



# 1. Time value of money

## Lecture example 1

*Required*

- (a) If a project involved the outlay of £1000 today and provided a definite return of £1001 **immediately**, would you accept it?
  
- (b) If a project involved the outlay of £1000 today and provided a definite return of £1001 in **1 year's time**, would you accept it?



## Solution

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- (a) Yes, you will be £1 better off.
  
- (b) No, you would instinctively reject it. £1001 received in 1 year's time is not as attractive as £1001 received today; this is the meaning of the term 'time value of money'. You would reject the project because you would be better off if you put £1000 into a bank account for a year; it would give you approximately £1050 in 1 year.



# 1. Time value of money

It is common sense to reject £1,001 received in 1 year's time but accept if £1,001 is received today. £1,001 in 1 year's time is not as attractive as £1,001 received today; this is the meaning of the term '**time value of money**'.

The **logic** behind rejecting the £1,001 in 1 year's time is that you would be better off if you put £1,000 into a bank account for a year.



# 1. Time value of money

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Many **projects** involve investing money now and receiving returns on the investment in the future; so the timing of a project's cash flows need to be analysed to see if they offer a better return **than the return an investor could get if they invested their money in other ways.**



# 1. Time value of money

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The process of adjusting a project's cash flows to reflect the return that investors could get elsewhere is called **discounting the cash flows or DCF**.



## Lecture example 2

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### *Required*

If a project involved the outlay of £1,000 today and provided a definite return of £1,001 in 1 year's time, would you accept it you could get a **return of 5%** on investments of **similar risk**?

# Solution

<u>Time</u>	<u>0</u>	<u>1</u>
Cash flow	(1000)	1001
<u>Discount factor</u>	<u>1.000</u>	<u>0.952</u>
Present value	(1000)	953

**Net present value = - 47**

This means that the project does not give a 5% return and should not be accepted



## 2 Net present value (NPV).

If the discounted value of the future cash flows are higher than the cost of setting up a project today, then the project has a + **Net Present Value** and should be **accepted**.



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