MyStudyBro - Revision Exercise Tool

This Revision Handout includes the Questions and Answers of a total of 2 exercises!

Chapters:

Capital Investment Appraisal - ACC25 (Cy MOEC)

QUESTION 4

The managers of Fresco Ice cream Company wish to purchase a new machine to replace an old machine that has become too expensive to repair. There are two machines which are capable of producing the quality of the ice cream they desire.

The following information is available for the two machines:

Year		Machine F	Machine G
0	Initial cost of investment	10.000	10.000
	Estimated net cash flows:		
1		4.500	3.500
2		2.500	3.500
3		2.500	4.000
4		2.500	2.500
5		1.000	1.500
5	Proceeds from scrap value of machine	1.500	2.000

REQUIRED:

(a)

i. Calculate the exact payback period in years and months for each project **(Marks 4)**

ii. Calculate the Average Rate of Return (ARR) for each project **(Marks 10)**

(b) Να συμβουλεύσετε τους διευθυντές ποια μηχανή πρέπει να αγοράσουν. Να δικαιολογήσετε την απάντησή σας.
(Advice the managers of Fresco Ice cream Company which machine they should purchase. Give reasons for your answer). **(Marks 3)**

(c) The managers of Fresco's Ice cream Company are concerned about the level of borrowing. Fresco Ice cream Company financed its operations as follows:

- €0,50 Ordinary shares €500.000
- €1 Redeemable Preference shares €600.000
- 9% Bank Loan €900.000

REQUIRED:

i. Calculate the gearing ratio **(Marks 2)**

ii. Comment on the level of Fresco's Ice cream Company gearing. **(Marks 1)**

(Total Marks 20)

ANSWER TO QUESTION 4

(α) (i) PAYBACK:

Machine F

year	Cash flows €	Cumulative cash flows
0	(10.000)	(10.000)
1	4.500	(5.500)
2	2.500	(3.000)
3	2.500	(500)
4	2.500	2.500
The Payback period of machine F is **3 years and 2,4* months** 500/2.500X12=2,4 months		

Machine G

year	Cash flows €	Cumulative cash flows)
0	(10.000)	(10.000)
1	3.500	(6.500)
2	3.500	(3.000)
3	4.000	1.000
4	2.500	3.500
The Payback period of machine G is **2 years and 9 *months** *3.000/4.000x12=9 months		

(Marks 4)

(ii) Average Rate of Return (ARR)

Year	Machine F			Machine G		
	Cash flows	Depn*	Net Profit	Cash flows	Depn**	Net Profit
	€	€	€	€	€	€
1	4.500	1.700	2.800	3.500	1.600	1.900
2	2.500	1.700	800	3.500	1.600	1.900
3	2.500	1.700	800	4.000	1.600	2.400
4	2.500	1.700	800	2.500	1.600	900
5	1.000	1.700	(700)	1.500	1.600	(100)
			4.500			7.000
		Average profit	4.500/5= 900		Average profit	7.000/5= 1.400

*10.000-1.500=8.500/5=1.700 per year

**10.000-2.000=8.000/5=1.600 per year

Machine F ARR=Average net profit /initial capital
ARR= 900x100/10.000=**9%**

Machine G ARR=Average net profit /initial capital
ARR= 1.400x100/10.000=**14%** **(Marks 10)**

(b) The managers of Fresco Ice cream Company **should purchase machine G** because it has the:

- ✓ **Shortest Payback period**
- ✓ **Higher ARR than machine F**

(Κεφ.9.3, 9.4 σελ.177-180) **(Marks 3)**

(c) Calculation of Gearing:

$$\text{Gearing ratio} = \frac{€900.000+€600.000}{€900.000+€600.000+€500.000} = \underline{75\%}$$ **(Marks 2)**

Η εταιρεία έχει **75%,** δείκτη δανειακής επιβάρυνσης που **θεωρείται ψηλό** αφού είναι ένδειξη ότι αυτή χρηματοδοτείται κυρίως από ξένα κεφάλαια, **εξαρτάται από δάνεια** και **περικλείει κινδύνους** σε περίπτωση μη αποπληρωμής τους.
(The company is highly geared. It is mainly financed by external sources and is therefore at high risk)

(Κεφ.7.7, σελ.145-146) **(Mark 1)**

(Total Marks 20)

QUESTION 1

The managers of Alpha Printers Ltd wish to purchase a new printing machine. They will use the machine for four (4) years. There are two machines that are capable of producing the quality of work that is desired**,** machine CN and machine HP. The current cost of capital for Alpha Printers Ltd is 10%.

The following is an extract from the present value tables of €1:

	Discount factors at 10 %
Years: 1	0,909
2	0,826
3	0,751
4	0,683

The following information is available for the two machines:

	Machine CN	**Machine HP**
	€	**€**
Initial Cost	200.000	200.000
Net Cash Flows		
Years: 1	80.000	40.000
2	92.000	100.000
3	110.000	118.000
4	106.000	212.000

Additional information:

- All receipts and payments will take place at the end of the year
- Profit accrues evenly throughout each year
- The depreciation is charged on a straight line basis (zero scrap value).

REQUIRED:

(a) Calculate for each machine the:

i. Payback Period **(Marks 4)**

ii. Net Present Value (NPV) **(Marks 7)**

iii. Accounting Rate of Return (ARR) **(Marks 6)**

(b) Να συμβουλεύσετε τους διευθυντές ποια μηχανή πρέπει να επιλέξουν. Να δικαιολογήσετε την απάντησή σας.
(Advise the managers of Alpha Printers Ltd, giving reasons, as to which machine they should purchase). **(Marks 3)**

(Total Marks 20)

QUESTION 1 ***(Answer)***

(a)

i. Payback period

Machine CN			**Machine YP**		
		Net cash flow €			Net cash flow €
Initial Cost		200.000	Initial Cost		200.000
Net cash flow year	1	(80.000)	Net cash flow year	1	(40.000)
	2	(92.000)		2	(100.000)
		28.000			60.000
	3	110.000		3	118.000
2,25* years *28.000/110.000 Or					
2 years and 3** months			2,51* years *60.000/118.000		
			Or 2 years and 6 months		
**28.000/110.000x12					
			**60.000/118.000 x12		

(Marks 4)

ii. Net Present Value

		Machine CN			**Machine HP**	
Year	**10%**	**Net cash flow €**	**Present Value €**		**Net Cash flow €**	**Present Value €**
0	1,000	(200.000)	(200.000)		(200.000)	(200.000)
1	0,909	80.000	72.720		40.000	36.360
2	0,826	92.000	75.992		100.000	82.600
3	0,751	110.000	82.610		118.000	88.618
4	0,683	106.000	72.398		212.000	144.796
		NPV	**103.720**		**NPV**	**152.374**

(Marks 7)

iii. Accounting rate of return

$$\textbf{Μέση απόδοση } (\textbf{ARR}) = \frac{Μέσα\ ετήσια\ μελλοντικά\ καθαρά\ κέρδη\ (Annual\ Average\ Profits)}{Αρχικό\ κόστος\ επένδυσης\ (Initial\ cost\ of\ investment)}$$

CN: $\boldsymbol{ARR} = \frac{47.000*}{200.000}\ X\ 100 = \mathbf{23.5\%}$ *(30.000+42.000+60.000+56.000)/4

HP: $\boldsymbol{ARR} = \frac{67.500**}{200.000} X100 = \mathbf{33.75\%}$ ** (-10.000+50.000+68.000+162.000) /4

Working

Annual Profits	Machine CN € (Net cash flow -Depn)	Machine HP € (Net cash flow -Depn)
Year 1	80.000-50.000* = 30.000	40.000-50.000 = (10.000)
Year 2	92.000-50.000 = 42.000	100.000-50.000 = 50.000
Year 3	110.000-50.000 = 60.000	118.000-50.000 = 68.000
Year 4	106.000-50.000 = 56.000	212.000-50.000 = 162.000
	***Annual Depn = 50.000** 200.000:4=50.000	***Annual Depn = 50.000** 200.000:4=50.000

(Marks 6)

(b) The managers should purchase machine HP because it gives the highest Positive NPV and it gives the highest Rate of Return although Machine CN has a shorter payback period

Οι διευθυντές πρέπει να αγοράσουν το μηχάνημα HP επειδή δίνει την υψηλότερη θετική Καθαρή παρούσα αξία (NPV) και έχει την υψηλότερη μέση απόδοση (ARR) παρόλο που το μηχάνημα CN έχει συντομότερη περίοδο αποπληρωμής.

(Marks 3)
(Total Marks 20)