

INVESTMENT APPRAISAL – More questions + answers

Questions

1. Ποια είναι η ανάγκη Αξιολόγηση Επενδύσεων (Investment Appraisal) και γιατί είναι σημαντική για μια επιχείρηση πριν προχωρήσει στην αποδοχή μιας επενδυτικής πρότασης
2. Να εξηγήσετε τη διαφορά μεταξύ της Μεθόδου Επανείσπραξης και της Μεθόδου της Μέσης Απόδοσης σαν μεθόδους για την επιλογή επενδυτικών έργων.
3. Ποιος είναι ο σκοπός της Μεθόδου της Καθαρής Παρούσας αξίας όσο αφορά την εκτίμηση των επενδυτικών κεφαλαίων και με βάση αυτή τη μέθοδο πότε ένα έργο εγκρίνεται;
4. Να δώσετε δύο μειονεκτήματα και δύο πλεονεκτήματα των πιο κάτω:
 - i. Μέθοδος της Μέσης Απόδοσης (Accounting Rate of Return-ARR)
 - ii. Μέθοδος Επανείσπραξης (Payback Period)
 - iii. Μέθοδος της Καθαρής Παρούσας Αξίας (Net Present Value)

EXERCISES

1. Print express Ltd business has provided the following information regarding the expected cash flows on a new printing machine

Year	Cash flow €
0	(90.000)
1	28.400
2	19.500
3	29.000
4	17.000
5	4.000

REQUIRED:

Calculate the exact payback period in years and months. (Answer 3 years + 9* months to the nearest month) $\ast 13.100/17.000 \times 12$)

2. Cavallies Ltd are considering a project which has an initial outlay of €50.000. The annual net receipts for the next five years are estimated to be €15.000 per year. The cost of capital for Cavallies Ltd is 11%.

The following is an extract from the present value table of €1 at 11%:

	11%
Year 1	0,901
Year 2	0,812
Year 3	0,731
Year 4	0,659
Year 5	0,594

REQUIRED:

- Calculate the NPV of new project
- Advise Cavallies Ltd whether to undertake the project.

2. ANSWER

a)

Year	Cash flows	Present value factor	Net present value
	€	€	€
0 (new)	(50.000)	1	(50.000)
1	15.000	0,901	13.515
2	15.000	0,812	12.180
3	15.000	0,731	10.965
4	15.000	0,659	9.885
5	15.000	0,594	8.910
			5.455

- b)** On financial grounds Cavallies Ltd should go ahead with the project since it has a positive NPV

Από οικονομικής άποψης η επιχείρηση θα πρέπει να αναλάβει το έργο αφού η Παρούσα Αξία είναι θετική.

3. Tamasos Tapestry Ltd is looking at three different carpet weaving machines to replace an old machinery. Their cost of capital is 11 per cent. The following information is available for the three machines:

	Machine W		Machine Y		Machine Z	
Purchase price		20.000		20.000		20.000
Forecast net cash flows:						
Year 1		7.000		6.000		4.000
2		7.000		8.200		4.200
3		6.000		10.300		5.100
4		6.000		800		6.000
5		1.500		800		7.000
5 Scrap value of machine		2.000		1.000		500

The following is an extract from the present value tables of €1 at 11%:

	11%
Year 0	1
Year 1	0,901
Year 2	0,812
Year 3	0,731
Year 4	0,659
Year 5	0,593

REQUIRED:

- Calculate the exact payback period in years and months for each project.
- Calculate the NPV of each project.
- Advise the managers which machine should be chosen.

3. ANSWER

(a)

Payback period		
Machine W 3 years Ranking: 2	Machine Y 2.56 years Or 2 years and 6.8* months 1 <i>*(5.800/10.300)x12</i>	Machine Z 4.01 years Or 4 years and 1.2* months 3 <i>*(700/7.000)x12</i>

(b)

Year	Discount factor 11%	Machine W		Machine Y		Machine Z	
0	1	(20.000)	(20.000)	(20.000)	(20.000)	(20.000)	(20.000)
1	0,901	7.000	6.307	6.000	5.406	4.000	3.604
2	0,812	7.000	5.684	8.200	6.658,4	4.200	3.410,4
3	0,731	6.000	4.386	10.300	7.529,3	5.100	3.728,1
4	0,659	6.000	3.954	800	527,2	6.000	3.954
5	0,593	1.500	889,5	800	474,4	7.000	4.151
5	0,593	2.000	1.186	1.000	593	500	296,5
NPV			2.406,5		1.188,3		(856)

(c) On financial grounds Tamasos Tapestry Ltd should choose either machine W which gives by far the highest NPV or machine Y which also yields a positive NPV (but lower than machine W by €1.223) and it also has the shortest payback period.

Από οικονομικής πλευράς η Tamasos Tapestry Ltd θα πρέπει να επιλέξει είτε την μηχανή W ,η οποία δίνει με μεγάλη διαφορά από τις υπόλοιπες μηχανές , την ψηλότερη Καθαρή Παρούσα Αξία (NPV) , ή την μηχανή Y η οποία δίνει επίσης θετική Καθαρή Παρούσα Αξία (χαμηλότερη από αυτή της μηχανής W κατά €1.223) αλλά έχει επίσης και την συντομότερη περίοδο αποπληρωμής.

4. Sandra is considering whether to invest in a new molding machine costing €10.000. She estimates that the future cash flows to be:

	Revenue receipts	Operating payments
	€	€
Year 1	4.000	3.000
Year 2	5.000	3.200
Year 3	6.000	3.500
Year 4	7.000	3.800
Year 5	7.500	4.000

Her cost of capital is 10%. All costs are paid and revenues received on the last day of each year. The following is an extract from the present value tables of €1 at 10%:

	10%
Year 1	0,909
Year 2	0,826
Year 3	0,751
Year 4	0,683
Year 5	0,621

REQUIRED:

- Calculate the NPV of new molding machine
- Advise Sandra whether to invest in the new molding machine.

4. ANSWER

(a)

Year	Cash flows	Present value factor	Net present value
	€	€	€
0 (new)	(10.000)	1	(10.000)
1	1.000*	0,909	909
2	1.800	0,826	1.486,8
3	2.500	0,751	1.877,5
4	3.200	0,683	2.185,6
5	3.500	0,621	2.173,5
NPV			(1.367,6)

(b) Sandra should not invest in the new molding machine. It would yield a negative net present value

Η Sandra δεν πρέπει να επενδύσει στην μηχανή γιατί αυτή η επένδυση δίνει αρνητική Καθαρή Παρούσα Αξία (NPV)

*revenue receipts – operating payments

Year 1 (4.000-3.000)

Year 2 (5.000-3.200)

Year 3 (6.000-3.500)

Year 4 (7.000-3.800)

Year 5 (7.500-4.000)

5. Olives & Spice is a business and is considering the purchase of a new packing machine. Two different machines will suit this purpose.

The following information is available for the two machines:

	Machine K	Machine L
	€	€
Purchase price	130.000	140.000
Profits after deducting depreciation		
Year 1	40.000	30.000
Year 2	25.000	40.000
Year 3	20.000	50.000
Year 4	15.000	60.000

REQUIRED:

- Calculate the accounting rate of return (ARR) for both projects.
- State which project should be undertaken and why.

5. ANSWER

	Machine K€	Machine L€
Cost of investment	130.000	140.000
Profits after deducting depreciation		
Year 1	40.000	30.000
Year 2	25.000	40.000
Year 3	20.000	50.000
Year 4	15.000	60.000
Average annual profit	$\frac{100.000}{4}$ = 25.000	$\frac{180.000}{4}$ = 45.000
ARR (Accounting rate of return)	$\frac{25.000}{130.000} \times 100$ = 19,23 %	$\frac{45.000}{140.000} \times 100$ = 32,14 %

- b)** The business should purchase packing machine L since it yields the highest ARR

Η επιχείρηση θα πρέπει να αγοράσει το μηχάνημα L γιατί δίνει τη ψηλότερη μέση απόδοση κερδών