$\mu_i = E(r_i)$

$r_{it} \rightarrow$ return of i^{th} asset at time T

$$y_t = \left| \sum_{i=1}^{n} \underbrace{(r_{it} - \mu_i)}_{c_{it}} x_i \right|$$

$$\mu_i = E(r_i) = \frac{1}{T} \sum_{t=1}^{T} r_{it}$$

$\alpha \rightarrow$ min rate of return required by investor

L_1-risk model is

$$\text{Min } \frac{1}{T} \sum_{t=1}^{T} y_t$$

$$\text{s.t } y_t - \sum_{i=1}^{n} c_{it} x_i \geq 0$$

$$y_t + \sum_{i=1}^{n} c_{it} x_i \geq 0$$

$$\sum_{i=1}^{n} \mu_i x_i \geq \alpha M_0$$

$$\sum x_i = M_0$$

$T = 126 - 4 = 122$

$u_i \rightarrow$ max. amount of money which can be invested in the asset a_i

15 shares, assets

$M_0 = 1$ initial wealth

$T = 122$, $M_0 = 1$

$$\text{Min } \frac{1}{T} \sum_{i=1}^{T} y_t$$

$r_{it} \rightarrow$ realization of the random variable r_i during the period t

Note: initial wealth $M_0 = 1$

a_i = assets = $n = 15$

$x_i \rightarrow$ amount of money to be invested in asset a_i out of M_0

$r_i \rightarrow$ return of the asset a_i

$\mu_i \rightarrow$ expected return rate of the assets a_i

$q_i = E(|r_i - \mu_i|) \rightarrow$ expected absolute deviation of r_i from its mean

expected return of portfolio $= \mu = E\left(\sum r_i x_i\right)$

$= \sum \mu_i x_i$