

Cash management models

Cash management models are aimed at minimising the total costs associated with movements between:

- A current account, which are very liquid but not earning interest
- Short-term investments, which is less liquid but earn interest

Optimal **cash** holding levels can be calculated from formal models, such as

- **Baumol model**
- **Miller-Orr model**

The Baumol cash management model

Baumol noted that cash balances are very similar to inventory levels, and developed a model based on the economic order quantity (EOQ).

It assumes that cash is used at a steady rate during the year, which will often not be the case

Assumptions:

- Cash use is steady and predictable
- Cash inflows are known and regular / *Constant demand for cash*
- Day-to-day cash needs are funded from current account
- Buffer cash is held in short-term investments

The formula calculates the amount of funds to inject into the current account or to transfer into short-term investments at one time

$$Q = \sqrt{\frac{2C_0D}{C_H}}$$

Where:

C_0 = transaction costs (brokerage, commission, etc.)

D = demand for cash over the period

C_H = cost of holding cash.

The Economic Order =
Quantity of Cash

$$\sqrt{\frac{2 \times \text{Cost of ordering cash} \times \text{Annual cash required}}{\text{Net interest cost of holding cash}}}$$

The model suggests that when interest rates are high, the cash balance held in non-interest-bearing current accounts should be low. However, its weakness is the unrealistic nature of the assumptions on which it is based.