Advanced Valuation

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Value Driver Formula for Terminal Value

A company has $1,000 of invested capital at the start of 20X1.
Analyst forecasts for 20X1 show the following…

	20X1
NOPAT	**200**
Add back depreciation	100
Capex	-110
Change in working capital	-50
Free cash flow	**140**

$60 net reinvestment

Invested capital will grow by 6% = Net Reinvestment / Invested Capital

Net Reinvestment = Growth Rate x Invested Capital

Value Driver Formula for Terminal Value

$$\textbf{Terminal value} = \frac{FCF * (1+g)}{WACC - g}$$

FCF = NOPAT – g * Invested Capital

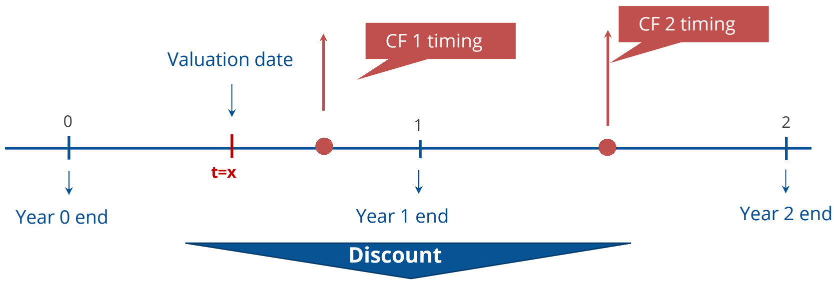
AND

$$ROIC = \frac{NOPAT}{\text{Invested Capital}}$$

$$\textbf{Terminal value} = \frac{NOPAT * (1+g) * \left(1 - \frac{g}{ROIC}\right)}{WACC - g}$$

Discounting with Variable Valuation Date

We rarely value a company right at the beginning of its fiscal year!



Now	Period 1	Period 2	Period 3	Period 4
	FCF 1	FCF 2	FCF 3	FCF 4
Discount factor				

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Discounting with Variable Valuation Date

Identify valuation date =TODAY()

Calculate cash flow date =AVERAGE(period start, period end)

Calculate days for discounting =Cash flow date – valuation date

Calculate year count =days for discounting/365

Calculate discount factor = 1/(1+WACC)^(year count)

Calculate FY1 FCF available = FY1 FCF*(FY1 period end- valuation date)/365

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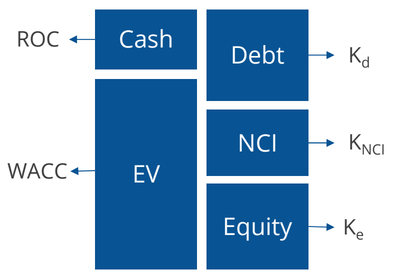
Normal WACC Formula

$$WACC = K_e * \frac{E}{E+D} + K_d * (1 - tax) * \frac{D}{E+D}$$

What about financial assets and other sources of finance?

Extended WACC Formula



$$WACC = K_e * \frac{E}{EV} + K_d * (1 - tax) * \frac{D}{EV} + K_{NCI} * \frac{NCI}{EV} - \frac{C}{EV} * ROC * (1 - tax)$$

Other sources of finance such as preferred stock or off balance sheet debt equivalents could also feature in the WACC equation

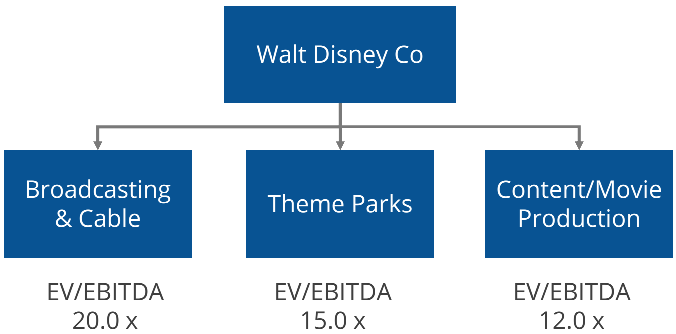
WACC Considerations

1. Use total debt not net debt in the WACC formula
   - Using net debt incorrectly assumes cost of debt = return on cash
2. Include Excess cash/financial assets in the WACC formula if not part of EV
3. Be careful using Bloomberg beta for cost of equity calculations
   - Betas in relatively stable industries can be abnormally low following a period of extreme market volatility dominated by other industries

WACC is an estimate!

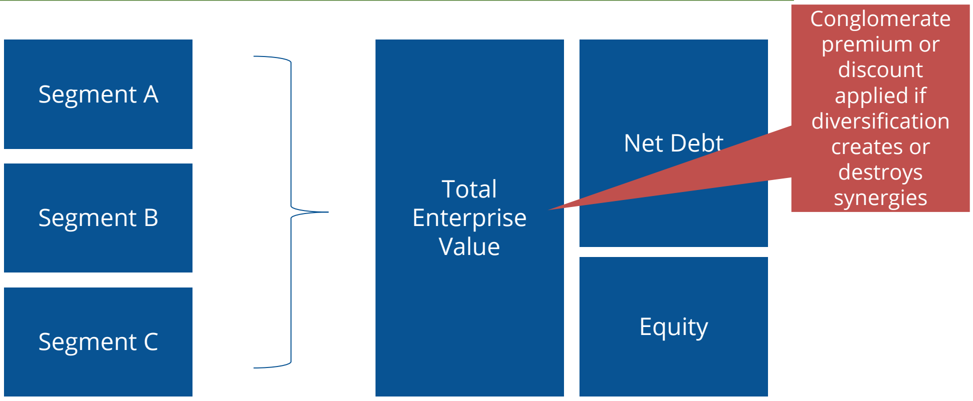
Valuing Conglomerates

Which multiple should we use when valuing a business with diverse operating segments?



Sum of the Parts Valuation

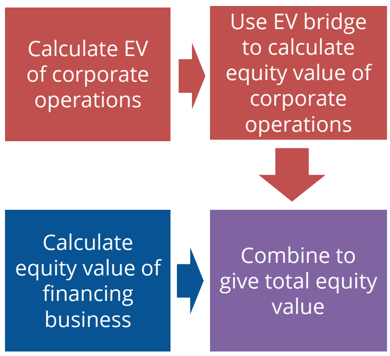
Value each segment separately using an appropriate industry valuation multiple and add together to calculate total enterprise value



SOTP for Corporates with Finance Operations

Corporates with finance operations usually provide segment income statements and balance sheets so we can use sum of the parts valuation

	Industrial operations	Financial services
Property, plant & equipment	500	-
Inventories	600	-
Trade receivables	140	400
Financing receivables	-	2,500
Cash	400	200
Total assets	**1,640**	**3,100**
Trade payables	900	200
Borrowings	500	2,700
Total liabilities	**1,400**	**2,900**

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