

Economic Indicators Questions



Copyright Guy Allinson 2024

1

1

Calculating NPV Questions



Copyright Guy Allinson 2024

2

2

Question

Give the NPV function in Excel for the net cash flow below. Assume a discount rate of 10%.

Time	End1	End2	End3	End4	End5
NCF\$	-100	150	100	70	-50
Cells	A6	B6	C6	D6	E6

Copyright Guy Allinson 2024

3

3

Answer for NCFs starting at the end of year 1

$\text{NPV}(10\%, A6:E6)$

Time	End1	End2	End3	End4	End5
NCF\$	-100	150	100	70	-50
Cells	A6	B6	C6	D6	E6

Copyright Guy Allinson 2024

4

4

Question

Give two different versions of the Excel NPV function for the net cash flow below. Assume a discount rate of 10%.

Time	0	End1	End2	End3	End4
NCF\$	-100	150	100	70	-50
Cells	A6	B6	C6	D6	E6

Copyright Guy Allinson 2024

5

5

Answer for NCFs starting now (time = 0)

$\text{NPV}(10\%, B6:E6) + A6$

or

$\text{NPV}(10\%, A6:E6) * (1 + 10\%)$

Time	0	End1	End2	End3	End4
NCF\$	-100	150	100	70	-50
Cells	A6	B6	C6	D6	E6

Copyright Guy Allinson 2024

6

6

Question

What is the future value at the end of year 7 of \$100 received today?

Assume a compound rate of 10%.

Copyright Guy Allinson 2024

7

7

Answer

Future value at the end of year 7 =

$$\$100 * (1 + 10\%)^7 = \$194.87$$

Copyright Guy Allinson 2024

8

8

Uses of NPV Question



Copyright Guy Allinson 2024

9

9

Question

In what ways do we use NPVs in practice?

Copyright Guy Allinson 2024

10

10

Answer

1. We use NPVs to make go-no go decisions.
2. We use NPVs to value projects. It helps determine sale or purchase prices of investment projects.
3. We can use Present Value or Future Value. They are different numbers, but give the same conclusions.

Copyright Guy Allinson 2024

11

11

Question

The NPV for the seller of a project is \$23MM. Why should a company considering buying the project pay this given that it is paying \$23MM to acquire a project that is worth \$23MM?

Copyright Guy Allinson 2024

12

12

Answer

The buyer considers that the NPV is larger than \$23MM because it believes that the NCF is larger. This is because -

- It thinks the demand for the product is larger and/or
- It has more tax losses and/or
- It has lower costs and/or
- It believes the product price will be higher
- Etc, etc

Copyright Guy Allinson 2024

13

13

Meaning of NPV Question



Copyright Guy Allinson 2024

14

14

Question

A project has an NPV of \$53 million.

What does this mean?

Copyright Guy Allinson 2024

15

15

Answer

It means that we would need to invest \$53 million extra in an alternative investment (for instance, the bank) to enable the alternative to deliver the same net cash flow as the project.

Copyright Guy Allinson 2024

16

16

Question

A decision maker asks you to use a 25% nominal discount rate for economic evaluations. He or she says "I want all my projects to earn at least a 25% return".

How should you respond?

Copyright Guy Allinson 2024

17

17

Answer

Ask - Where can you obtain a nominal return of 25% on alternative investments?

Say - There must be good evidence that we can obtain 25%, just like there must be good evidence for any input to an evaluation.

A discount rate is data. You can't just invent it because you want it.

Copyright Guy Allinson 2024

18

18

Properties of NPV Questions



Copyright Guy Allinson 2024

19

19

Question

What are the main properties of an NPV?

Copyright Guy Allinson 2024

20

20

Answer

1. Is a single measure.
2. Shows benefit over and above capex.
3. Takes time into account.
4. Balances cash flows over time.
5. Is a comparison with alternatives.

Copyright Guy Allinson 2024

21

21

Answer

6. The discount rate is the return on your alternative investment.
7. If the alternative is the bank, the return is the deposit rate, not the loan rate.

Copyright Guy Allinson 2024

22

22

Question

What is the difference between deflating a net cash flow and discounting a net cash flow?

Copyright Guy Allinson 2024

23

23

Answer

Deflating is getting purchasing power (how much we can buy with the net cash flow)

Discounting is getting NPV. In other words, comparing the project with an alternative investment.

Copyright Guy Allinson 2024

24

24