

Formulas**Exam 1**

$$(1+r) = (1+R)(1+E(i))$$

$$r = R+E(i)+(R * E(i))$$

$$(1+_0r_t)^t = (1+_0r_1)(1+_1f_2)(1+_2f_3)\dots(1+_{(t-1)}f_t)$$

$$(1+_{t-1}f_t) = \frac{(1+_0r_t)^t}{(1+_0r_1)(1+_1f_2)\dots(1+_{t-2}f_{t-1})} = \frac{(1+_0r_t)^t}{(1+_0r_{t-1})^{t-1}}$$

$$r_{at} = r_{bt}(1-t)$$

$$B_0 = C \left[\frac{1 - \left(\frac{1}{(1+r)^n} \right)}{r} \right] + \frac{F}{(1+r)^n}$$

$$B_0 = \left(\frac{C}{m} \right) \left[\frac{1 - \left(\frac{1}{\left(1 + \left[\frac{r}{m} \right] \right)^{n*m}} \right)}{\left(\frac{r}{m} \right)} \right] + \frac{F}{\left(1 + \left[\frac{r}{m} \right] \right)^{n*m}}$$

$$B_0 = \frac{(c/m) * (a/b)}{\left(1 + \left[\frac{r}{m} \right] \right)^{(1\%)} } + \frac{(c/m)}{\left(1 + \left[\frac{r}{m} \right] \right)^{(1+\%)} } + \frac{(c/m)}{\left(1 + \left[\frac{r}{m} \right] \right)^{(2+\%)} } + \frac{(c/m)}{\left(1 + \left[\frac{r}{m} \right] \right)^{(3+\%)} } + \dots + \frac{(c/m)}{\left(1 + \left[\frac{r}{m} \right] \right)^{(n-1+\%)} } + \frac{F}{\left(1 + \left[\frac{r}{m} \right] \right)^{(n-1+\%)} }$$

$$D = \left[\frac{\left(\sum_{t=1}^n \frac{t * C}{(1+r)^t} \right) + \frac{n * F}{(1+r)^n}}{B} \right]$$

$$Convexity = \left[\frac{\left(\sum_{t=1}^n \frac{t * (t+1) * C}{(1+r)^{(t+2)}} \right) + \frac{n * (n+1) * F}{(1+r)^{(n+2)}}}{B} \right]$$

$$\frac{\Delta B}{B} \approx -D \left[\frac{\Delta r}{(1+r)} \right] + \frac{1}{2} (Convexity) (\Delta r)^2$$

$$B_0 = \frac{C}{(1+r_1)} + \frac{C}{(1+r_2)^2} + \frac{C}{(1+r_3)^3} + \dots + \frac{C}{(1+r_n)^n} + \frac{F}{(1+r_n)^n}$$