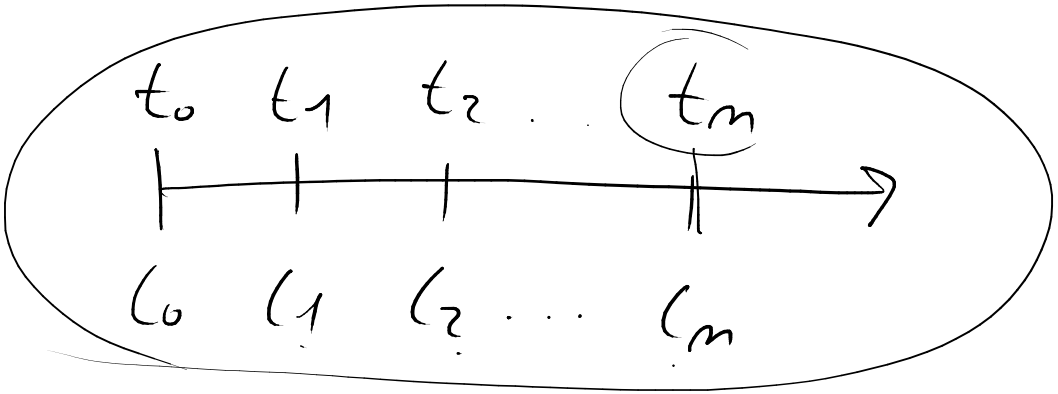
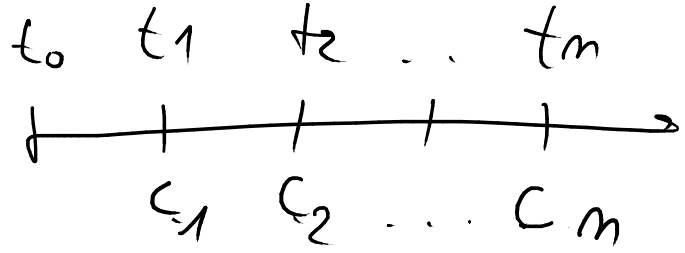
INDICI TEMPORALI DI UN FLUSSO DI PAGAMENTI

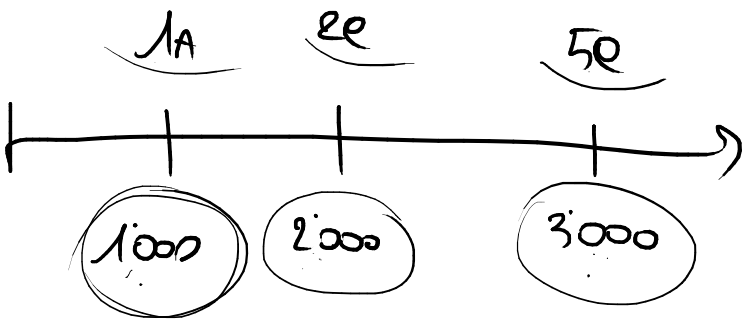


1) VITA A SCADENZA $t_m - t_0$
2) SCADENZA MEDIA ARITMETICA
3) SCADENZA MEDIA
4) DURATION

SCADENZA MEDIA ARITMETICA



$$\bar{t} = \frac{\sum_{k=1}^{m} C_k \, t_k}{\sum_{k=1}^{m} C_k} = \sum_{k=1}^{m} t_k \cdot \frac{C_k}{\sum_{k=1}^{m} C_k}$$

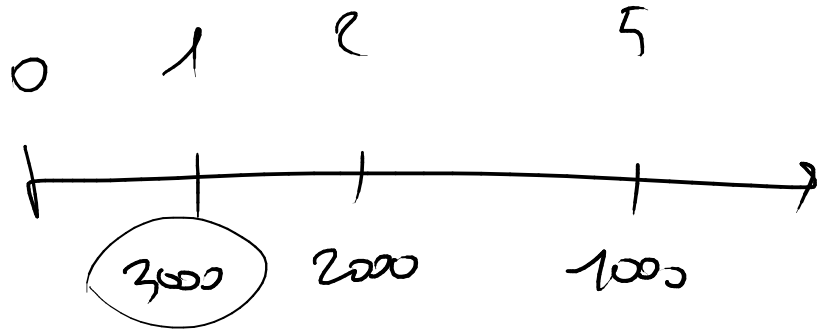


$$\bar{t} = (1)\cdot\frac{1000}{6000} + (2)\cdot\frac{2000}{6000} + (5)\frac{3000}{6000} = 3{,}33$$

Anni

$$\bar{t} = \sum t_k \cdot \frac{C_k}{\sum C_k = 6000}$$

3A		0,33 × 12 =
3m		mesi
28 gg	3,96	0,96 × 30



$$\bar{t} = 1 \cdot \frac{3000}{6000} + 2 \cdot \frac{2000}{6000} + 5 \cdot \frac{1000}{6000}$$

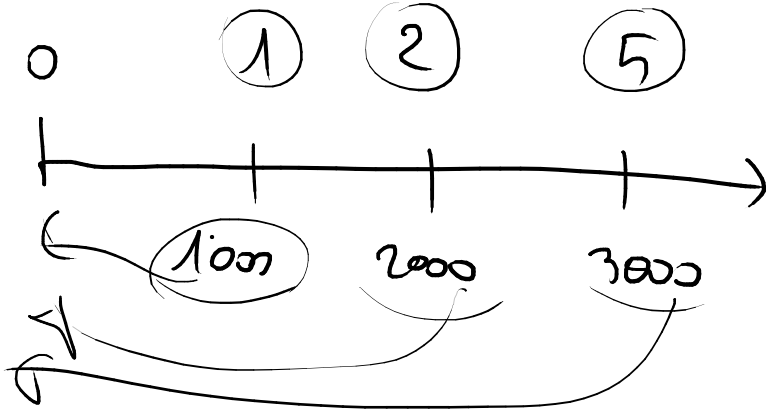
$$\bar{t} = \frac{3}{6} + \frac{4}{6} + \frac{5}{6} = \frac{12}{6} = 2 \text{ Anni}$$

NON ATTUALIZZA FLUSSI CASSA

SCADENZA MEDIA :

è lo SCADENZO DI UN CAPITALE = $\sum_{k=1}^{n} C_k$

in modo che $V.A.\left[\sum_{k=1}^{n} C_k\right] = \sum_{k=1}^{n} V.A.(C_k)$



1) C.C.
2) CAP semplice
3) CAP. int. AM

$V.A.(6000) = VA(1000) + VA(2000) + VA(3000)$

$$6000(1+i)^{-2} = 1000(1+i)^{-1} + 2000(1+i)^{-2} + 3000(1+i)^{-5}$$

S.N.

6% Ann.

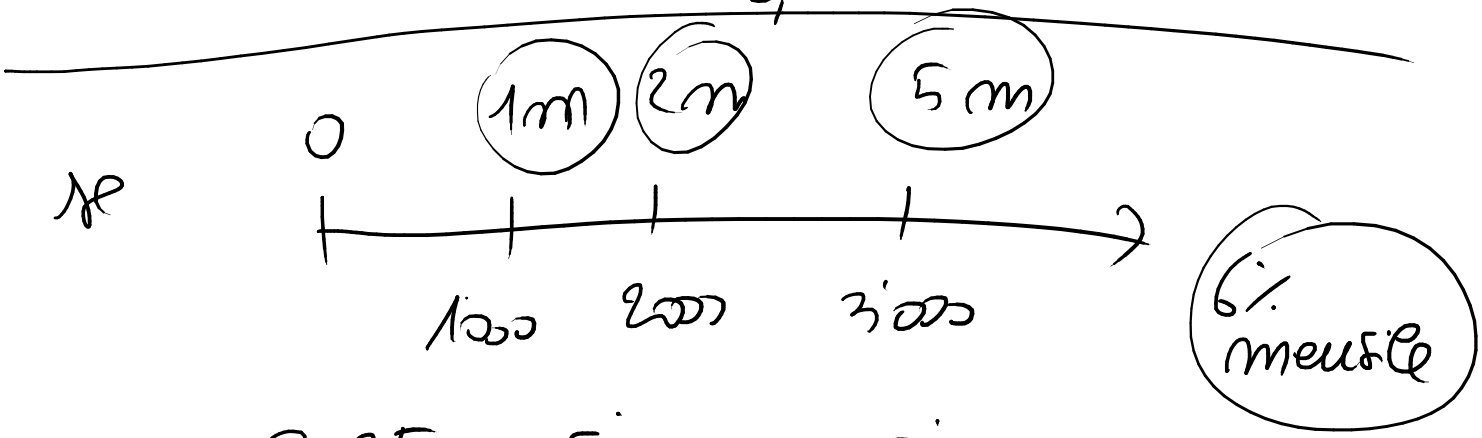
$$(1+6\%)^{-2} = \frac{1000}{6000}(1+6\%)^{-1} + \frac{2000}{6000}(1+6\%)^{-2} + \frac{3000}{6000}(1+6\%)^{-5}$$

$$\ln(1+6\%)^{-2} = \ln[0{,}8274]$$

$$-z = \frac{\ln[0,8274\quad]}{\ln(1,06)}$$

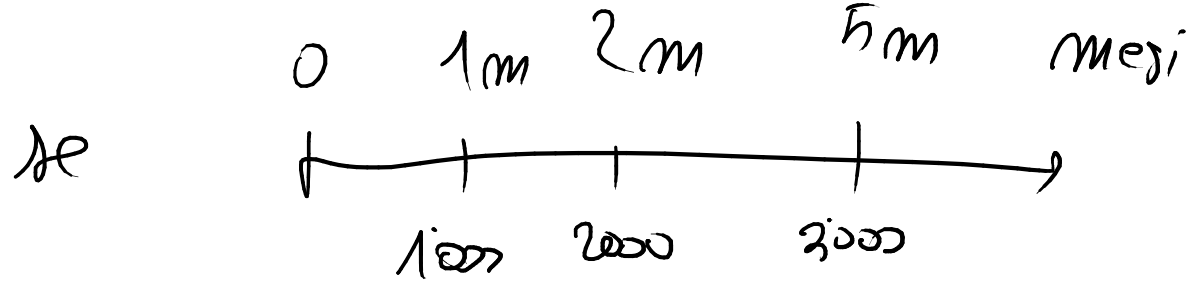
$z = +3,25 = 3$ ANNI

$0,25 \times 12 = 3$ mesi



$z = 3,25$ mesi 3 mesi

$0,25 \times 30 =$ GIORNI 7



6% ANNUALE

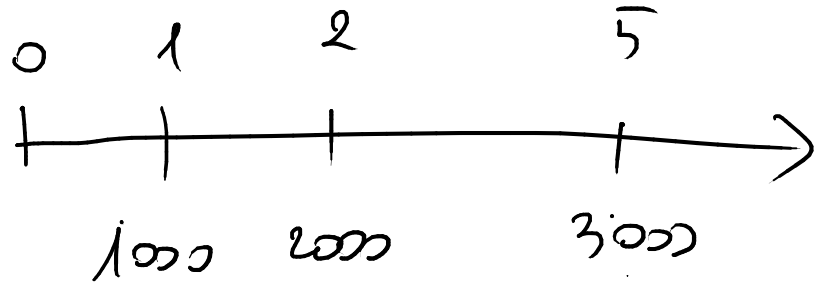
se voglio t in mesi : $\left(1+i_{12}\right)^{12} = \left(1+6\%\right)$

$$6000\left(1+i_{12}\right)^{-2} = 1000\left(1+i_{12}\right)^{-1} + 2000\left(1+i_{12}\right)^{-2} + 3000\left(1+i_{12}\right)^{-5}$$

se voglio t in ANNI : 6% ANNUALE

$$6000\left(1+i\right)^{-2} = 1000\left(1+i\right)^{-\frac{1}{12}} + 2000\left(1+i\right)^{-2/12} + 3000\left(1+i\right)^{-5/12}$$

CAP. semplice:



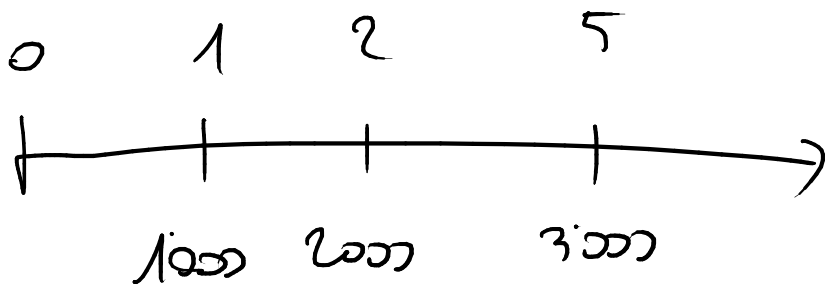
$$\frac{6000}{1+i\cdot 2} = \frac{1000}{1+i\cdot 1} + \frac{2000}{1+i\cdot 2} + \frac{3000}{1+i\cdot 5}$$

$i = 6\%$

$$1+6\%\cdot 2 = \left[\frac{6000}{5036{,}8}\right]_R$$

$$2 = \frac{[1{,}19] - 1}{0{,}06} = \frac{0{,}19}{0{,}06} = 3{,}17$$

Cal. int nul :



$$6000\left[1-d^{2}\right]=1000\left[1-d\cdot 1\right]+2000\left(1-d\cdot 2\right)$$

$$+3000\left[1-d\cdot 5\right]$$

$$6000-6000\cdot d^{2}=1000-1000d+2000-2000\cdot 2\cdot d$$

$$+3000-3000\cdot d\cdot 5$$

$$z = \frac{-1000}{-6000} + \frac{-2000 \cdot 2}{-6000} + \frac{-3000 \cdot 5}{-6000}$$

$$z = \frac{1000 \cdot 1}{6000} + \frac{2000 \cdot 2}{6000} + \frac{3000 \cdot 5}{6000} = 3,33$$

$$z = 1 \cdot \frac{1000}{6000} + 2 \cdot \frac{2000}{6000} + 5 \cdot \frac{3000}{6000} = \text{S.M.A.}$$

δπ nel regime cap. int. ant = **S.M.A.**

$$\left[\sum_{k=1}^{n} C_k\right](1-dz) = \sum_{k=1}^{n} C_k(1-d_k)$$

$$(1-dz) = \frac{\sum_{k=1}^{n} C_k(1-d_k)}{\sum_{k=1}^{n} C_k}$$

$$dz = \left[1 - \frac{\sum C_k(1-d_k)}{\sum C_k}\right]$$

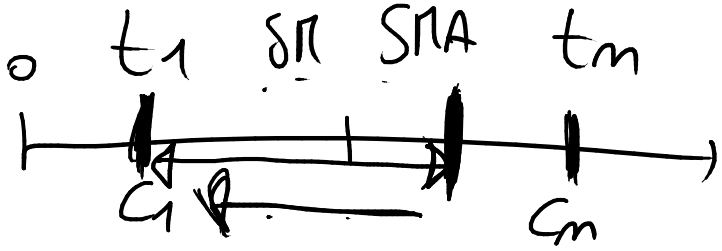
$$z = \frac{1}{d}\left[\frac{\varepsilon C_k - \varepsilon C_k(1-d_k)}{\varepsilon C_k}\right] =$$

$$z = \frac{1}{d}\left[\frac{\cancel{\mathcal{E}_i C_k} - \cancel{\mathcal{E}_i C_k} + \mathcal{E}_i C_k \cdot d \cdot k}{\mathcal{E}_i C_k}\right]$$

$$z = \frac{1}{d}\left[\frac{\mathcal{E}_i C_k \cdot d \cdot k}{\mathcal{E}_i C_k}\right] = \frac{1}{\cancel{d}} \cdot \cancel{d} \cdot \frac{\mathcal{E}_i C_k \cdot k}{\mathcal{E} C_k}$$

$$z = \frac{\mathcal{E}_i k \cdot C_k}{\mathcal{E}_i C_k} = \text{S.Π.A.}$$

Proprietà scadenza media in capitalizz composta:



1) $t_1 \leq \delta\Pi \leq t_n$

2) $\delta\Pi < SMA$

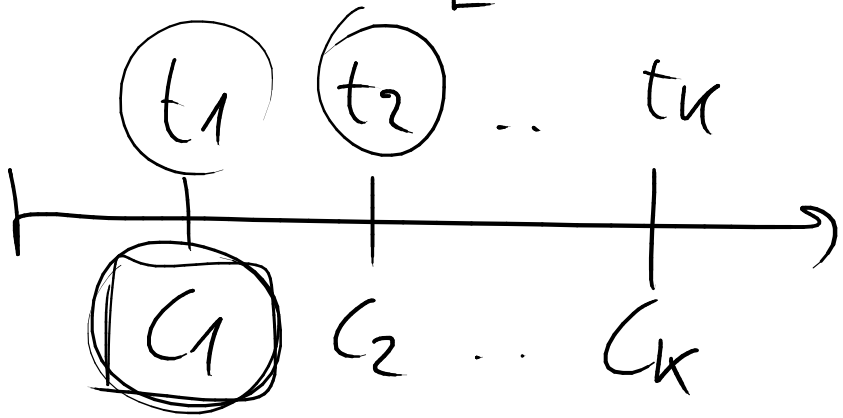
3) $\frac{dz}{di} < 0$

4) $\lim_{i \to 0^+} \delta\Pi = SMA$

5) $\lim_{i \to +\infty} \delta\Pi = t_1$

DURATION

$$D = \sum_{k=1}^{m} t_k \left[\frac{C_k (1+i)^{-k}}{\sum_{k=1}^{m} C_k (1+i)^{-k}} \right]$$



$$D = 1 \cdot \frac{1000(1+6\%)^{-1}}{\underbrace{1000(1+6\%)^{-1} + 2000(1+6\%)^{-2} + 3000(1+6\%)^{-5}}_{P}}$$

$$+ 2 \cdot \frac{2000(1+6\%)^{-2}}{P} + 5 \cdot \frac{3000(1+6\%)^{-5}}{P}$$

$$P = 4'965,16$$

$$D = 1 \cdot p_1 + 2 \cdot p_2 + 5 \cdot p_5$$

$$\sum p_k = 1$$

$$D = 1 \cdot \frac{943,60}{4965,16} + 2 \cdot \frac{1779,99}{4965,16} + 5 \cdot \frac{2241,77}{4965,16}$$

$$D = 1 \cdot 0,19 + 2 \cdot 0,36 + 5 \cdot 0,45 = 3,16$$

somma pesi = 1

$i = 0$

DURATION = SMA.

$$D = 1 \cdot \left[\frac{1000}{6000}\right] + 2 \cdot \left[\frac{2000}{6000}\right] + 5 \cdot \left[\frac{3000}{6000}\right]$$