Principais Fórmulas

1 Aula 12 - Matemática Financeira

$$a_{\overline{n}|} = \frac{1-(1+i)^{-n}}{i} = \frac{1-v^n}{i}$$

$$\ddot{a}_{\overline{n}|} = \frac{(1+i).\,[1-(1+i)^{-n}]}{i} = \frac{1-v^n}{d}$$

$$a_{\overline{\infty}|} = \frac{1+i}{i} = \frac{1}{d}$$

$$\ddot{a}_{\overline{\infty}|} = \frac{1}{i}$$

$$s_{\overline{n}|} = (1+i)^n.\, a_{\overline{n}|} = \frac{(1+i)^n - 1}{i}$$

2 Aula 13 - Tabelas de Vida

$$e_x = \sum_{t=1}^{\infty} {}_tp_x$$

$$e_{x:\overline{n}|} = \sum_{t=1}^{n} {}_tp_x$$

$$\mathring{e}_x = \int_0^{\infty} {}_tp_x\, dt$$

$$\mathring{e}_{x:\overline{n}|} = \int_0^{n} {}_tp_x\, dt$$

$$\mathring{e}_{80:\overline{10}|} = \int_0^{10} {}_tp_{80}\, dt$$

3 Aula 14 - Precificação de Seguros

$$A^1_{x:\overline{n}|} = \sum_{k=1}^{n} v^k . P(T_x \in [k-1, k)) = \sum_{k=1}^{n} v^k . {}_{k-1}p_x . q_{x+k-1}$$

$$D_x = l_x . v^x \qquad d_x = l_x - l_{x+1} \qquad C_x = d_x . v^{x+1}$$

$$N_x = \sum_{k=0}^{\omega-x} D_{x+k} \qquad S_x = \sum_{k=0}^{\omega-x} N_{x+k}$$

$$M_x = \sum_{k=0}^{\omega-x} C_{x+k} \qquad R_x = \sum_{k=0}^{\omega-x} M_{x+k}$$

$$A_x = \frac{M_x}{D_x}$$

$${}_nE_x = \frac{D_{x+n}}{D_x}$$

$${}_{n|}A_x = {}_nE_x \cdot A_{x+n} = \frac{M_{x+n}}{D_x}$$

$$A^1_{x:\overline{n}|} = \frac{M_x - M_{x+n}}{D_x}$$

$$A^1_{x:\overline{n}|} = \frac{M_x - M_{x+n}}{D_x}$$

$$\begin{aligned} VPA &= 100.000 \times A^1_{36:\overline{3}|} \\ &= 100.000 \times \sum_{k=1}^{3} v^k . {}_{k-1}p_x . q_{x+k-1} \end{aligned}$$

$$A^1_{36:\overline{3}|} = \frac{M_{36} - M_{36+3}}{D_{36}}$$

$$(IA)_x = \sum_{k=0}^{\infty}(k+1).\, v^{k+1}.\, {}_{k|}q_x$$

$$(n+1)A^1_{x:\overline{n}|} = (DA)^1_{x:\overline{n}|} + (IA)^1_{x:\overline{n}|}$$

$$A^{(m)}_x = \sum_{k=0}^{\infty} v^{\frac{k+1}{m}}\, {}_{\frac{k}{m}|\frac{1}{m}}q_x$$

$$A^{1\ (m)}_{x:\overline{n}|} = \frac{i}{i^{(m)}} A^1_{x:\overline{n}|}$$

$$\ddot{a}_x = \frac{N_x}{D_x}$$

$$a_x = \frac{N_{x+1}}{D_x}$$

$${}_{n|}\ddot{a}_x = \frac{N_{x+n}}{D_x} = \ddot{a}_{x+n}.\, \frac{D_{x+n}}{D_x}$$

$$\ddot{a}_{x:\overline{n}|} = \frac{N_x - N_{x+n}}{D_x} = \ddot{a}_x - {}_{n|}\ddot{a}_x$$

$$P \times \ddot{a}_{25:\overline{10}|}$$