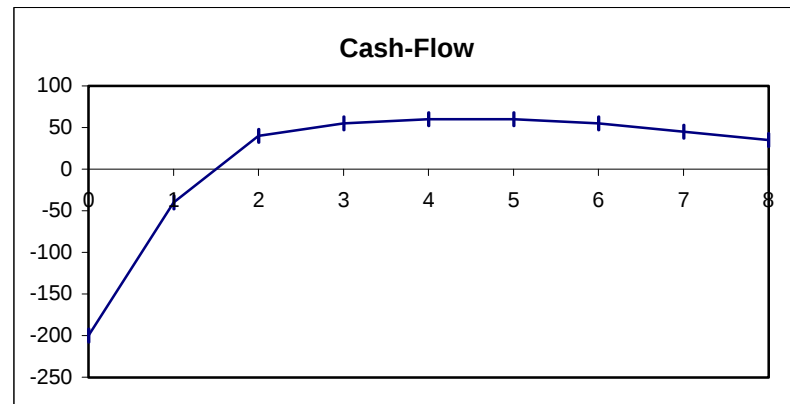


k	Q_k
0	-200
1	-40
2	40
3	55
4	60
5	60
6	55
7	45
8	35
S	110



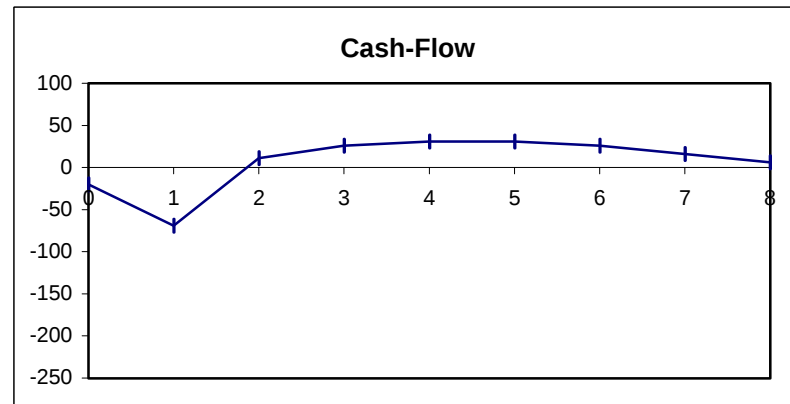
$$P = 180$$

$$n = 8$$

$$i_e = 6\%$$

$$R = P \cdot \frac{i_e \cdot (1 + i_e)^n}{(1 + i_e)^n - 1} \quad R = 28,99$$

k	Q_k
0	-20
1	-68,99
2	11,01
3	26,01
4	31,01
5	31,01
6	26,01
7	16,01
8	6,01
S	58,11



k	Q _k	i ₁ = 8%		i ₂ = 9%	
		(1 + i ₁) ^{-k}	P _{Qk1}	(1 + i ₂) ^{-k}	P _{Qk2}
0	-200	1,0000	-200,00	1,0000	-200,00
1	-40	0,9259	-37,04	0,9174	-36,70
2	40	0,8573	34,29	0,8417	33,67
3	55	0,7938	43,66	0,7722	42,47
4	60	0,7350	44,10	0,7084	42,51
5	60	0,6806	40,83	0,6499	39,00
6	55	0,6302	34,66	0,5963	32,79
7	45	0,5835	26,26	0,5470	24,62
8	35	0,5403	18,91	0,5019	17,57
S	110		5,68		-4,08

IRR ≅ 8,58%

P = 180

n = 8

i_e = 6%

$$R = P_* \frac{i_e(1+i)^n}{(1+i_e)^n - 1}$$

R = 28,99

$$\text{IRR} @ i_1 + (i_2 - i_1) * \frac{P_1}{(P_1 - P_2)}$$

k	Q _k	i ₁ = 14%		i ₂ = 15%	
		(1 + i ₁) ^{-k}	P _{Qk1}	(1 + i ₂) ^{-k}	P _{Qk2}
0	-20	1,0000	-20,00	1,0000	-20,00
1	-68,99	0,8772	-60,51	0,8696	-59,99
2	11,01	0,7695	8,47	0,7561	8,33
3	26,01	0,6750	17,56	0,6575	17,10
4	31,01	0,5921	18,36	0,5718	17,73
5	31,01	0,5194	16,11	0,4972	15,42
6	26,01	0,4556	11,85	0,4323	11,25
7	16,01	0,3996	6,40	0,3759	6,02
8	6,01	0,3506	2,11	0,3269	1,97
S	58,11		0,35		-2,17

IRR ≅ 14,14%

k	Q _k	P ⁻			S ⁺		
		Q _k ⁻	(1 + i _e) ^{-k}	P _{Qk} ⁻	Q _k ⁺	(1 + i _e) ^{n-k}	S _{Qk} ⁺
0	-200	200	1,0000	200,00	0	1,5938	0,00
1	-40	40	0,9434	37,74	0	1,5036	0,00
2	40	0	0,8900	0,00	40	1,4185	56,74
3	55	0	0,8396	0,00	55	1,3382	73,60
4	60	0	0,7921	0,00	60	1,2625	75,75
5	60	0	0,7473	0,00	60	1,1910	71,46
6	55	0	0,7050	0,00	55	1,1236	61,80
7	45	0	0,6651	0,00	45	1,0600	47,70
8	35	0	0,6274	0,00	35	1,0000	35,00
S	110	240		238	350		422

ORR = 7,44%

DP = 27,06

P = 180

n = 8

i_e = 6%

$$R = P_* \frac{i_e(1+i)^n}{(1+i_e)^n - 1}$$

R = 28,99

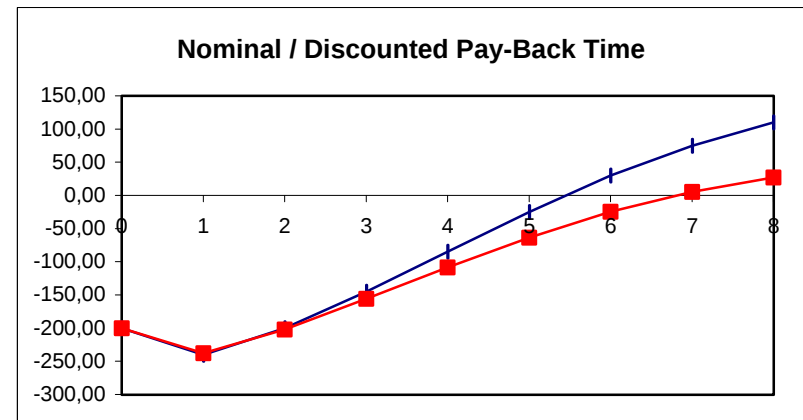
$$ORR = (S^+ / P^-)^{-n} - 1$$

k	Q _k	P ⁻			S ⁺		
		Q _k ⁻	(1 + i _e) ^{-k}	P _{Qk} ⁻	Q _k ⁺	(1 + i _e) ^{n-k}	S _{Qk} ⁺
0	-20	20,00	1,0000	20,00	0,00	1,5938	0,00
1	-68,99	68,99	0,9434	65,08	0,00	1,5036	0,00
2	11,01	0,00	0,8900	0,00	11,01	1,4185	15,62
3	26,01	0,00	0,8396	0,00	26,01	1,3382	34,81
4	31,01	0,00	0,7921	0,00	31,01	1,2625	39,15
5	31,01	0,00	0,7473	0,00	31,01	1,1910	36,94
6	26,01	0,00	0,7050	0,00	26,01	1,1236	29,23
7	16,01	0,00	0,6651	0,00	16,01	1,0600	16,97
8	6,01	0,00	0,6274	0,00	6,01	1,0000	6,01
S	58,11	89		85	147		179

ORR = 9,72%

DP = 27,06

k	Q _k	i _e = 0%		i _e = 6%	
		(1 + i _e) ^{-k}	S _{L=0} ^k P _{QL}	(1 + i _e) ^{-k}	S _{L=0} ^k P _{QL}
0	-200	1,0000	-200,00	1,0000	-200,00
1	-40	1,0000	-240,00	0,9434	-237,74
2	40	1,0000	-200,00	0,8900	-202,14
3	55	1,0000	-145,00	0,8396	-155,96
4	60	1,0000	-85,00	0,7921	-108,43
5	60	1,0000	-25,00	0,7473	-63,60
6	55	1,0000	30,00	0,7050	-24,82
7	45	1,0000	75,00	0,6651	5,10
8	35	1,0000	110,00	0,6274	27,06
S	110	NPBT	5,4	DPBT	6,8



P = 180

n = 8

i_e = 6%

$$R = P \cdot \frac{i_e(1+i)^n}{(1+i_e)^n - 1}$$

R = 28,99

k	Q _k	i _e = 0%		i _e = 6%	
		(1 + i _e) ^{-k}	S _{L=0} ^k P _{QL}	(1 + i _e) ^{-k}	S _{L=0} ^k P _{QL}
0	-20	1,0000	-20,00	1,0000	-20,00
1	-68,99	1,0000	-88,99	0,9434	-85,08
2	11,01	1,0000	-77,97	0,8900	-75,28
3	26,01	1,0000	-51,96	0,8396	-53,44
4	31,01	1,0000	-20,95	0,7921	-28,87
5	31,01	1,0000	10,07	0,7473	-5,70
6	26,01	1,0000	36,08	0,7050	12,64
7	16,01	1,0000	52,09	0,6651	23,29
8	6,01	1,0000	58,11	0,6274	27,06
S	58,11	NPBT	4,7	DPBT	5,3

