Course Overview

Calculate **maximum dividends payable** using a bank model

Understand how **equity value** is derived from the **present value of future maximum dividends**

Calculate **equity value** using a dividend discount model

Apply **sense checks** to a terminal value calculation

Apply **cross checks** to the overall valuation using PE & price to book value multiples

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Dividend Discount Model

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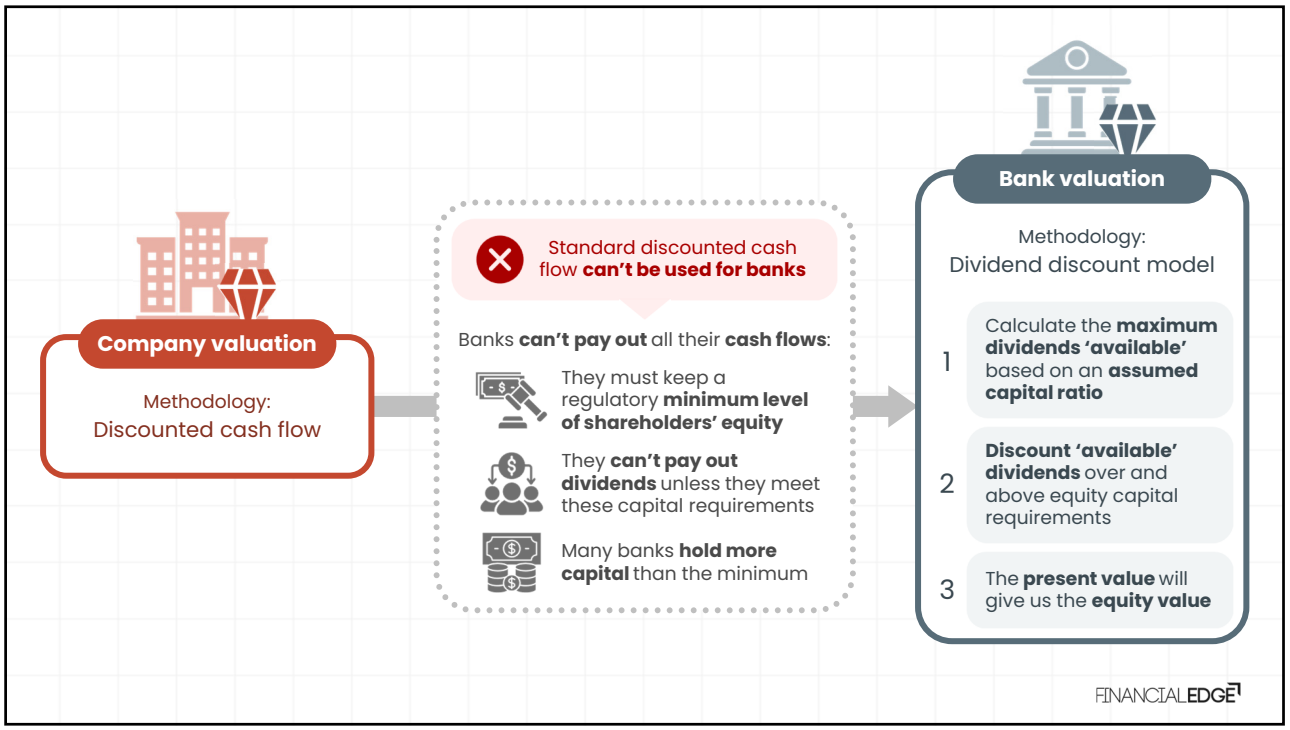

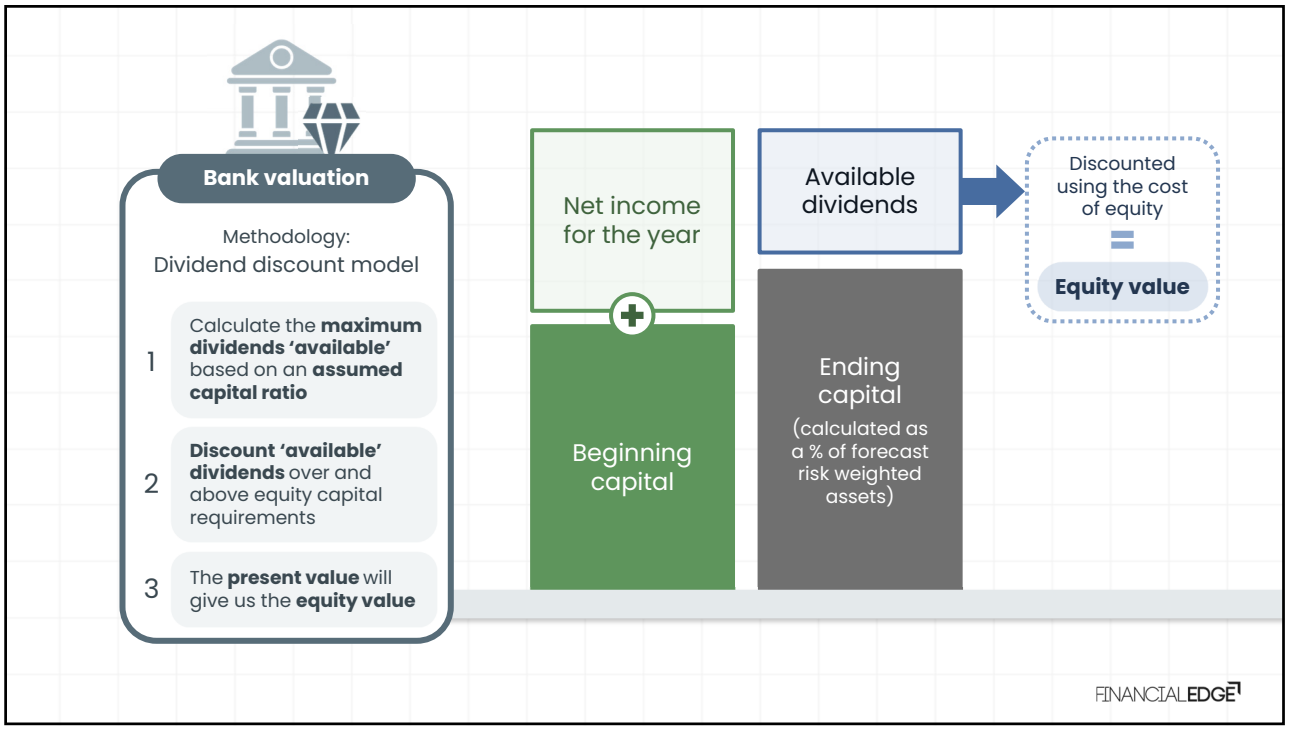

Maximum Dividends Calculation

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Build a two-statement model for the bank

Step 1

Banks are balance sheet driven

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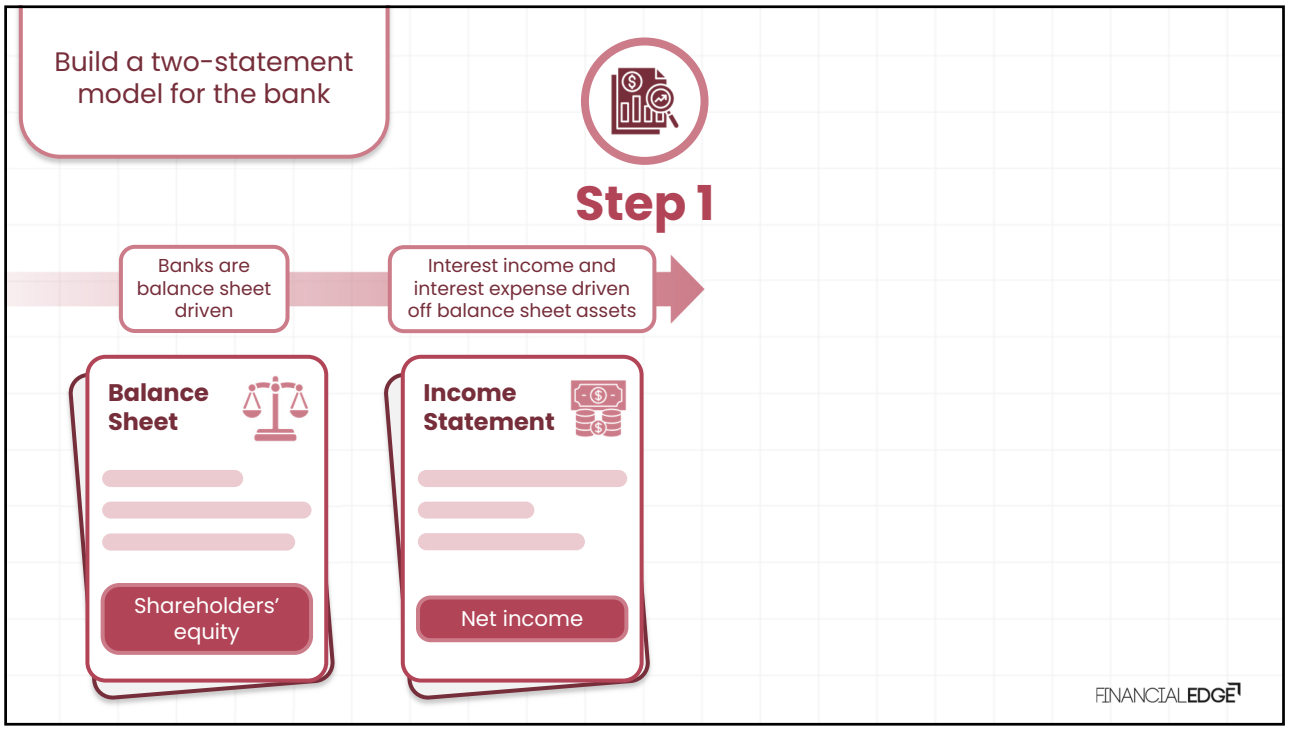

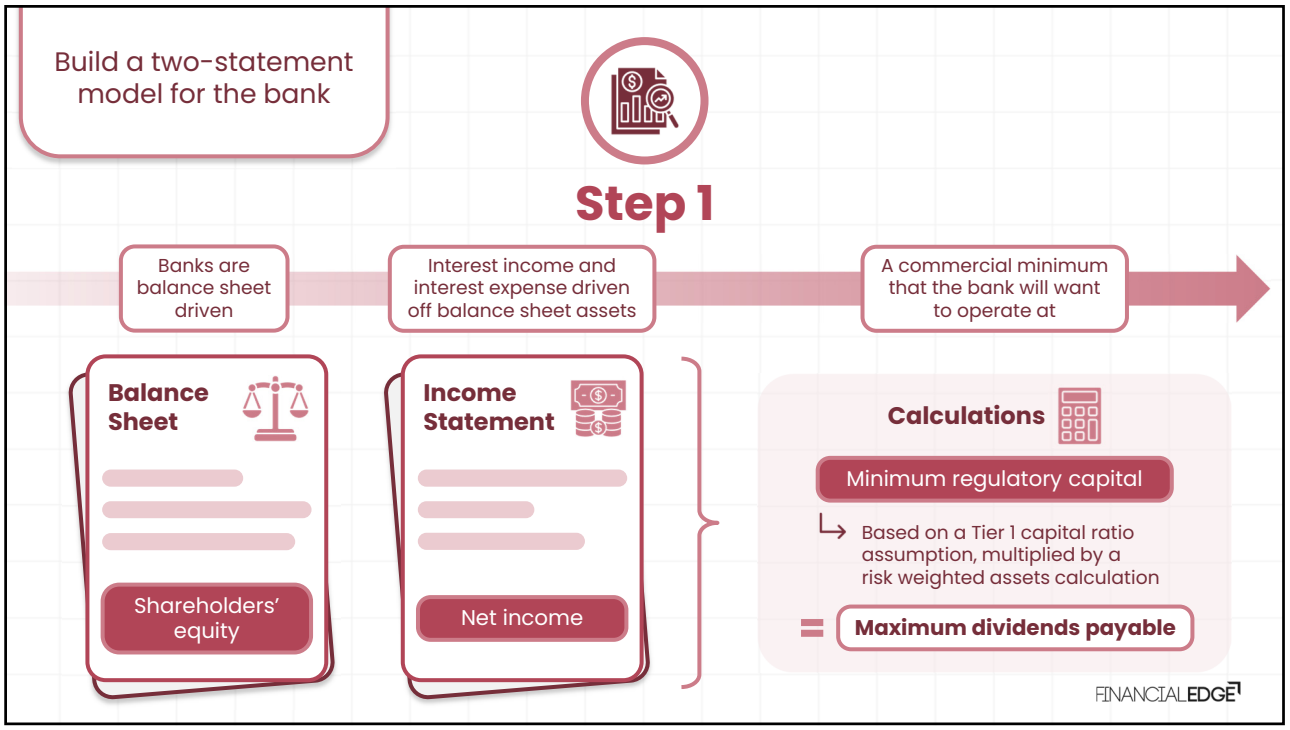

Calculate maximum dividends payable

Step 2

	A	B	C
1	Tier 1 capital ratio	12.0%	
2	Risk weighted assets	200.0	
3			
4	Beginning equity	22.0	
5	Net income	6.0	
6	Regulatory capital	24.0	=B1*B2
7	Surplus capital / dividends	4.0	=B4+B5-B6
8			

Make an assumption about the long-term capital ratio

Known as the tier one capital ratio → Shareholders' equity excluding goodwill and other intangibles

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Calculate maximum dividends payable

Step 2

	A	B	C
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Calculate risk weighted assets

Using Basel III regulatory framework

1 Credit risk

2 Operational risk

3 Market risk

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Calculate maximum dividends payable

Step 2

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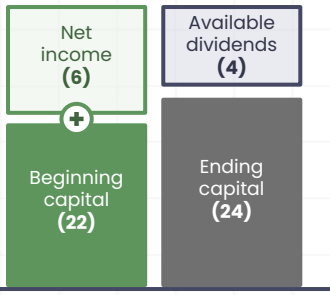
Calculate available dividends

(22 + 6) – 24 = **4 million**



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Discounting the Dividends

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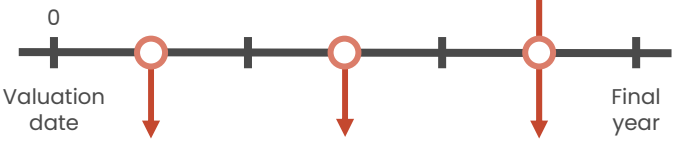
Calculate the terminal equity value

Step 3

Multi-year dividend forecast



Dividends fall in the middle of the year (private organization)

Terminal value based on Gordon growth model

$$Terminal\ value_n = \frac{(final\ dividend_n * (1+g)}{(Ke-g)}$$

$g = long-term\ growth\ in\ dividends$

$Ke = cost\ of\ equity$

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Calculate the terminal equity value

Step 3

Ensuring your terminal value **is in the same year** as your last dividend forecast

- ↳ The Gordon growth model discounts the **first dividend** you give it
- ↳ Take the final dividend and **grow it by** $(1+g)$
- ↳ This makes it the **year after the final year**
- ↳ Ensuring the terminal value is in the **final year**

$$Terminal\ value_n = \frac{(final\ dividend_n * (1+g)}{(Ke-g)}$$

$g = long-term\ growth\ in\ dividends$

$Ke = cost\ of\ equity$

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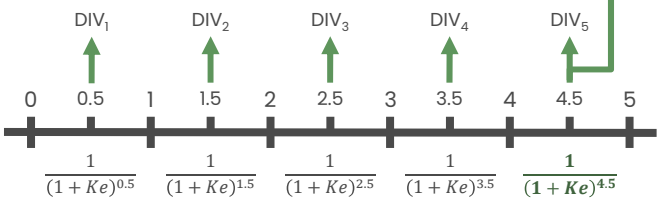
Discount the dividends and the terminal value

Step 4

$Ke = cost\ of\ equity$
(only discounting dividends)

Discount terminal value by $\frac{1}{(1+Ke)^{4.5}}$



Dividends fall in the middle of the year

Cross check your valuation

- Take an **implied P/E multiple** and an **implied price-to-book value multiple**
- You should see these **decline** if your growth rate declines as you reach your terminal value
- You will end up with an **equity value**
- Giving you the **value of the bank**

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