The cash conversion cycle (CCC) is given by:

\[ \text{Cash conversion cycle} = \text{Inventory conversion period} + \text{Receivable collection period} - \text{Payable deferral period} \]

For example, if the inventory conversion period is 85 days, the receivable collection period is 70 days, and the payable deferral period is 35 days, then:

\[ \text{Cash conversion cycle} = 85 + 70 - 35 = 120 \text{ days} \]

Assuming a year has 360 days, the cash turnover is calculated as:

\[ \text{Cash turnover} = \frac{360}{\text{CCC}} = \frac{360}{120} = 3 \text{ Times} \]

NB: Alternative formula:

\[ \text{CCC} = \left\{ \frac{360}{\text{cost of sales}} + \frac{\text{Receivables}}{\text{sales}} - \frac{\text{Payable+Actuals}}{\text{cash operating expenses}} \right\} \]
The highest limit, $H$, is given by: $H = 3z - 2L$

The average cost balance $= \frac{4Z - L}{3}$

Where $Z = \text{target cash balance}$

$H = \text{upper limits}$

$L = \text{lower limit}$

$B = \text{fixed transaction cost}$

$i = \text{opportunity cost of daily basis}$

$\delta^2 = \text{variance of net daily cash flows}$

### Cash Balance (Shs)

- **H**: upper limit, $H$
- **Z**: target cash balance, $Z$
- **L**: lower limit, $L$

### Illustration

**ZYX**: Management has set the minimum cash balance to be equal to Sh10,000. The standard deviation of daily cash flow is Sh. 2,500 and the interest rate in marketable securities is 9% p.a. The transaction cost for each sale or purchase of securities is Sh. 20

**Required**: calculate;
- a) The target cash balance
- b) Upper limit
- c) Average cash balance
- d) The spread

### Solution

a) $Z = \left[ \frac{3B\delta^2}{4i} \right]^{1/3} + L = \left( \frac{3 \times 20 \times 2500}{4 \times \frac{9.9}{360}} \right)^{1/3} + 1000$

b) $H = 3z - 2L = 3 \times 17,211 - 2 \times 10,000 = \text{Sh. 31,933}$

c) Av. Cash balance $= \frac{4z - L}{3} = \frac{4 \times 17,211 - 10,000}{3}$