Understanding the Capital Asset Pricing Model

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❖ In simple terms the Capital Asset Pricing Model is the way we arrive at one component of the discount rate for our DCF

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❖ The Capital Asset Pricing Model is normally referred to as CAPM or CAP-M

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❖ The CAPM helps us to calculate the Cost of Equity which is then adjusted by the WACC to arrive at our discount rate in our DCF model

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❖The formula for the CAPM is…

Expected Return = Risk Free Rate + (Beta x Market Risk Premium)

$$Ra = Rrf + (Ba \ x \ (Rm - Rf)$$

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❖ Ra = Expected Rate of Return

❖ Rrf = Risk Free Rate

❖ Ba = Beta of Security

❖ Rm = Expected Market Return

❖ Risk Premium = (Rm-Rrf)

$$Ra = Rrf + (Ba \times (Rm - Rf)$$

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❖ The idea is relatively simple

❖ Companies or investment assets have a higher risk than the risk free rate and the market average risk

❖ The CAPM formula provides us with the ability to calculate this.

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❖ The Expected Return in the CAPM is the same as the Discount Rate, Hurdle Rate or Rate of Return

❖ Its the expected rate of return of the asset over a period of time

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❖ The Risk Free Rate (Rrf) is typically equal to a Government Bond of the country from which the investment originates or the company operates

❖ The term of the bond ideally should equal the term of the DCF modelling when modelling

❖ If in doubt, take a 10 year Government bond

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❖ The Beta (Ba) is a measure of the asset's or the company's specific risk

❖ If the market has an average of 1, the beta might be 1.4 which means that it is 1.4x more sensitive to volatility in the market

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❖ The Market Risk Premium is the expected return from the market less the Risk Free Rate

❖ So its the additional return required by investors for investing in the market rather than purchasing a Government Bond.

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❖ Lets work through a hypothetical example…

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❖ Lets assess the Cost of Equity using the CAPM for a stock listed on the London Stock Exchange and which trades in the UK

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❖ We look up the yield on a 10 year UK Government Gilt (bond) and its 1.75%

Risk Free Rate = 1.75%

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❖ We find that the market return of the FTSE 100 historically has been 8.75%

❖ So the Market Risk Premium is 7%

Risk Free Rate = 1.75%

Market Risk Premium = 7%

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❖ The Beta of the stock when we look it up is 1.5 - so its return is 1.5x more volatile than the FTSE 100

Risk Free Rate = 1.75%

Market Risk Premium = 7%

Beta = 1.5

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❖ So the Expected Rate of Return for this stock is 12.25%

Risk Free Rate = 1.75%

Market Risk Premium = 7%

Beta = 1.5

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Expected Return =

1.75% + (1.5 x 7%) = 12.25%

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