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Valuation-driven investing 101

Our guide to calculating investment opportunities

What is value investing?

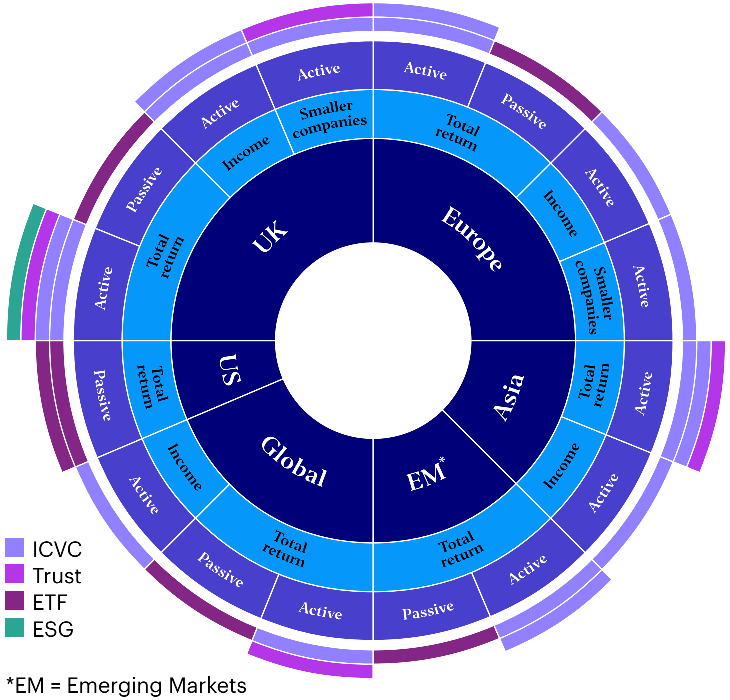
The concept behind valuation-driven investing is simple. Identify stocks whose true potential isn't reflected in the current share price and hold on to them until the broader market recognises what they're worth.

We offer investment opportunities in both the active and the passive space that make use of financial metrics and ratios to calculate a stock's value.

In our RAFI ETF range, fundamental measures such as sales, cash flow, dividends and book value are used to determine a stock's index weight. The range uses methodology developed by Research Affiliates that assigns weights based on the economic size of a company.

On the active side, price-to-earnings ratios, price-to-book ratios, return-on-equity and discounted cash flows are used to identify stocks on low valuations.

This guide looks at these metrics, so you can discover how to do the calculations and understand if a company's valuation makes a good investment.



*EM = Emerging Markets

In this guide you'll learn:

1.
How we identify companies whose valuations have not yet been reflected by the market.

2.
How we calculate financial ratios like price-to-earnings ratios, price-to-book ratios, return-on-equity and discounted cash flows.

3.
How we interpret the numbers and bring financial calculations to life.

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Price-to-earnings ratio

What is a price-to-earnings ratio?

The price-to-earnings (P/E ratio) helps an investor understand how much a company is worth. The metric reflects a company's earnings potential. It's used to determine if a stock is undervalued or overvalued compared to others in the industry. The formula can also be applied to benchmark indexes like the S&P 500.

In general, the higher the ratio, the more expensive a stock is relative to its earnings. The lower the ratio, the less expensive the stock.

How do you calculate a P/E ratio?

It's calculated by comparing a company's stock price to its earnings per share (EPS).

P/E Ratio = share price / earnings per share

The EPS is a gauge of a company's profitability. The higher the number the more likely a company is to be profitable. It's calculated by dividing a firm's net income minus its preferred dividends by the average outstanding common shares.

EPS = (net income - preferred dividends) / average outstanding common shares

The EPS can also be worked out for different time periods and reflect past, future or average earnings. No matter what time period you choose, the formula always remains the same.

Past 12-month earnings
One way to look at earnings is to examine them over the past 12 months. This is called the trailing twelve-month earnings (TTM). Although it gives an accurate prediction of a company's past, the P/E ratio will not reflect future events.

Forward 12-month earnings
The P/E ratio can also be calculated using an estimate of a company's future earnings. It has the benefit of determining how the market expects a company to perform over the coming year.

Average earnings over time
The average earnings calculation is called the Shiller P/E ratio, also known as the CAP/E ratio (cyclically adjusted price-to-earnings ratio). It is worked out by dividing the price by the average earnings over the past ten years, adjusted for inflation.

The ratio provides a good representation of long-term earnings trends.

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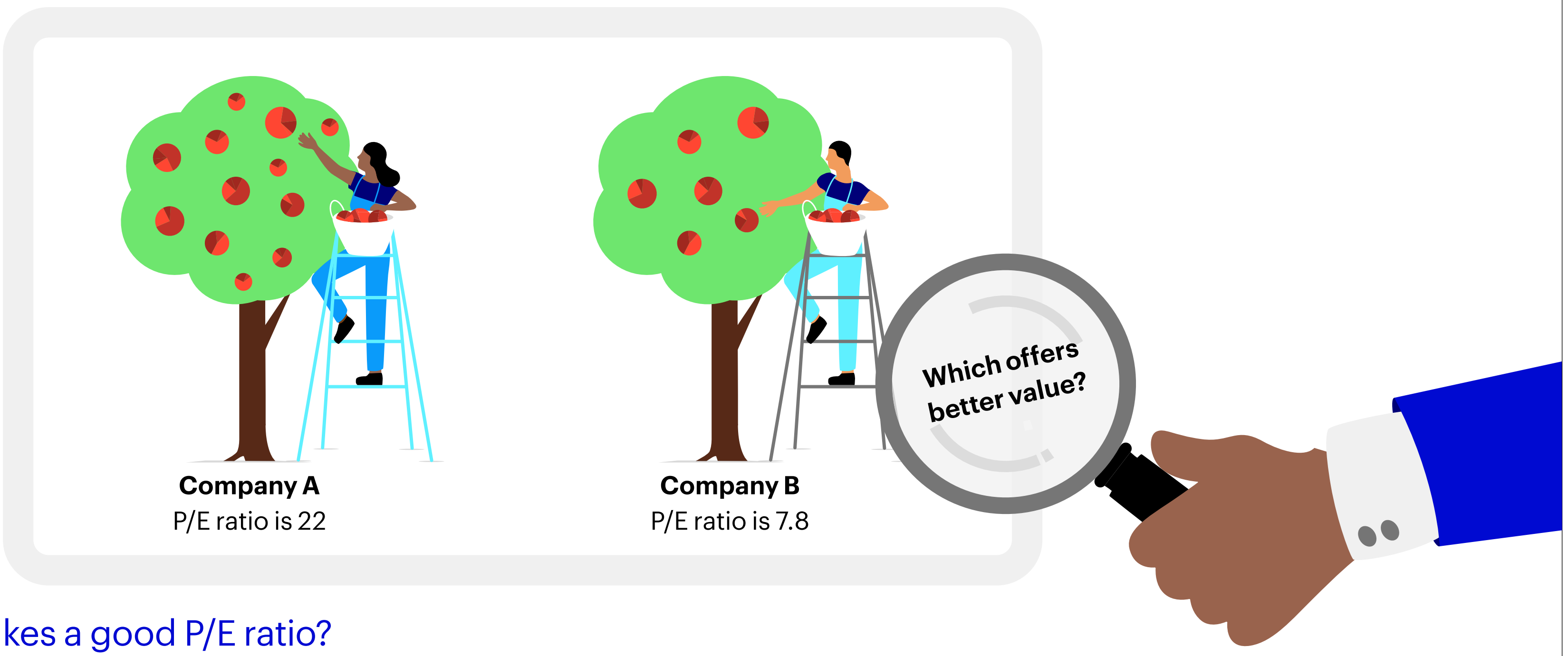
Price-to-earnings ratio continued



What makes a good P/E ratio?

To understand what makes a good P/E ratio, let's imagine an investor wants to invest in a company that trades apples. In this example, there are two fictitious organisations.

Company A currently trades on the stock exchange for £40 and has 500,000 shares outstanding.

Company B is trading at £30 and has 25,000 shares outstanding.

Say Company A had a great harvest year and produced more than expected. The apples were able to be sold readily to supermarkets and the firm made a profit of £1m last financial year. The preferred dividend was £100,000.

To work out the P/E ratio, first you need to calculate the EPS. This is computed as follows:

EPS 1.8 = (1,000,000 - 100,000) / 500,000

Now, you can work out the P/E ratio by using the formula:

P/E ratio 22 = 40 / 1.8

On the other hand, Company B did not do so well. In the area where the firm grows its apples, there was a drought. They couldn't fulfil orders and only made £100,000. The preferred dividend was £5,000.

First, we calculate the EPS:

EPS 3.8 = 95,000 / 25,000

Through using the P/E ratio formula, you can see Company B's figure is lower:

P/E ratio 7.8 = 30 / 3.8

So, what does this mean? There are two ways to interpret the numbers. A higher P/E ratio could mean Company A is overvalued or investors are expecting high growth rates in the future.

While for Company B, this could be viewed as undervalued as it has a lower P/E ratio, or investors think it has limited growth potential.

So, P/E ratios need to be viewed in context of the sector they are in and the type of growth rates that are expected for the company.

For Company B, droughts are likely to intensify. It's believed the firm is not doing enough to mitigate the impact of this and their profits are expected to fall. In this instance, a lower P/E ratio does not mean it is a good investment.

On the other hand, while Company A has a higher P/E ratio, it also has a high growth rate. The company has invested in new technology that will help it harvest apples more cheaply. Company A may be seen as a better investment.

Price-to-book ratios

What is a price-to-book ratio?

Investors use the price-to-book ratio (P/B ratio) to determine whether a company's stock price is higher or lower than it should be. The P/B ratio is how much an investor is willing to pay relative to its book value.

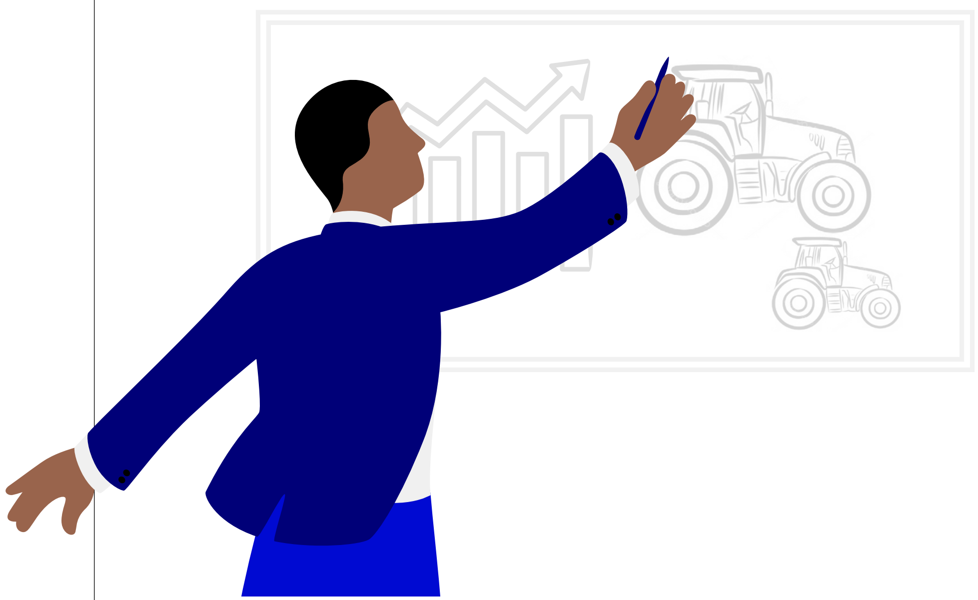
The book value is defined as the net value of a company's assets. In other words, the amount shareholders would receive if a company liquidated all its assets and paid off all its debts. It only includes tangible assets such as cash, inventory, machinery and buildings.

If this value is positive the company has more assets than liabilities, if it's negative it has more liabilities than assets. P/B ratios are useful to compare the valuations of capital intensive companies such as automotive, manufacturers and real estate firms. It's not so useful for technology companies whose business models are based on intangible assets such as software or trademarks.

How is the P/B ratio calculated?

The P/B ratio is calculated by dividing the company's share price by its book value per share.

P/B ratio = share price / book value per share



The book value per share is calculated by dividing its assets minus liabilities by its outstanding shares.

Book value per share = (assets - liabilities) / outstanding shares

Let's imagine there are two fictitious real estate companies. An investor is finding it difficult to choose between company A and B.

Firstly, we need to work out the book value per share. Company A has £1m in assets on the balance sheet and £750,000 in liabilities.

The book value of the company would be £250,000 (£1m minus £750,000). If there are 50,000 shares outstanding, the book value per share is 5.

If the share price of company A is £45, the P/B ratio is **9**.

Company B has £750,000 in assets and £100,000 in liabilities, making the book value £650,000. Outstanding shares are 40,000, so the book value per share is 16.25.

If the share price is £30, the P/B ratio is **1.8**.

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Price-to-book ratios continued

What makes a good P/B ratio?

What counts as a good P/B ratio will depend on the industry in question and the overall state of valuations in the market.

P/B ratios **under 1** mean you are paying a price **less** than what all the assets of a company are worth. P/B ratios **over 1** mean you are paying a price **more** than what all the assets of a company are worth. A P/B ratio of 1 means the stock price is trading in line with the book value.

In our example, Company A has a P/B ratio of 9. This means the stock trades 9 times as much as what the assets could be sold for and looks expensive.

However, if it is known the company has a lot of growth potential, the stock might still be a good opportunity if there is potential for the stock price to move in line with the book value.

In this instance, Company A's property is located in an area where prices are slumping, so growth opportunities are low.

For Company B, the stock trades at 1.8 times as much as what the assets could be sold for. This is closer to what the company is worth. Company's B property is also located in areas where prices are booming, so its stock looks better value.

Generally, the lower a company's P/B ratio, the better value it generally is. This can be especially true if a stock's book value is less than 1 as it trades for less than the value of its assets.

However, a very low P/B ratio can be a sign of trouble at a company, so it should be used as part of a thorough stock analysis.

Return-on-equity

What is return-on-equity?

Return-on-equity (ROE) examines how well a firm can generate profits from a company's shareholder investments.

For investors it is a good gauge of how a company is using shareholder money to grow the company and fund operations compared to its peers. Essentially it measures how effective it is at generating net income – the amount a business makes after deducting expenses.

How do you calculate ROE?

ROE is calculated by dividing net income by shareholders' equity. It's then multiplied by 100 to get a percentage.

ROE = (net income / shareholder equity) x 100

Shareholder equity is the amount they can claim after all debts are paid off.

Using two fictitious tech companies, Company A and Company B, let's work out their ROE.

Company A, has a net income of £150,000 and shareholder equity of £1m.

ROE 15% = (£150,000 / £1,000,000) x 100

Company B has a net income of £40,000 and shareholder equity of £200,000.

ROE 20% = (£40,000 / £200,000) x 100

What makes a good ROE?

The higher the ROE the more efficiently a company is able to generate returns to shareholders. Company B looks to be better at generating profits for shareholders as it has a higher ROE.

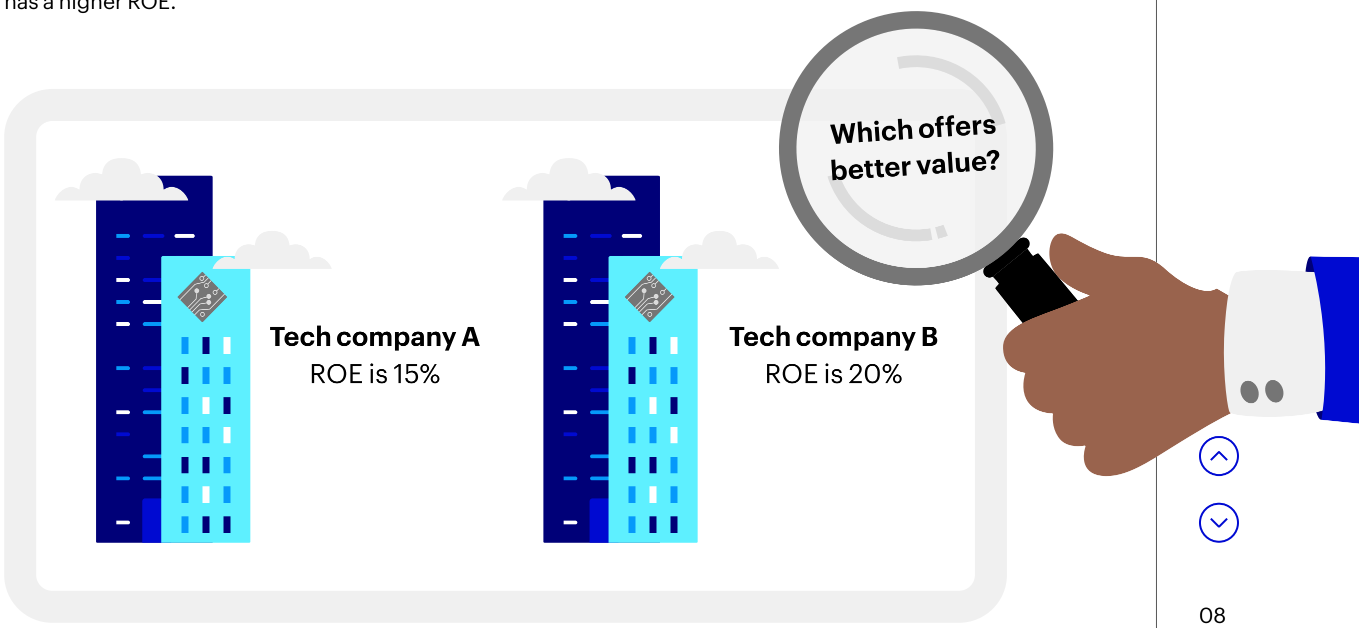
But similar to other metrics, this figure needs to be interpreted in the right context.

It's important to look at how a company's ROE has historically performed. If a company has increased its ROE steadily over the years, it could be a signal management is doing well. However, if it is declining it could be a warning sign that the company is struggling.

For example, Company A's previous two years' ROE were 8% and 5%. So, its ROE could also signal that the company is growing.

Another thing to be aware of is if the company has taken on lots of debt, this can artificially raise the ROE as it lowers what the shareholders' equity will be.

In addition, this metric should only be used to compare companies within the same industry, not across different sectors.



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Discounted cash flow

What is a discounted cash flow?

The discounted cash flow (DCF) valuation metric is used to determine the present value of a company from its future expected cash flows.

It's based on the premise that the value of future earnings is worth less today than it will be in the future. There is always a risk, however, that the future earnings may not be worth as much as they are today.

Inflation, for example, can erode the value of money over time. In three years from now, £1,000 is unlikely to be worth what it is today.

The valuation gives the investor an estimate of what they would receive from an investment, adjusted for the time value of money. This assumes money today is worth more than it is tomorrow because it can be invested.

How do you calculate the DCF?

To calculate the discounted cash flow, first you need to discount the future years' cash flow to the present value. A discount rate is applied to work this out.

The discount rate typically used for the calculation is the weighted average cost of capital (WACC) and is the cost of capital based on how much debt and equity the company uses. The figure represents the rate of return shareholders expect from the company.

The formula for the DCF is:

$$\mathbf{DCF = CF\ Year\ 1 / (1+r)^1 + CF\ Year\ 2 / (1+r)^2 + CF\ Year\ 3 / (1+r)^3 + CF\ Year\ 4 / (1+r)^4 + CFn / (1+r)^n}$$

CF = cash flow
r = discount rate
n = number of periods

Now let's go back to our fictitious apple companies. Let's assume our portfolio managers want to know if a project of Company A is worth investing in over a five-year period. The initial investment is £2m.

Company A has a WACC of 5%, so the discount rate will be 5%. For the next five years the company has the following estimated cash flows per year:

Cash flow:

Years	Cash flow
Year 1	£500,000
Year 2	£550,000
Year 3	£700,000
Year 4	£800,000
Year 5	£900,000

The formula for working out the DCF would be:

$$\mathbf{DCF = £500{,}000 / (1+0.05)^1 + £550{,}000 / (1+0.05)^2 + £700{,}000 / (1+0.05)^3 + £800{,}000 / (1+0.05)^4 + £900{,}000 / (1+0.05)^5}$$

CF = cash flow
r = discount rate
n = number of periods

Discounted cash flow:

Years	Cash flow	DCF
Year 1	£500,000	£476,190
Year 2	£550,000	£498,866
Year 3	£700,000	£604,686
Year 4	£800,000	£658,161
Year 5	£900,000	£705,173
Total	**£3,450,000**	**£2,943,076**

By subtracting the initial investment of £2m from the total DCF, we can calculate our net present value (NPV). The NPV is the value of all future cash flows over the entire life of an investment discounted to the present.

The NPV is **£943,076**, which indicates that the investment would be worth it as the DCF is above the initial costs.

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Discounted cash flow continued

What makes a good DCF?

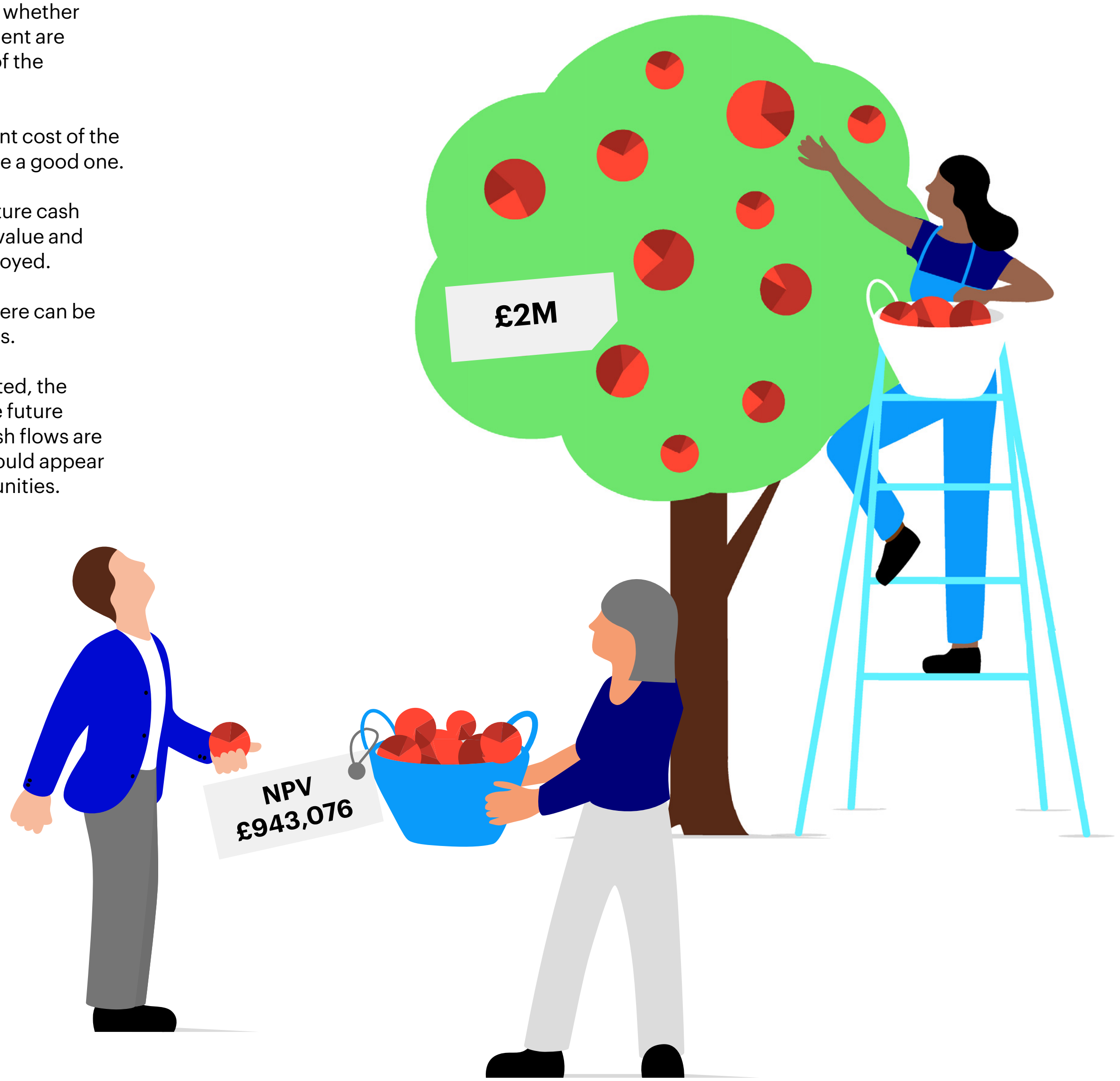
The DCF can be used to determine whether the future cash flows of an investment are equal to or greater than the value of the initial investment.

If the value is higher than the current cost of the investment, the opportunity may be a good one.

If an investor cannot access the future cash flows, the DCF will not have much value and alternative models should be employed.

DCFs rely on various factors and there can be unforeseen threats or opportunities.

If future cash flows are overestimated, the investment might not pay off in the future and profits may be impacted. If cash flows are underestimated, the investment could appear costly and result in missed opportunities.



Dividend yield

What is a dividend yield?

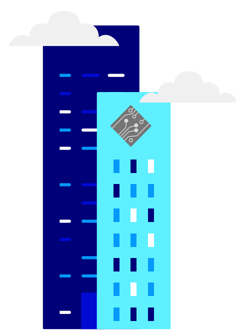
The dividend yield is a financial ratio and is expressed as the percentage of the current share price you get in dividends each year.

The ratio enables investors to compare stocks based on their dividends. It allows investors to see which company has the highest dividend, so you can decide if this return meets your income needs.

How do you calculate a dividend yield?

The dividend yield is calculated using the following formula:

Divided yield = annual dividends per share / price per share



Let's go back to our fictitious real estate companies. Company A's share price is £45 and it pays out an annual dividend yield of £2.

Expressed as a percentage, we get a dividend yield ratio of 4.4% (2 divided by 45).

Company B's share price is £30 and it pays out an annual dividend of £1.50.

The dividend yield ratio is 5% (1.5 divided by 30).

What makes a good dividend yield?

Company B has a higher dividend yield, so this company potentially gives investors a better opportunity.

Other factors to consider include whether an organisation is increasing its dividend each year. If a company consistently raises dividends each year, it could mean they are in good financial health.

Sectors that typically have high dividend yields include utilities, consumer staples, telecommunications, energy and real estate.

Companies that pay out regular dividends also tend to be in more mature industries, while younger firms tend to reinvest their profits for growth rather than pay out dividends.

However, a high dividend yield does not always mean it's the best stock to invest in.

One red flag to watch out for is if a stock price has recently plummeted but the dividend is still high. This might make the pay-out artificially high, with the slump in stock price signalling that dividends could be cut in the future.

Another warning sign is if a company suddenly decides to pay investors a high dividend. They could be using it to lure investors into buying their stock and pushing up the price. If the company isn't financially stable, it might not last.

Structured CPD

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Find out more

Some say value investing is back.
We say it never left.

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Risk warnings

The value of investments and any income will fluctuate (this may partly be the result of exchange rate fluctuations) and investors may not get back the full amount invested.

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