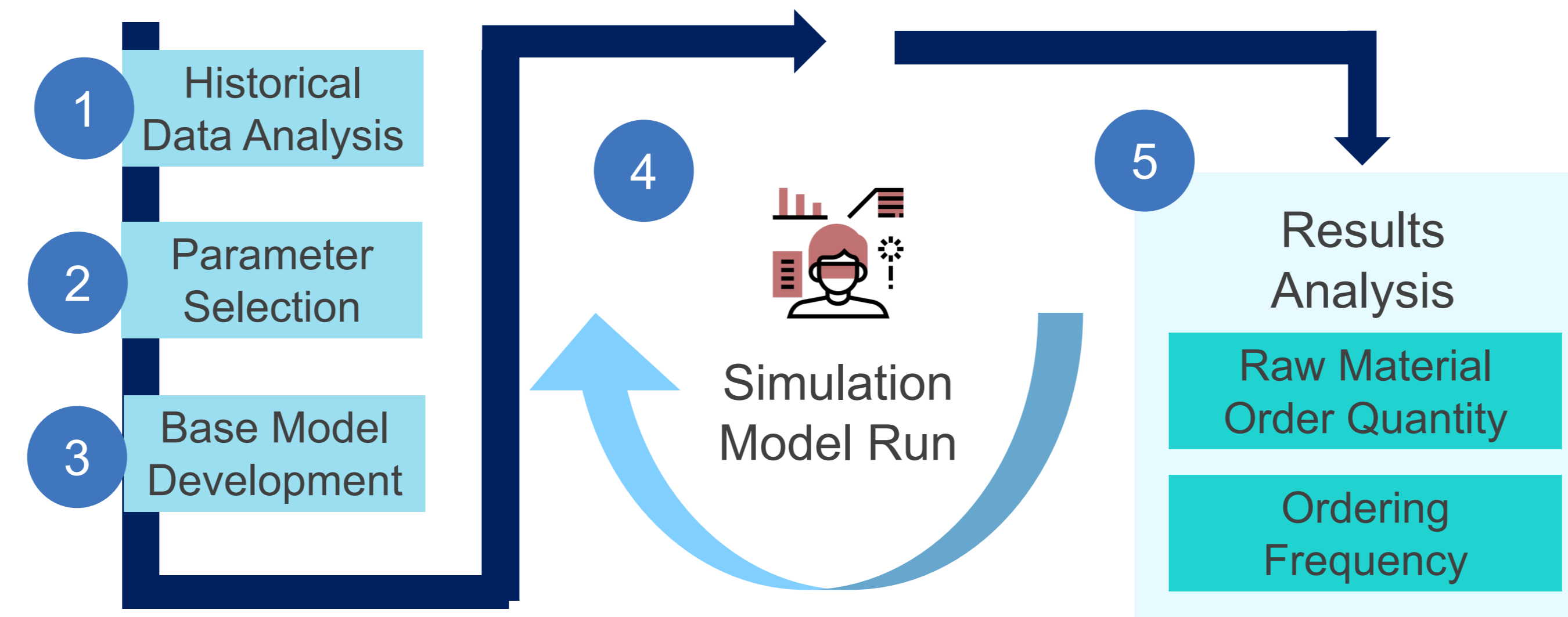
VS

Inventory Holding Cost

## Relevant Literature

Singha, Buddhakulsomsiri, & Parthanadee, P. (2017). Mathematical Model of  $(R, Q)$  Inventory Policy under Limited Storage Space for Continuous and Periodic Review Policies  
 Wang, & Xiao Xia (2015). Evaluation and selection of periodic inventory review policy for irregular demand: A case study.

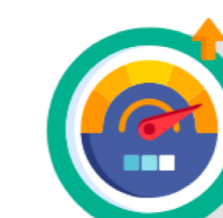
## Methodology



## Results

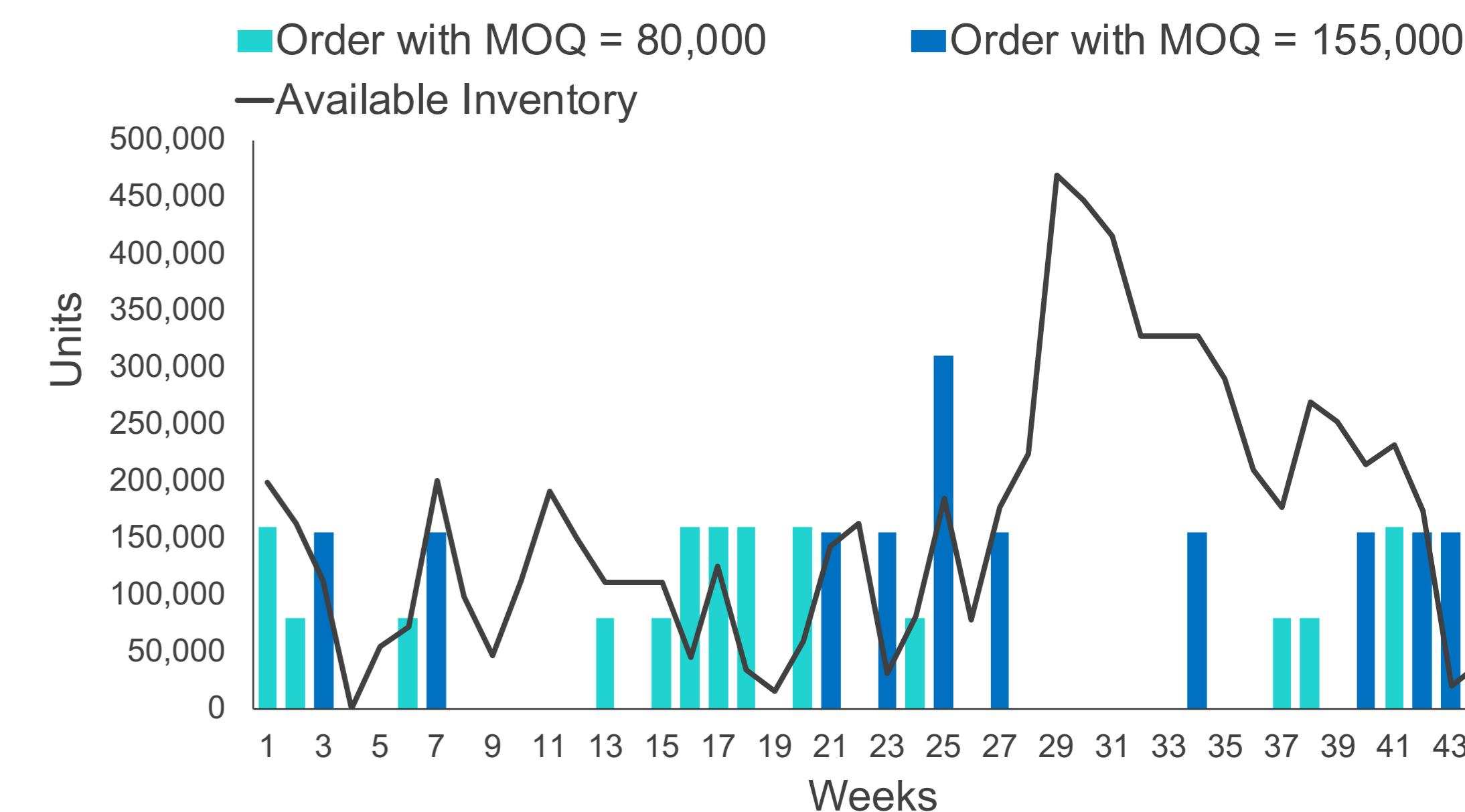


A switching rule is not always a lower cost option



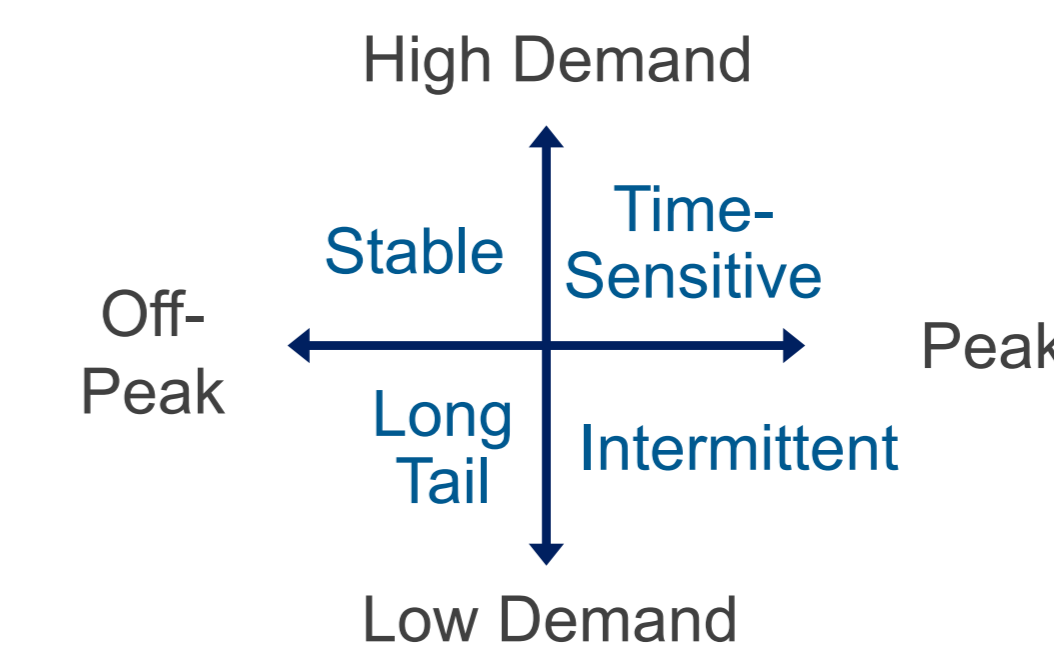
Forecast error and volatility of the demand cause bias

Switching Rule Illustration



## Contribution

- Cost reductions on raw material purchasing
- Provide analytical support to maximize sales
- Recommend optimal policies for different portfolio quadrants



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