## Notes

### debt capital

**Debt capital** is the **capital** that a business raises by taking out a loan. It is a loan made to a company that is normally repaid at some future date. ... This means that legally, the interest on **debt capital** must be repaid in full before any dividends are paid to any suppliers of equity.

### Ordinary shares

Ordinary shares, a synonym of common shares, represent the *basic voting shares* of a corporation. Holders of ordinary shares are typically entitled to one vote per share, and do not have any predetermined dividend amounts. An ordinary share represents equity ownership in a company proportionally with all other ordinary shareholders, according to their percentage ownership in the company. All other shares of a company's stock are, by definition, preferred shares.

All corporations must have ordinary shares as part of their stock, as defined in their articles of association, and at least one ordinary share must be issued to a shareholder. In other words, someone has to be the owner of the corporation.

*While they face greater economic risk than creditors and preferred shareholders of a corporation, they can also reap greater rewards.*

If a company makes large profits, the creditors and preferred shareholders are not paid more than the fixed amounts to which they are entitled, while the ordinary shareholders divide the large profits among themselves. The same occurs when companies, such as start-ups, are sold to larger corporations. The ordinary shareholders usually profit the most.

The only obligation that an ordinary shareholder has is to pay the price of the share to the company when it is issued. In addition to the shareholder's right to residual profits, he is entitled to vote for the company's board members (although some preferred shareholders may also vote) and to receive and approve the company's annual financial statements.

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### preference shares

Are shares of a company's stock with dividends that are paid out to shareholders before common stock dividends are issued. If the company enters bankruptcy, the shareholders with preferred stock are entitled to be paid from company

assets first. Most preference shares have a fixed dividend, while common stocks generally do not. Preferred stock shareholders also typically do not hold any voting rights, but common shareholders usually do.

> Read more: Preference Shares https://www.investopedia.com/terms/p/preference-shares.asp#ixzz5DK9FUf3t
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Unlike common shares, preferreds also have a callability feature which gives the issuer the right to redeem the shares from the market after a predetermined time. Investors buying preferred shares have a real opportunity for these shares to be called back at a redemption rate representing a significant premium over their purchase price. Markets for preferred shares often anticipate call backs and prices may be bid up accordingly.

> Read more: What is the difference between preferred stock and common stock? https://www.investopedia.com/ask/answers/difference-between-preferred-stock-and-common-stock/#ixzz5DKB9xBEp
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Finally, preferred shares can be converted to a fixed number of common shares, but common shares don't have this benefit. Looking up a preferred stock's quote is as easy as looking up the quote for a common share.

> Read more: What is the difference between preferred stock and common stock? https://www.investopedia.com/ask/answers/difference-between-preferred-stock-and-common-stock/#ixzz5DKBfxqU1
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**In contrast**

| **Ordinary shares** | **Preference shares** |
|---|---|
| Voting rights | Dividends paid before issue of ordinary shares |
| May receive floating dividends | In case of bankruptcy paid first |
| In case of bankruptcy, payment not secure | Mostly fixed dividends |
| Directer relation to equity | Dividends paid in regular intervals |
| -> hence, splits possible | callability feature |
| | convertible |

Prices between ordinary shares and preference shares may vary and aren't necessary the same.

**To Sum Up**

A good way to think of a preferred stock is as a security with characteristics somewhere in-between a bond and a common stock.

> Read more: What is the difference between preferred stock and common stock? https://www.investopedia.com/ask/answers/difference-between-preferred-stock-and-common-stock/#ixzz5DKBmV7kj
>
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**Gearing returns (leverage)**

> Leverage is the investment strategy of using borrowed money: specifically, the use of various financial instruments or borrowed capital to increase the potential return of an investment. Leverage can also refer to the amount of debt used to finance assets. When one refers to something (a company, a property or an investment) as "highly leveraged," it means that item has more debt than equity.Read more: Leverage https://www.investopedia.com/terms/l/leverage.asp#ixzz5DKFm9cv1
>
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>
> Gearing refers to the level of a company's debt related to its equity capital, usually expressed in percentage form. It is a measure of a company's financial leverage and shows the extent to which its operations are funded by lenders versus shareholders. The term "gearing" also refers to the ratio between a company's stock price and the price of its warrants.
>
> Read more: Gearing https://www.investopedia.com/terms/g/gearing.asp#ixzz5DKFvKEEi Follow us: Investopedia on Facebook

**Forwards**

> A forward contract is a customized contract between two parties to buy or sell an asset at a specified price on a future date. A forward contract can be used for hedging or speculation, although its non-standardized nature makes it particularly apt for hedging. Unlike standard futures contracts, a forward contract can be customized to any commodity, amount and delivery date. A forward contract settlement can occur on a cash or delivery basis. Forward contracts do not trade on a centralized exchange and are therefore regarded as over-the-counter (OTC) instruments. While their OTC nature makes it easier to customize terms, the lack of a centralized clearinghouse also gives rise to a higher degree of default risk. As a result, forward

contracts are not as easily available to the retail investor as futures contracts.

Read more: Forward Contract https://www.investopedia.com/terms/f/forwardcontract.asp#ixzz5DKGdV9zS Follow us: Investopedia on Facebook

**Futures**

Futures are financial contracts obligating the buyer to purchase an asset or the seller to sell an asset, such as a physical commodity or a financial instrument, at a predetermined future date and price. Futures contracts detail the quality and quantity of the underlying asset; they are standardized to facilitate trading on a futures exchange. Some futures contracts may call for physical delivery of the asset, while others are settled in cash.

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The futures markets are characterized by the ability to use very high leverage relative to stock markets. Futures can be used to hedge or speculate on the price movement of the underlying asset. For example, a producer of corn could use futures to lock in a certain price and reduce risk, or anybody could speculate on the price movement of corn by going long or short using futures.

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The long position, or buyer, agrees to purchase the underlying at a later date or at the expiration date at a price that is agreed to at the beginning of the transaction. Buyers benefit from price increases.

The short position, or seller, agrees to sell the underlying at a later date or at the expiration date at a price that is agreed to at the beginning of the transaction. Sellers benefit from price decreases.

Read more: Futures vs. Forwards https://www.investopedia.com/exam-guide/cfa-level-1/derivatives/futures-versus-forwards.asp#ixzz5DKGRUqCO Follow us: Investopedia on Facebook

**In Contrast**

A forward contract is a private transaction - a futures contract is not. Futures contracts are reported to the future's exchange, the clearing house and at least one regulatory agency. The price is recorded and available from pricing services.

A future takes place on an organized exchange where the all of the contract's terms and conditions, except price, are formalized. Forwards are customized to meet the user's special needs. The future's standardization helps to create liquidity in the marketplace enabling participants to close out positions before expiration.

Forwards have credit risk, but futures do not because a clearing house guarantees against default risk by taking both sides of the trade and marking to market their positions every night. Mark to market is the process of converting daily gains and losses into actual cash gains and losses each night. As one party loses on the trade the other party gains, and the clearing house moves the payments for the counterparty through this process.

Forwards are basically unregulated, while future contract are regulated at the federal government level. The regulation is there to ensure that no manipulation occurs, that trades are reported in a timely manner and that the professionals in the market are qualified and honest.

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**Intrinsic value**

The intrinsic value is the actual value of a company or an asset based on an underlying perception of its true value including all aspects of the business, in terms of both tangible and intangible factors. This value may or may not be the same as the current market value. Additionally, intrinsic value is primarily used in options pricing to indicate the amount an option is in the money.

Read more: Intrinsic Value https://www.investopedia.com/terms/i/intrinsicvalue.asp#ixzz5DKGux32K Follow us: Investopedia on Facebook

Value investors who follow fundamental analysis typically look at both qualitative (business model, governance and target market factors) and quantitative (ratios and financial statement analysis) aspects of a business to see if the business is currently out of favor with the market and is really worth much more than its current valuation. The discounted cash flow model is one commonly used valuation method used to determine a company's intrinsic value. The discounted cash flow model takes into account a company's free cash flow and weighted average cost of capital, which accounts for the time value of money.

[ **Intrinsic value is a core concept to value investors that seek to uncover hidden investment opportunities. In order to calculate intrinsic value, you need a strong understanding of fundamental analysis. Investopedia's Fundamental Analysis Course will show you how to understand the true value of a stock and capitalize on opportunities. You'll learn how to read financial statements, use ratios to quickly see value, and other techniques used by professionals in over five hours of on-demand video, exercises, and interactive content.** ]

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**Time Value**

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. TVM is also sometimes referred to as present discounted value.

Read more: Time Value of Money (TVM) https://www.investopedia.com/terms/t/timevalueofmoney.asp#ixzz5DKH4uUEI Follow us: Investopedia on Facebook

The time value of money draws from the idea that rational investors prefer to receive money today rather than the same amount of money in the future because of money's potential to grow in value over a given period of time. For example, money deposited into a savings account earns a certain interest rate, and is therefore said to be compounding in value.

Read more: Time Value of Money (TVM) https://www.investopedia.com/terms/t/timevalueofmoney.asp#ixzz5DKH7iDGi Follow us: Investopedia on Facebook

**In-The-Money**

In the money means that a call option's strike price is below the market price of the underlying asset or that the strike price of a put option is above the market price of the underlying asset. Being in the money does not mean you will profit, it just means the option is worth exercising. This is because the option costs money to buy.

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In the money means that your stock option is worth money and you can turn around and sell or exercise it. For example, if John buys a call option on ABC stock with a strike price of $12, and the price of the stock is sitting at $15, the option is considered to be in the money. This is because the option gives John the right to buy the stock for $12 but he could immediately sell the stock for $15, a gain of $3. If John paid $3.50 for the call, then he wouldn't actually profit from the total trade, but it is still considered in the money.

[ **Options traders should have an in-depth understanding of terms like in-the-money, at-the-money, and out-of-the-money before getting started. If you're new to options trading, or an intermediate trader looking to brush up, check out Investopedia's Options for Beginners Course, which contains over five hours of on-demand video, exercises, and interactive content designed to show you everything from using calls as down payments to advanced risk management concepts.** ]

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**Out-The-Money**

Out of the money (OTM) is term used to describe a call option with a strike price that is higher than the market price of the underlying asset, or a put option with a strike price that is lower than the market price of the underlying asset. An out of the money option has no intrinsic value, but only possesses extrinsic or time value.

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The value of an out of the money option erodes quickly with time as it gets closer to expiry. If it still out of the money at expiry, the option will expire worthless.

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**At-The-Money**

At the money is a situation where an option's strike price is identical to the price of the underlying security. Both call and put options are simultaneously at the money. For example, if XYZ stock is trading at 75, then the XYZ 75 call option is at the money and so is the XYZ 75 put option. An at-the-money option has no intrinsic value, but it may still have time value. Options trading activity tends to be high when options are at the money.

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At the money is one of three terms used to describe the relationship between an option's

strike price

and the underlying security's price, or option moneyness.

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**Contrasting In-The-Money, At-The-Money, Out-The-Money**

Options are classified in three ways depending on the relationship of the strike price to the security's market price. In the money means the strike price is lower, in the case of a call, or higher, in the case of a put, than the market price. At the money means the strike price and market price are the same.

The amount of the premium paid for an option depends in large part on whether the option is in the money, at the money or out of the money. Because they have intrinsic value, in the money options are the most expensive. Out of the money options, which require a price movement to become valuable, cost much less.

Read more: In The Money https://www.investopedia.com/terms/i/inthemoney.asp#ixzz5DKHJVW5U Follow us: Investopedia on Facebook

The other two are in the money, meaning the option has some intrinsic value, and out of the money, meaning the option has no intrinsic value. The intrinsic value for a call option is calculated by subtracting the strike price from the underlying security's current price. The intrinsic value for a put option is calculated by subtracting the underlying asset's current price from its strike price.

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**Payback Period**

$$PP = \frac{\text{years full recovery + unrecovered cost at beginning of last year}}{\text{cash flow in following year}}$$

The payback period is the length of time required to recover the cost of an investment. The payback period of a given investment or project is an important determinant of whether to undertake the position or project, as longer payback periods are typically not desirable for investment positions. The payback period ignores the time value of money (TVM), unlike other methods of capital budgeting such as net present value (NPV), internal rate of return (IRR), and discounted cash flow.

Read more: Payback Period https://www.investopedia.com/terms/p/paybackperiod.asp#ixzz5DKIBJTyO Follow us: Investopedia on Facebook

Much of corporate finance is about capital budgeting. One of the most important concepts that every corporate financial analyst must learn is how to value different investments or operational projects. The analyst must find a reliable way to determine the most profitable project or investment to undertake. One way corporate financial analysts do this is with the payback period.

Read more: Payback Period https://www.investopedia.com/terms/p/paybackperiod.asp#ixzz5DKIFc7ZA Follow us: Investopedia on Facebook

**Discounted Payback Period**

$$DPP = \frac{\text{Initial Cash Outlay}}{\text{Discounted Annual Cash Flow}}$$

The discounted payback period is a capital budgeting procedure used to determine the profitability of a project. A discounted payback period gives the number of years it takes to break even from undertaking the initial expenditure, by discounting future cash flows and recognizing the time value of money. The net present value aspect of the discounted payback period does not exist in a payback periodin which the gross inflow of future cash flows are not discounted.

Read more: Discounted Payback Period https://www.investopedia.com/terms/d/discounted-payback-period.asp#ixzz5DKIOGv5P Follow us: Investopedia on Facebook

The general rule for the calculation is to accept projects that result in a discounted payback period that is less than the targeted period. A company is able to compare its required break-even date to when the project will break even in terms of discounted cash flows, to approve or reject the project.

Read more: Discounted Payback Period https://www.investopedia.com/terms/d/discounted-payback-period.asp#ixzz5DKIQPZLX Follow us: Investopedia on Facebook

**Payback Period vs. Discounted Payback Period**

The payback period is the amount of time for a project to break even in cash collections using nominal dollars. Alternatively, the discounted payback period reflects the amount of time necessary to break even in a project based not only on what cash flows occur, but when they occur and the prevailing rate of return in the market. These two calculations, although similar, may not return the same result due to discounting of cash flows. For example, projects with higher cash flows toward the end of the project life will experience greater discounting due to compound interest. For this reason, the payback period may return a positive figure, while the discounted payback period returns a negative figure.

Read more: Discounted Payback Period https://www.investopedia.com/terms/d/discounted-payback-period.asp#ixzz5DKIT0ghu

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**NPV**

$$NPV = \sum_{T=1}^{T} \frac{C_t}{(1+r)^t} - C_o$$

Where

$C_t$ = net cash inflow during period t

$C_o$ = total investment cost

$r$ = discount rate

$t$ = number of time periods

Net present value (NPV) is 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 analyze the profitability of a projected investment or project.

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A positive net present value indicates that the projected earnings generated by a project or investment (in present dollars) exceeds the anticipated costs (also in present dollars). Generally, an investment with a positive NPV will be profitable, and an investment with a negative NPV will result in a net loss. This concept is the basis for the Net Present Value Rule, which dictates that the only investments that should be made are those with positive NPV values.

When the investment in question is an acquisition or a merger, one might also use the Discounted Cash Flow metric.

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Determining the value of a project is challenging because there are different ways to measure the value of future cash flows. Because of the time value of money, money in the present is worth more than the same amount in the future. This is both because of earnings that could potentially be made using the money during the intervening time and because of inflation. In other words, a dollar earned in the future won't be worth as much as one earned in the present. The discount rate element of the NPV formula is a way to account for this.

Companies often have different ways of identifying the discount rate. Common methods for determining the discount rate include using the expected return of other investment choices with a similar level of risk (rates of return investors will expect), or the costs associated with borrowing money needed to finance the project.

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**PI**

$$PI = \frac{\text{PV Of Future Cash Flows}}{\text{Initial Investment}}$$

The profitability index is an index that attempts to identify the relationship between the costs and benefits of a proposed project through the use of a ratio calculated as:

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A ratio of 1.0 is logically the lowest acceptable measure on the index, as any value lower than 1.0 would indicate that the project's PV is less than the initial investment. As values on the profitability index increase, so does the financial attractiveness of the proposed project.

Read more: Profitability Index https://www.investopedia.com/terms/p/profitability.asp#ixzz5DKIr5ZDM Follow us: Investopedia on Facebook

Profitability index is an appraisal technique applied to potential capital outlays. The technique divides the projected capital inflow by the projected capital outflow to determine the profitability of a project. The main feature of using profitability index is the technique disregards project size. Therefore, projects with larger cash inflows may result in lower profitability index calculations because their profit margin is not as high.

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**IRR**

$NPV$ Formula $= 0$, solve for discount rate $r$ which is the IRR

To calculate IRR using the formula, one would set NPV equal to zero and solve for the discount rate (r), which is the IRR. Because of the nature of the formula, however, IRR cannot be calculated analytically and must instead be calculated either through trial-and-error or using software programmed to calculate IRR.

Internal rate of return (IRR) is a metric used in capital budgeting to estimate the profitability of potential investments. Internal rate of return is a discount rate that makes the net present value (NPV) of all cash flows from a particular project equal to zero. IRR calculations rely on the same formula as NPV does.

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Generally speaking, the higher a project's internal rate of return, the more desirable it is to undertake. IRR is uniform for investments of varying types and, as such, IRR can be used to rank multiple prospective projects on a relatively even basis. Assuming the costs of investment are equal among the various projects, the project with the highest IRR would probably be considered the best and be undertaken first.

IRR is sometimes referred to as "economic rate of return" or "discounted cash flow rate of return." The use of "internal" refers to the omission of external factors, such as the cost of capital or inflation, from the calculation.

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You can think of internal rate of return as the rate of growth a project is expected to generate. While the actual rate of return that a given project ends up generating will often differ from its estimated IRR, a project with a substantially higher IRR value than other available options would still provide a much better chance of strong growth. One popular use of IRR is comparing the profitability of establishing new operations with that of expanding existing ones. For example, an energy company may use IRR in deciding whether to open a new power plant or to renovate and expand a previously existing one. While both projects are likely to add value to the company, it is likely that one will be the more logical decision as prescribed by IRR.

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While IRR is a very popular metric in estimating a project's profitability, it can be misleading if used alone. Depending on the initial investment costs, a project may have a low IRR but a high NPV, meaning that while the pace at which the company sees returns on that project may be slow, the project may also be adding a great deal of overall value to the company.

A similar issue arises when using IRR to compare projects of different lengths. For example, a project of a short duration may have a high IRR, making it appear to be an excellent investment, but may also have a low NPV. Conversely, a longer project may have a low IRR, earning returns slowly and steadily, but may add a large amount of

value to the company over time.

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In theory, any project with an IRR greater than its cost of capital is a profitable one, and thus it is in a company's interest to undertake such projects. In planning investment projects, firms will often establish a required rate of return (RRR) to determine the minimum acceptable return percentage that the investment in question must earn in order to be worthwhile. Any project with an IRR that exceeds the RRR will likely be deemed a profitable one, although companies will not necessarily pursue a project on this basis alone. Rather, they will likely pursue projects with the highest difference between IRR and RRR, as these likely will be the most profitable.

IRR can also be compared against prevailing rates of return in the securities market. If a firm can't find any projects with IRR greater than the returns that can be generated in the financial markets, it may simply choose to invest its retained earnings into the market.

Although IRR is an appealing metric to many, it should always be used in conjunction with NPV for a clearer picture of the value represented by a potential project a firm may undertake.

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**MIRR**

$$MIRR = \sqrt[n]{\frac{FV(\text{Positive Cash Flows/Cost Of Capital})}{PV(\text{Initial Outlays/Financing Cost})}} - 1$$

Modified internal rate of return (MIRR) assumes that positive cash flows are reinvested at the firm's cost of capital, and the initial outlays are financed at the firm's financing cost. By contrast, the traditional internal rate of return (IRR) assumes the cash flows from a project are reinvested at the IRR. The MIRR more accurately reflects the cost and profitability of a project.

Read more: Modified Internal Rate Of Return (MIRR) https://www.investopedia.com/terms/m/mirr.asp#ixzz5DKJYdOtX Follow us: Investopedia on Facebook

The MIRR is used to rank investments or projects of unequal size. The calculation is a solution to two major problems that exist with the popular IRR calculation. The first main problem with IRR is

that multiple solutions can be found for the same project. The second problem is that the assumption that positive cash flows are reinvested at the IRR is considered impractical in practice. With the MIRR, only a single solution exists for a given project, and reinvestment rate of positive cash flows is much more valid in practice.

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## Strict Capital rationing

Capital rationing is the act of placing restrictions on the amount of new investments or projects undertaken by a company. This is accomplished by imposing a higher cost of capital for investment consideration or by setting a ceiling on specific portions of a budget. Companies may want to implement capital rationing in situations where past returns of an investment were lower than expected.

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Capital rationing is essentially a management approach to allocating available funds across multiple investment opportunities, increasing a company's bottom line. The combination of projects with the highest total net present value (NPV) is accepted by the company. The number one goal of capital rationing is to ensure that a company does not over-invest in assets. Without adequate rationing, a company might start realizing decreasingly low returns on investments, and may even face financial insolvency.

### Two Types of Capital Rationing

The first type of capital rationing is referred to as "hard capital rationing." This occurs when a company has issues raising additional funds, either through equity or debt. The rationing arises from an external need to reduce spending, and can lead to a shortage of capital to finance future projects.

The second type of rationing is called "soft capital rationing," or internal rationing. This type of rationing comes about due to the internal policies of a company. A fiscally conservative company, for example, may have a high required return on capital in order to accept a project, self-imposing its own capital rationing.

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**EAA**

The equivalent annual annuity approach (EAA) is one of two methods used in capital budgeting to compare mutually exclusive projects with unequal lives. The equivalent annual annuity (EAA) approach calculates the constant annual cash flow generated by a project over its lifespan if it was an annuity. When used to compare projects with unequal lives, the one with the higher EAA should be selected.

Read more: Equivalent Annual Annuity Approach (EAA) https://www.investopedia.com/terms/e/equivalent-annual-annuity-approach.asp#ixzz5DKK6y1Mo Follow us: Investopedia on Facebook

The EAA approach uses a three-step process to compare projects. The present value of the constant annual cash flows is exactly equal to the project's net present value (NPV). The first thing an analyst does is calculate each project's NPV over its lifetime. After that, he computes each project's EAA so that the present value of the annuities is exactly equal to the project's NPV. Lastly, the analyst compares each project's EAA and selects the one with the highest EAA.

$$\text{discounted payback period} = \frac{-\ln\left(1 - \frac{\text{IO * discounted rate}}{\text{cash flow per year}}\right)}{\ln 1 + r}$$

$$\text{discounted payback period} = \frac{-\ln\left(1 - \frac{100000 * 0.10}{23000}\right)}{\ln\left(1 + 0.10\right)}$$

c)

$$\text{NPV} = \text{PV} - \text{IO}$$

$$\text{NPV} = 100,170 - 100,000 = 170$$

$$P_I = \frac{1}{V_i} * \left(\frac{f_1}{1+d} + ... + \frac{f_6}{(1+d)^6}\right)$$

$$P_I = \frac{1}{-100,000} * \left(\frac{23,000}{1+10\%} + ... + \frac{23,000}{(1+10\%)^6}\right) = -1.002$$