Further,

$$\frac{d\bar{r}_\alpha}{d\sigma_\alpha} = \frac{d\bar{r}_\alpha / d\alpha}{d\sigma_\alpha / d\alpha}$$

$$\left.\frac{d\bar{r}_\alpha}{d\sigma_\alpha}\right|_{\alpha=0} = \frac{(\bar{r}_i - \bar{r}_M)\,\sigma_M}{\sigma_{iM} - \sigma_M^2}$$

↓

Slope must be equal to slope of capital market line. Hence,

$$\frac{(\bar{r}_i - \bar{r}_M)\,\sigma_M}{\sigma_{iM} - \sigma_M^2} = \frac{\bar{r}_M - r_f}{\sigma_M}$$

Solving for $\bar{r}_i$, we obtain

$$\bar{r}_i = r_f + \frac{(\bar{r}_M - r_f)}{\sigma_M^2}\,\sigma_{iM}$$

$$= r_f + \beta_i (\bar{r}_M - r_f)$$

where $\beta_i = \dfrac{\sigma_{iM}}{\sigma_M^2}$

$\beta$ denotes risk-profile of 'i' asset.

$(\bar{r}_i - r_f)$ = excess return of 'i' stock

$(\bar{r}_M - r_f)$ = " " of market.

Excess return of 'i' stock $\propto$ excess return of mkt

($\beta$ is constant)