

What is the **Time Value of Money**?

1

**Simple interest** (or **simple interest**) is interest calculated on the initial principal and also on the accumulated interest of previous periods of a deposit or loan.

2

What do the following stand for?

- PV: **Present Value**
- FV: **Future Value**

3

Given some PV, a value for  $r$  (year period interest rate) and a number of years  $t$ , how would you calculate FV?

4

What is an **Annuity**?

5

**Perpetuity** refers to an infinite amount of time. In finance, it is a constant stream of identical cash flows with no end.

6

How would you calculate EAR (Effective annual rates)?

7

NPV (**Net Present Value**) is the difference between the market value of a project and its cost.

8

*Compound interest (or compounding interest) is interest calculated on the initial principal and also on the accumulated interest of previous periods of a deposit or loan.*

2

*The time value of money (TVM) is the idea that money available at the present time is worth more than the same amount in the future due to its potential earning capacity. This core principle of finance holds that, provided money can earn interest, any amount of money is worth more the sooner it is received.*

1

$$FV = PV(1 + r)^t$$

4

*What do the following stand for?*  
*- PV: Present Value*  
*- FV: Future Value*

3

*Perpetuity refers to an infinite amount of time. In finance, it is a constant stream of identical cash flows with no end.*

6

*An annuity is a financial product that pays out a fixed stream of payments to an individual, primarily used as an income stream for retirees.*

5

*NPV (Net Present Value) is the difference between the market value of a project and its cost.*

8

$$EAR = (1 + \frac{r}{m})^m - 1$$

*- r is the quoted rate*  
*- m is the number of compounding per year*

*are the equation's values.*

7

*What is the equation to calculate the NPV?*

9

*What is Average Accounting Return (AAR) and how do you calculate it?*

10

*The [REDACTED] is the amount of time required for an investment to generate cash flows sufficient to recover its initial cost.*

11

*[REDACTED] describes the degree to which an asset or security can be quickly bought or sold in the market without affecting the asset's price.*

12

*What are the advantages & disadvantages of the payback period calculation?*

13

*What is **Net present value**? How would you calculate it?*

14

*What is the **Internal rate of return**?*

15

*If two investments are [REDACTED], then taking one of them means that we cannot take the other.*

16

$$AAR = \frac{\text{AverageNetIncome}}{\text{AverageBookValue}}$$

The average project earnings after taxes and depreciation, divided by the average book value of the investment during its life.

10

$$NPV = -IO + \sum_{t=1}^N \left( \frac{CF_t}{(1+r)^t} \right)$$

- *IO* is the initial investment.
- *N* & *t* are number of years and current year respectively.
- *r* is estimated required return.
- *CF* is cash flow.

Formula variables

9

Liquidity describes the degree to which an asset or security can be quickly bought or sold in the market without affecting the asset's price.

12

The Payback Period is the amount of time required for an investment to generate cash flows sufficient to recover its initial cost.

11

The difference between the present value of cash inflows and the present value of cash outflows over a period of time. NPV is used in capital budgeting to analyse the profitability of a projected investment or project.

It is calculated by subtracting the initial investment from the present value of cash flows.

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- + Easy to understand
- + Biased towards liquidity
- + Adjusts for uncertainty of later cash flows
- Ignores the time value of money
- Requires an arbitrary cutoff point
- Ignores cash flows beyond the cutoff date
- Biased against long-term projects, such as research and development, and new projects

Payback period +/-

13

If two investments are Mutually Exclusive, then taking one of them means that we cannot take the other.

16

IRR is the return that makes  $NPV = 0$ . It is the most important alternative to NPV. You'd accept a project if the IRR is greater than the required return.

15

<p><i>A <b>  </b> is a fixed income investment in which an investor loans money to an entity (typically corporate or governmental) which borrows the funds for a defined period of time at a variable or fixed interest rate.</i></p> <p>17</p>	<p><i><b>  </b> is the amount of return an investor realizes on a bond.</i></p> <p>18</p>
<p><i>What is the difference between debt and equity?</i></p> <p>19</p>	<p><i>What is a <b>bond indenture</b>?</i></p> <p>20</p>
<p><i>What do you call bond price due to changes in discount rates?</i></p> <p>21</p>	<p><i><b>  </b> is the relationship between time to maturity and yield, all else equal.</i></p> <p>22</p>
<p><i>What is a dividend?</i></p> <p>23</p>	<p><i>If you invest in a stock, you can receive cash in two ways. What are those ways?</i></p> <p>24</p>

*Bond yield is the amount of return an investor realizes on a bond.*

18

*A bond is a fixed income investment in which an investor loans money to an entity (typically corporate or governmental) which borrows the funds for a defined period of time at a variable or fixed interest rate.*

17

*The contract between company and the bondholders and includes:*

- *The basic terms of the bonds.*
- *The total amount of bonds issued.*
- *A description of property used as security, if applicable.*
- *Call provisions.*
- *Details of protective covenants.*

*Bond Indenture*

20

*Debt is not an ownership interest. Creditors do not have voting rights. Interest is considered a cost of doing business and is tax-deductible. Excess debt can lead to financial and bankruptcy.*

*Equity: Common stockholders vote to elect the board of directors and on other issues. Dividends are not considered a cost of doing business and are not tax deductible. Stockholders have no legal recourse if no dividends are declared. An all-equity firm cannot go bankrupt.*

19

*Term structure is the relationship between time to maturity and yield, all else equal.*

22

*Interest rate risk*

21

- *The company may pay dividends.*
- *You may sell your shares to another investor.*

*The ways to receive cash from stock*

24

*A sum of money paid regularly (typically annually) by a company to its shareholders out of its profits (or reserves).*

23

*What is the P/E ratio?*

25

The  $\alpha$  is the return over and above the risk-free rate. The extra return earned for taking on risk. Treasuring bills are considered to be risk-free.

26

*What is total cash return and percentage return?*

27

$\sigma$  is the volatility of asset returns:  
greater volatility = greater uncertainty or risk.  
Measured by the variance and standard deviation.

28

## What is a Security?

29

*What are the effects of positive and negative news on a security?*

30

To earn higher return, one must

31

*What are the differences between Weak, Semi-strong and Strong form?*

32

*The risk premium is the return over and above the risk-free rate. The extra return earned for taking on risk. Treasuring bills are considered to be risk-free.*

26

*Price per share divided by earnings per share. This is most commonly used in real-world for stock valuation. Applied through comparative valuation. If the P/E is high, it is considered overpriced so sell!*

25

*Return variability is the volatility of asset returns: greater volatility = greater uncertainty or risk. Measured by the variance and standard deviation.*

28

*Total cash return: Income from investment + Capital gain (loss) due to change in price.*

*Percentage return:*  

$$\text{dividendyield} = \text{income} / \text{beginningprice} + \text{capitalgains} = (\text{ending} - \text{startingprice}) / \text{startingprice}.$$

27

*Positive news about a firm increases demand for its security, which in turn pushes up the price of this security. This is reversed for negative news. Demand for security is decreased which pushes down the price. Prices quickly reflect all available public information.*

30

*A security is a fungible, negotiable financial instrument that holds some type of monetary value. It represents an ownership position in a publicly-traded corporation (via stock), a creditor relationship with a governmental body or a corporation (represented by owning that entity's bond), or rights to ownership as represented by an option.*

29

- *Weak form: Prices reflect all past market information such as price and volume. If the market is weak form efficient, then investors cannot earn abnormal returns by trading on market information.*
- *Semi-strong form: Prices reflect all publicly available information including trading information, annual reports, press releases, etc.*
- *Strong form: Prices reflect all information: including public and private.*

*Difference between the three forms*

32

*To earn higher return, one must invest in security of firms with higher risk.*

31



<p><b>Expected returns</b> are based on the probabilities of possible outcomes. In this context, expected means average if the process is repeated many times.</p> <p>33</p>	<p><b>Standard deviation</b> still measure the volatility of returns. Using unequal probabilities for the entire range of possibilities. Weighted average of squared deviations.</p> <p>34</p>
<p>What is an <b>Asset</b>?</p> <p>35</p>	<p>What is a <b>Portfolio</b>?</p> <p>36</p>
<p><b>Portfolio</b> is the investment in several different asset classes or sectors.</p> <p>37</p>	<p>What are the differences between <b>Systematic &amp; Unsystematic risk</b>?</p> <p>38</p>

*Variance and standard deviation still measure the volatility of returns. Using unequal probabilities for the entire range of possibilities. Weighted average of squared deviations.*

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33

*A portfolio is a collection of assets. An assets risk and return are important to how the stock affects the risk and return of the portfolio.*

36

*An asset is a resource with economic value that an individual, corporation or country owns or controls with the expectation that it will provide future benefit. Assets are reported on a company's balance sheet, and they are bought or created to increase the value of a firm or benefit the firm's operations.*

35

*Systematic risk is the risk factors that affect a large number of assets. Includes such things as changes in GDP, inflation, interest rates, etc.*

*Unsystematic risks are risk factors that affect a limited number of assets. Also known as unique risk and asset-specific risk. Includes such things as labour strikes, part shortages, etc.*

*Systematic VS. Unsystematic risk*

38

*Portfolio diversification is the investment in several different asset classes or sectors.*

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