RAMA UNIVERSITY

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FACULTY OF COMMERCE AND MANAGEMENT

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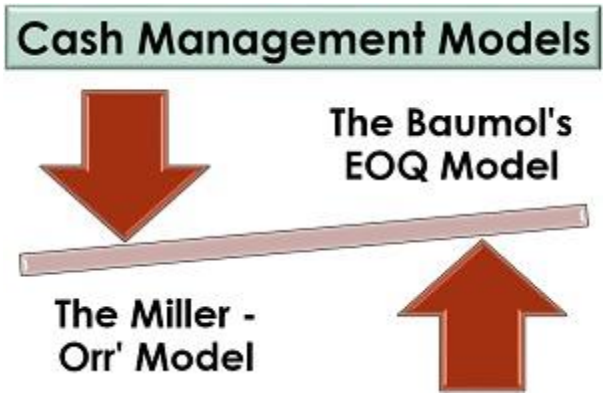
LECTURE-32

CASH MANAGEMENT MODELS

Cash management requires a practical approach and a strong base to determine the requirement of cash by the organization to meet its daily expenses. For this purpose, some models were designed to determine the level of money on different parameters.

The two most important models are discussed in detail below:



Cash Management Models

Let us now elaborate on each of these models

The Baumol's EOQ Model

Based on the Economic Order Quantity (EOQ), in the year 1952, William J. Baumol gave the Baumol's EOQ model, which influences the cash management of the company.

This model emphasizes on maintaining the optimum cash balance in a year to meet the business expenses on the one hand and grab the profitable investment opportunities on the other side.

The following formula of the Baumol's EOQ Model determines the level of cash which is to be maintained by the organization:

$$C = \sqrt{\frac{2FT}{i}}$$

Baumol's Model

Where,

'C' is the optimum cash balance;

'F' is the fixed transaction cost;

'T' is the total cash requirement for that period;

'i' is the rate of interest during the period

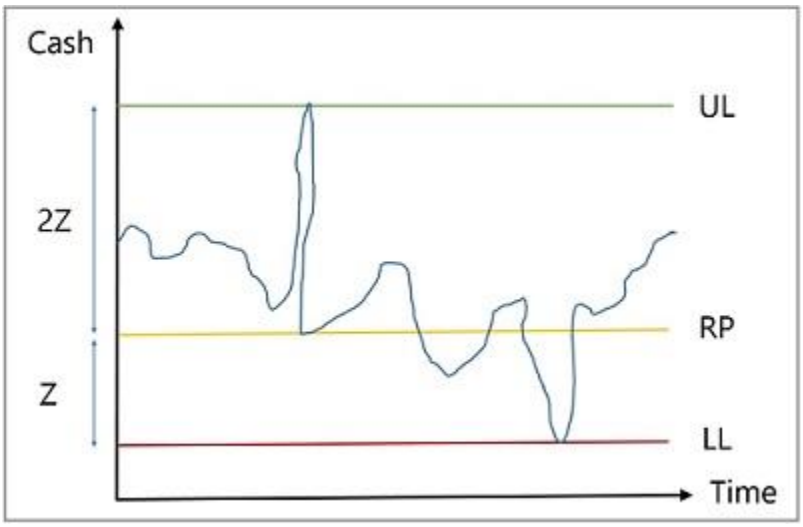
The Miller – Orr' Model

According to Merton H. Miller and Daniel Orr, Baumol's model only determines the cash withdrawal; however, cash is the most uncertain element of the business.

There may be times when the organization will have surplus cash, thus discouraging withdrawals; instead, it may require to make investments. Therefore, the company needs to decide the return point or the level of money to be maintained, instead of determining the withdrawal amount.

This model emphasizes on withdrawing the cash only if the available fund is below the return point of money whereas investing the surplus amount exceeding this level.

Given below is the graphical representation of this model:



Miller - Orr' Model Graph

Where,

'Z' is the spread of cash;

'UL' is the upper limit or maximum level

'LL' is the lower limit or the minimum level

'RP' is the Return Point of cash

We can see that the above graph indicates a lower limit which is the minimum cash a business requires to function. Adding up the spread of cash (Z) to this lower limit gives us the return point or the average cash requirement.

However, the company should not invest the sum until it reaches the upper limit to ensure maximum return on investment. This upper limit is derived by adding the lower limit to the three times of spread (Z). The movement of cash is generally seen across the lower limit and the upper limit.

Let us now discuss the formula of the Miller – Orr' model to find out the return point of cash and the spread across the minimum level and the maximum level:

Miller - Orr' Model

$$Z = \sqrt[3]{\frac{3TV}{4i}}$$

Where,

'Return Point' is the point at which money is to be invested or withdrawn;

'Minimum Level' is the minimum cash required for business sustainability;

'Z' is the spread across the minimum level and the maximum level;

'T' is the transaction cost per transfer;

'V' is the variance of daily cash flow per annum;

'i' is the daily interest rate