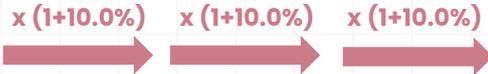


# What are DCF and WACC?

Imagine investing **100.0** today with a **10.0%** return.

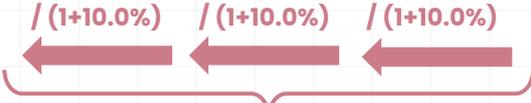
Time	0	1	2	3
Cash flow	100.0	110.0	121.0	133.1



# What are DCF and WACC?

**But what if it happened in reverse?** You are offered 133.1 in 3 years time, and you require a 10.0% return. **How much should you pay now?**

Time	0	1	2	3
Cash flow	100.0	110.0	121.0	133.1

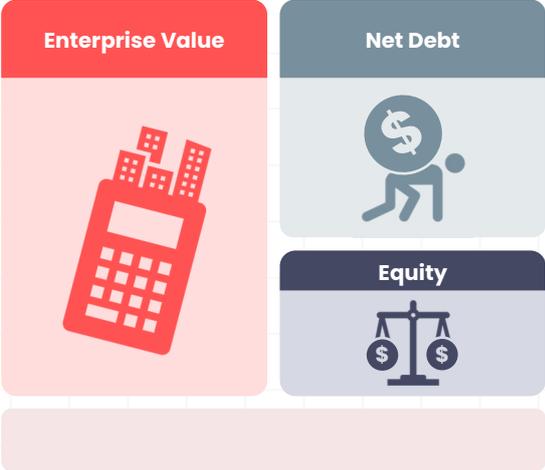
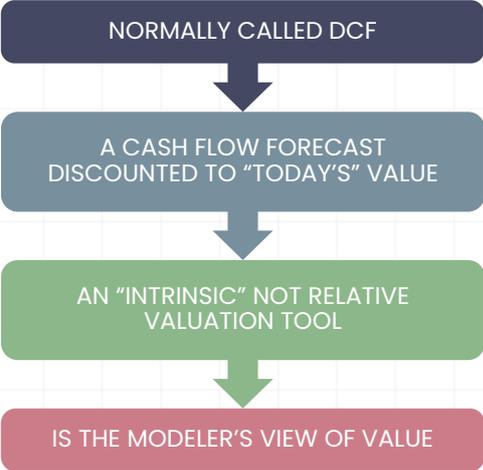


☆ The **100.0** represents the present value of a **133.1** future cash flow.

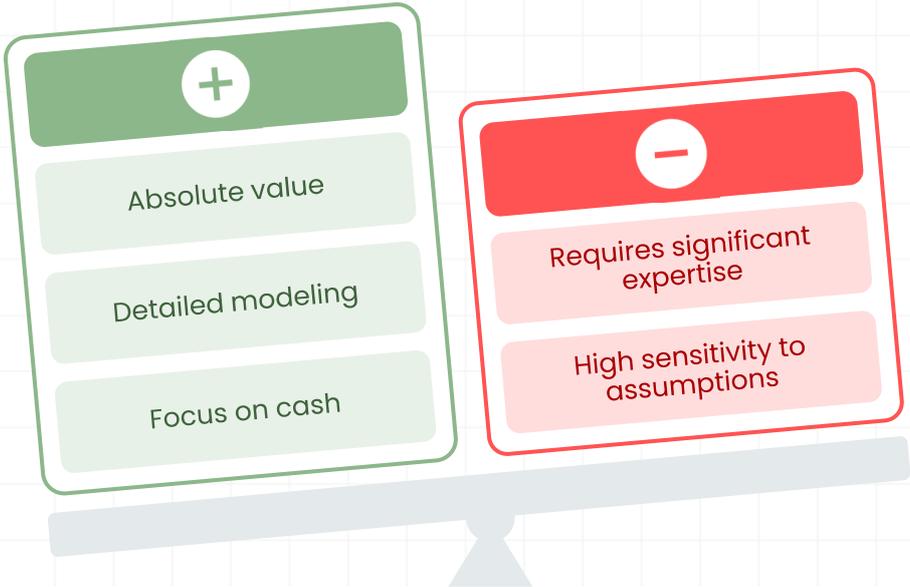
The investor's **10.0% required return** also represents a **cost of capital of 10.0%** for the company being invested in.

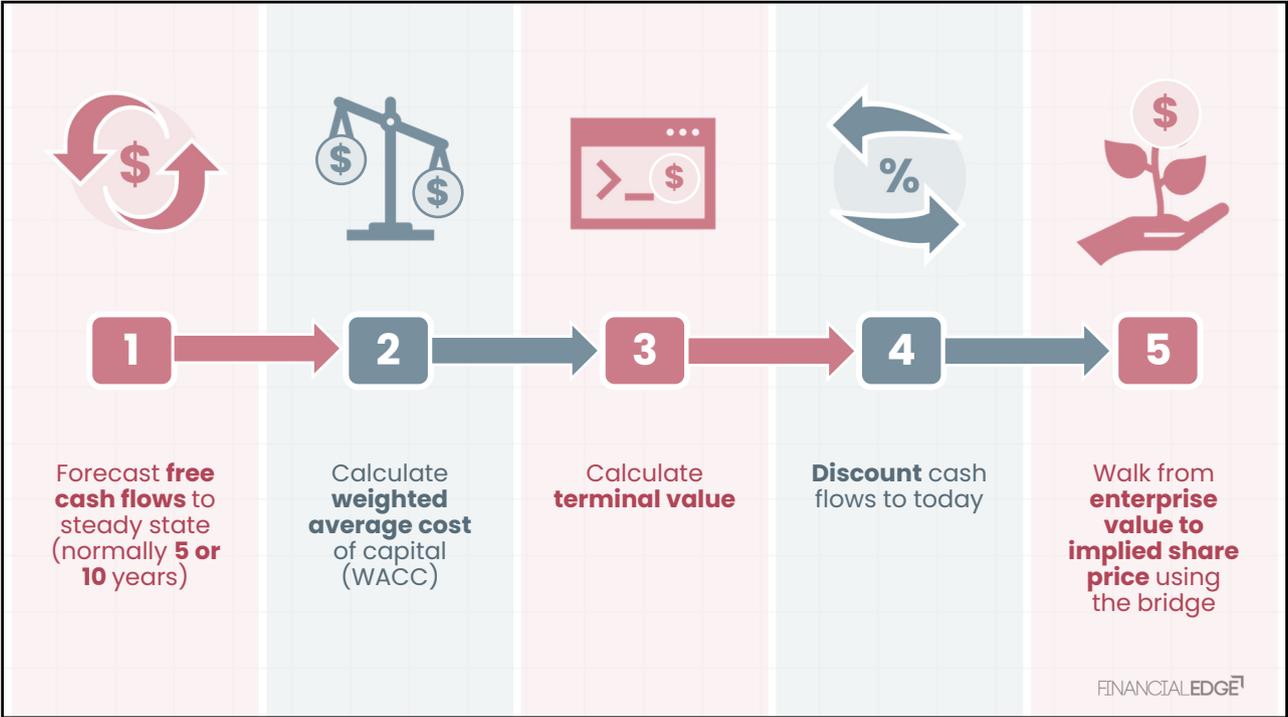
A DCF takes a **cash flow occurring in the future** and calculates how much would be paid for it today.

# What is Discounted Cash Flow?



# What is Discounted Cash Flow?

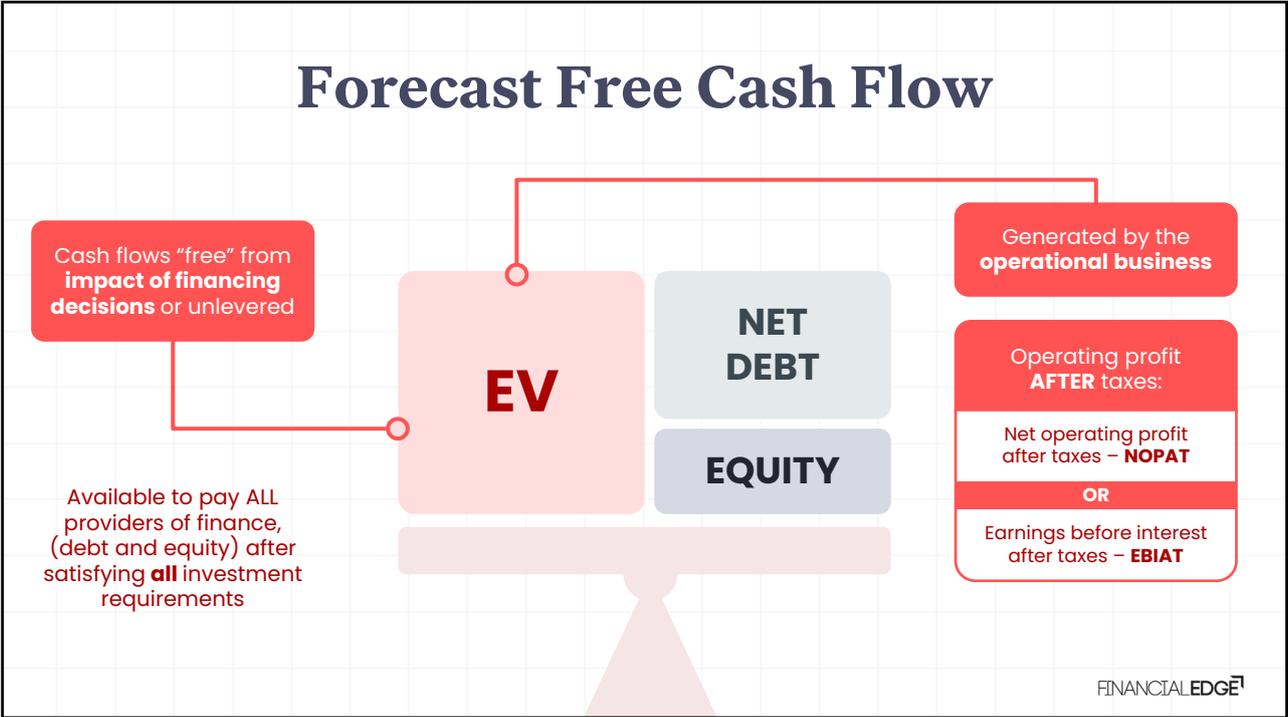


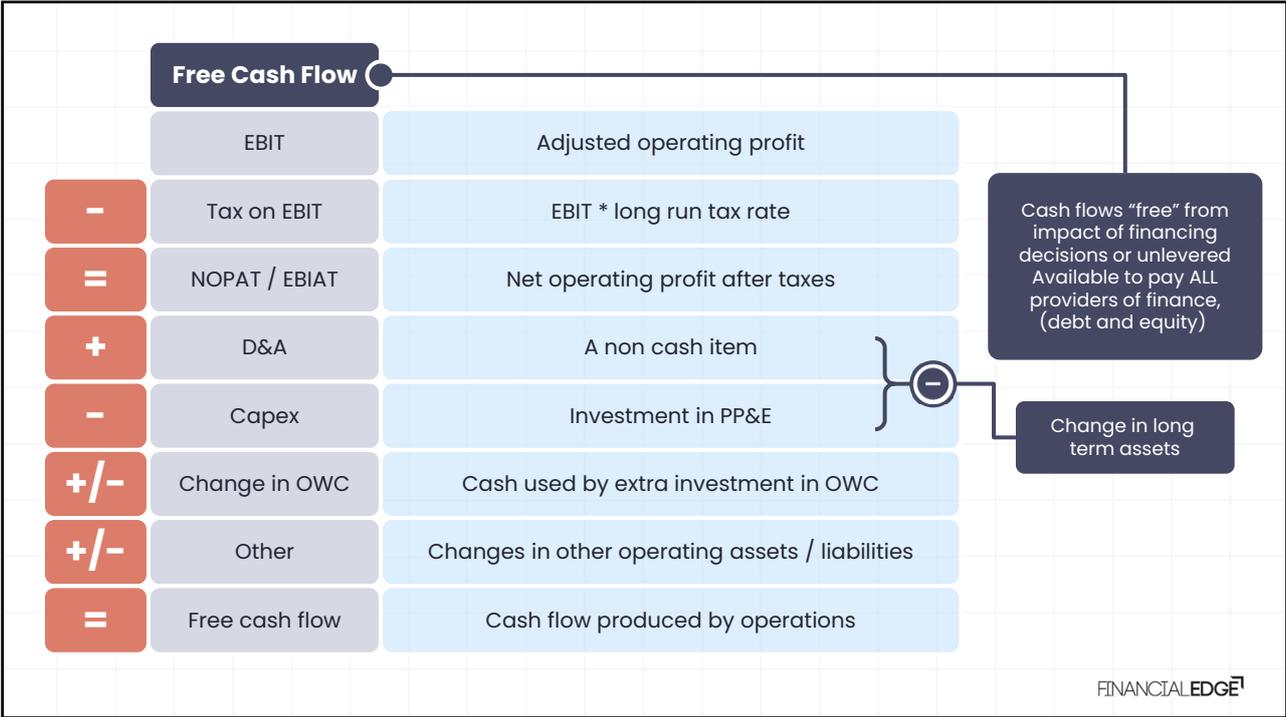


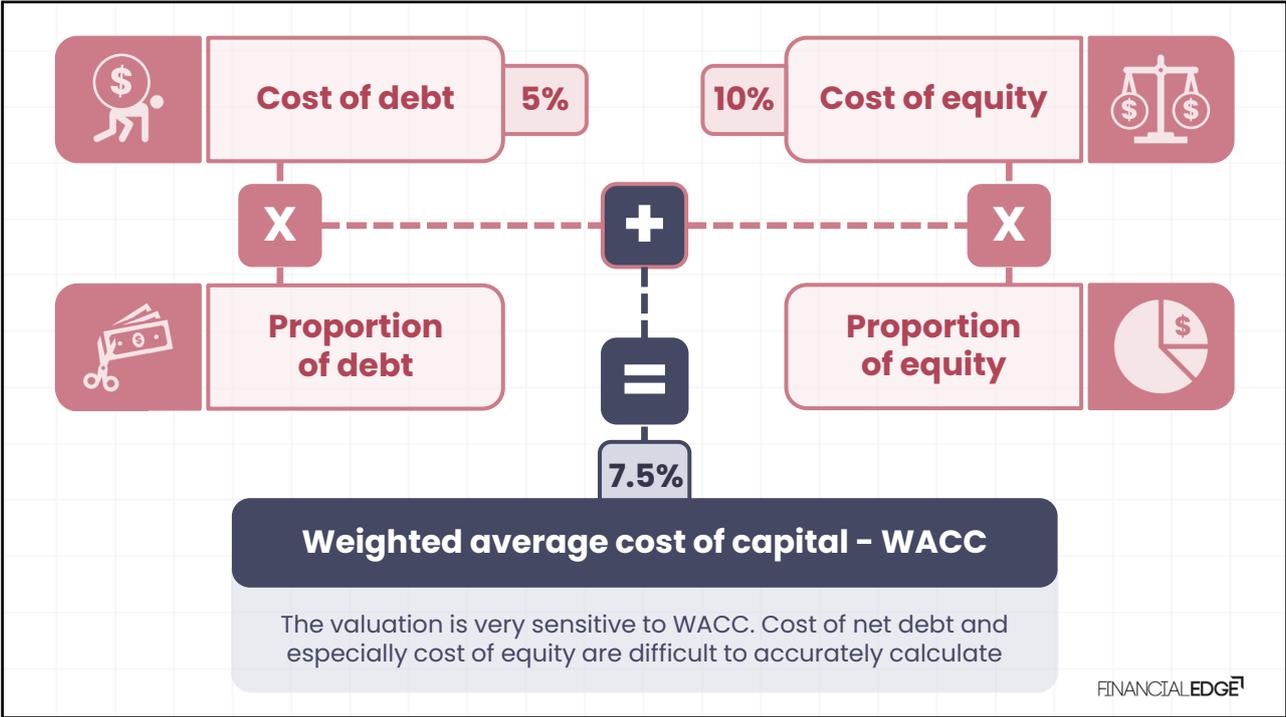


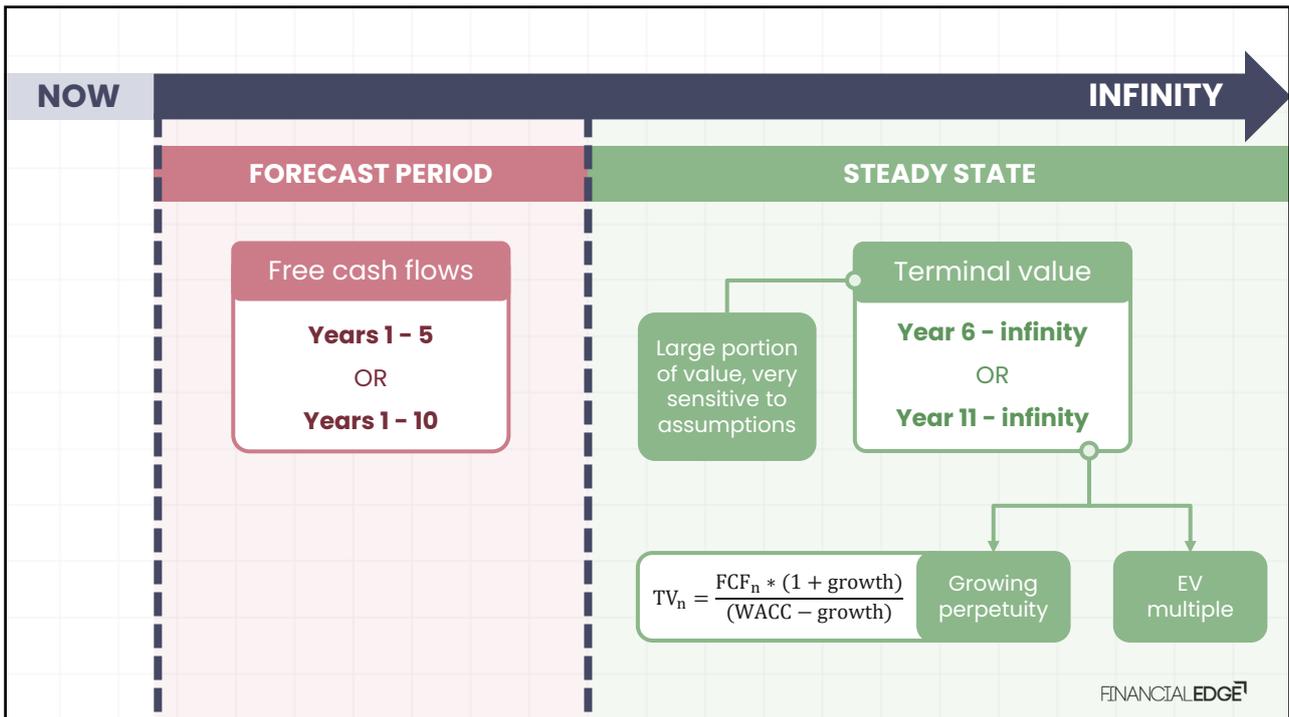
# Forecasting Free Cash Flows

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## Two Approaches

	Growing perpetuity	Terminal EV multiple
<b>Formula</b>	$TV_n = \frac{FCF_n * (1 + g)}{(w - g)}$	$TV_n = LTM\ EBITDA_n * \text{Multiple}$
<b>Sense check</b>	$EV\ \text{multiple} = \frac{TV_n}{LTM\ EBITDA_n}$	$LT\ \text{growth rate} = \frac{(w * TV_n - FCF_n)}{FCF_n + TV_n}$

**TV** = Terminal value

**g** = Growth rate in perpetuity

**FCF<sub>n</sub>** = FCF in final year of forecasting

**w** = WACC

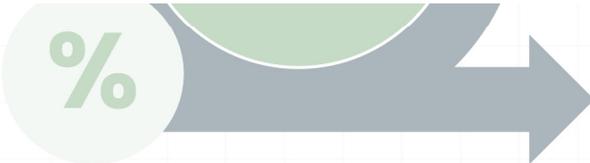
# Company Characteristics



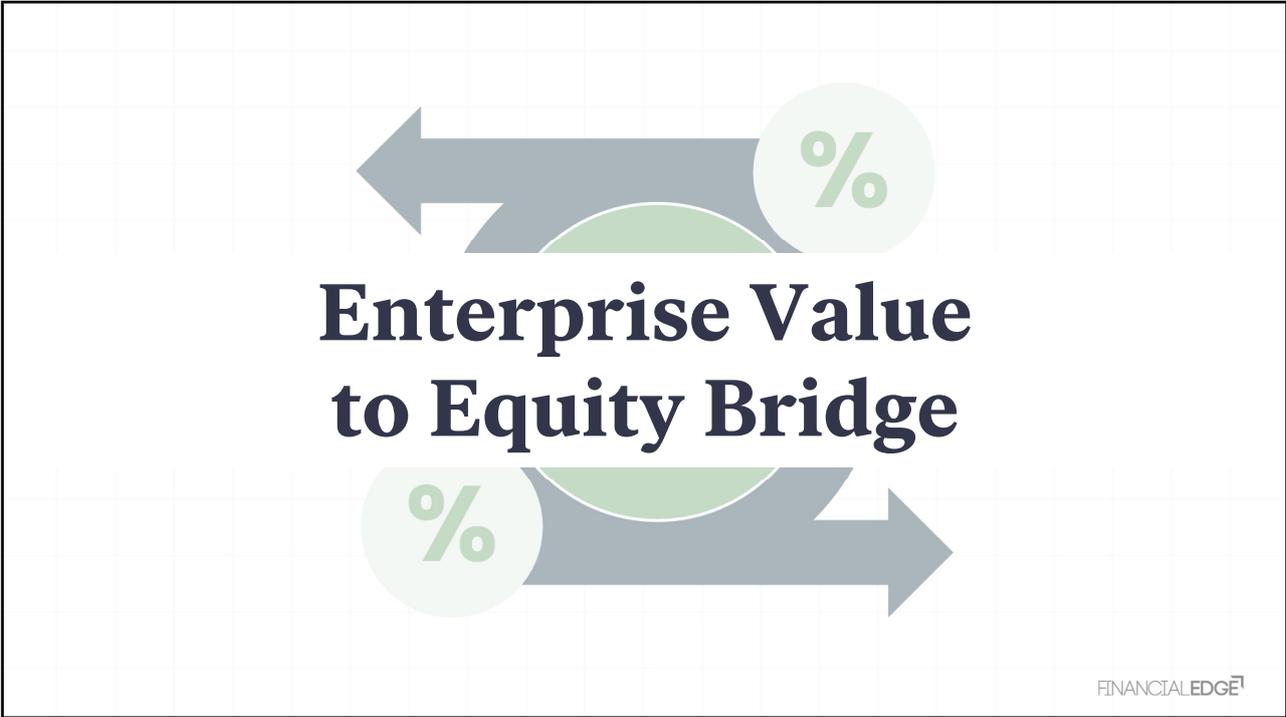
**STEADY STATE**

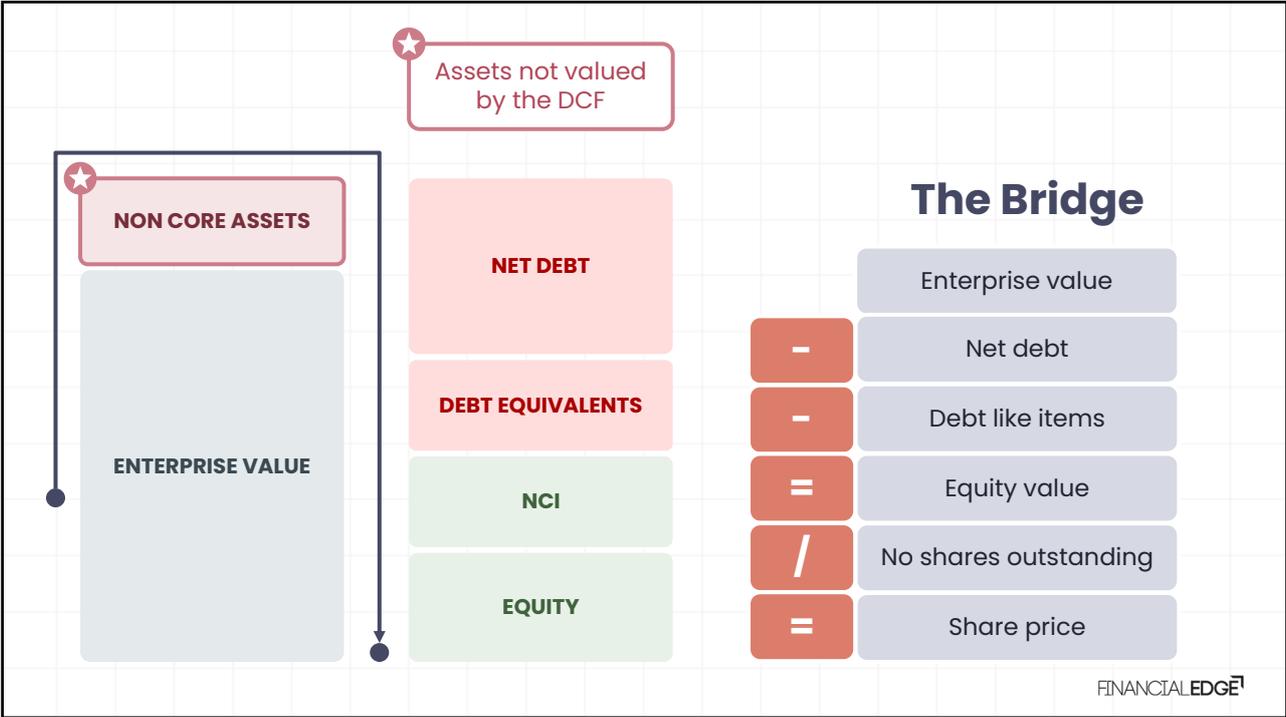
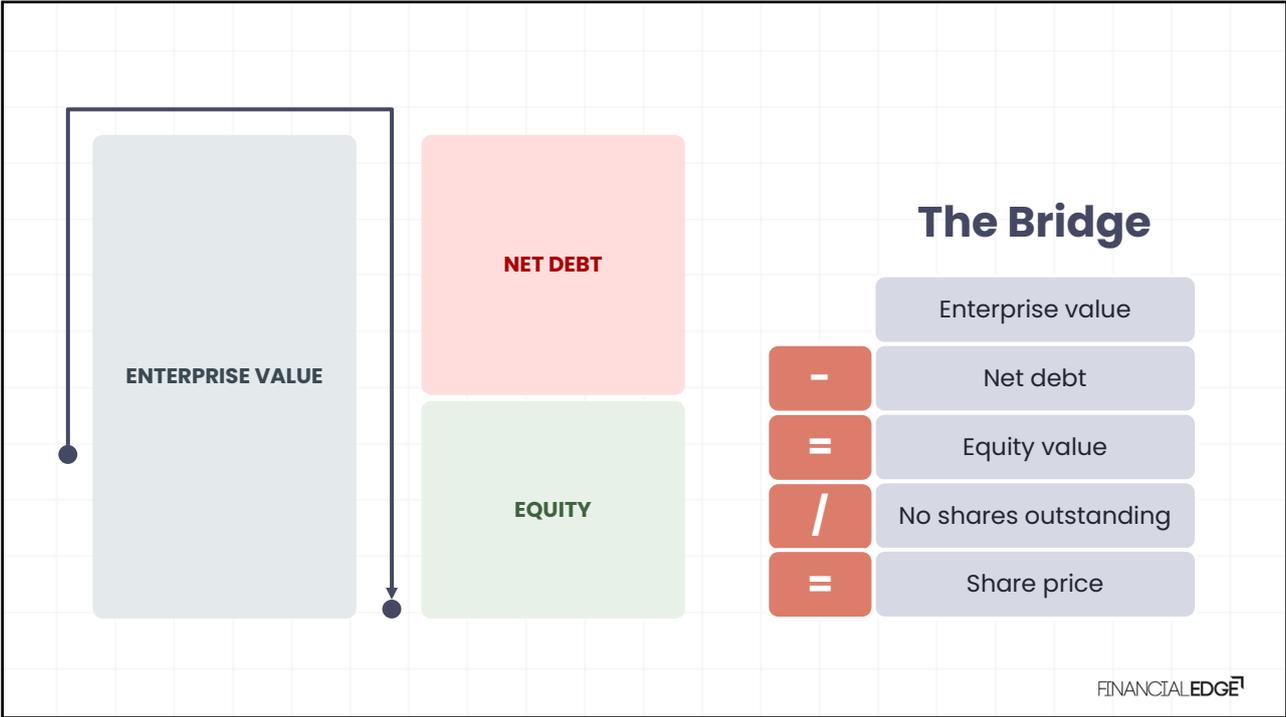


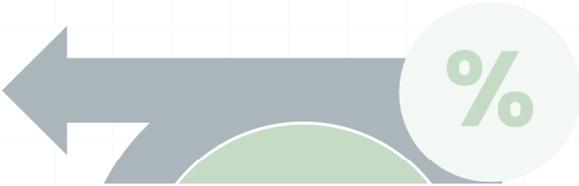
# Discounting



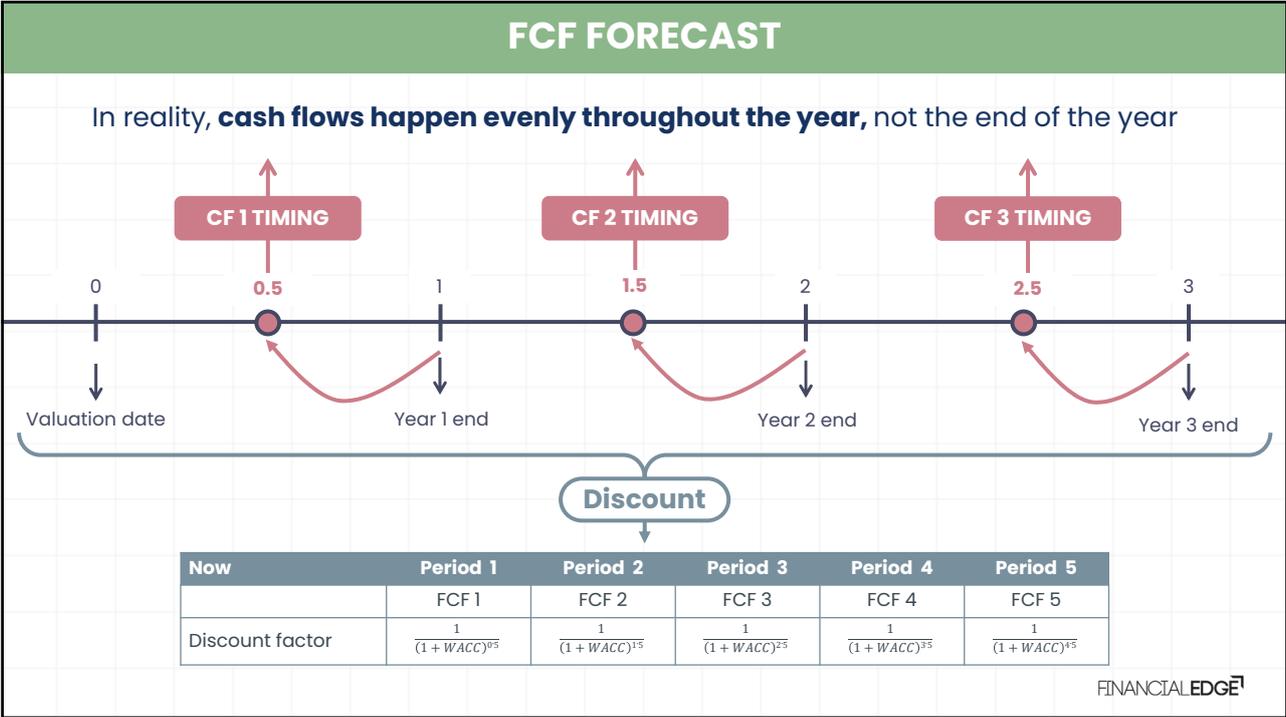
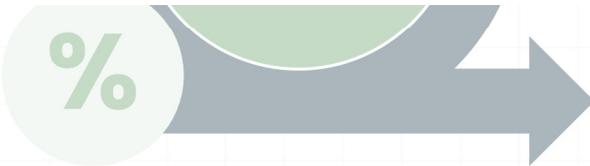
	Period 1	Period 2	Period 3	Period 4	Period 5
<b>Cash flow</b>	FCF 1	FCF 2	FCF 3	FCF 4	FCF 5
<b>Terminal value</b>					TV
<b>Discount factor</b>	$\frac{1}{(1+WACC)^1}$	$\frac{1}{(1+WACC)^2}$	$\frac{1}{(1+WACC)^3}$	$\frac{1}{(1+WACC)^4}$	$\frac{1}{(1+WACC)^5}$
<b>Present value</b>	FCF * discount factor				
<b>Sum of PV of FCFs</b>	(FCFs 1 – 5) * discount factor (1 – 5)				
<b>PV of TV</b>	TV * discount factor 5				
<b>Enterprise value</b>	Sum of PV of FCFs + PV of TV				





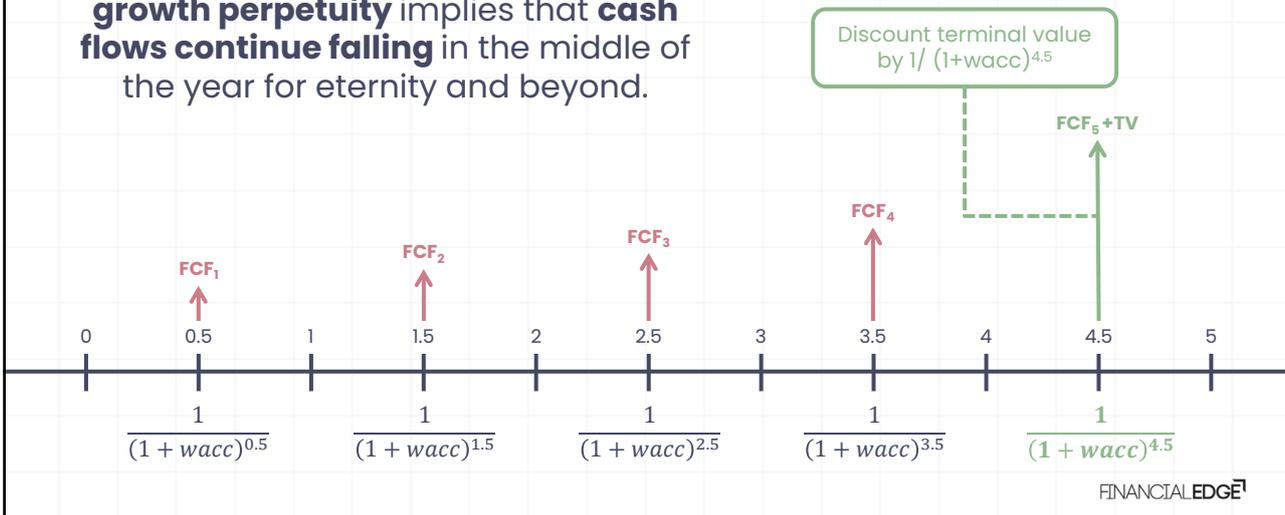


# Mid Year Adjustment



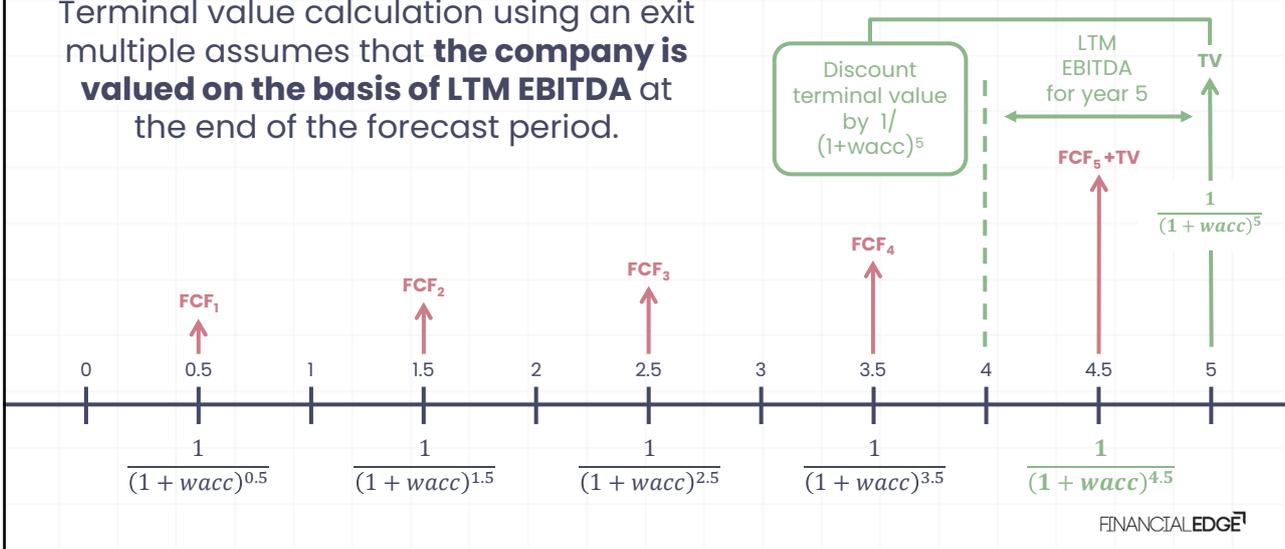
### TV USING GROWTH PERPETUITY

Terminal value calculation using **growth perpetuity** implies that **cash flows continue falling** in the middle of the year for eternity and beyond.



### TV USING EXIT MULTIPLE

Terminal value calculation using an exit multiple assumes that **the company is valued on the basis of LTM EBITDA** at the end of the forecast period.



## TWO APPROACHES

	Growing perpetuity	Terminal EV multiple
<b>Formula</b>	$TV_{n(GP)} = \frac{FCF_n * (1 + g)}{(w - g)}$	$TV_n = LTM\ EBITDA_n * \text{Multiple}$
<b>Sense check</b>	$EV\ \text{multiple} = \frac{TV_{n(GP)} * (1 + w)^{0.5}}{LTM\ EBITDA_n}$	$LT\ \text{growth rate} = \frac{(w * \frac{TV_{n(MM)}}{(1 + w)^{0.5}} - FCF_n)}{FCF_n + \frac{TV_{n(MM)}}{(1 + w)^{0.5}}}$

**TV** = Terminal value

**g** = Growth rate in perpetuity

**FCF<sub>n</sub>** = FCF in final year of forecasting

**MM** = Multiple method

**w** = WACC

**GP** = Growing perpetuity method

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