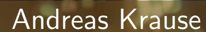

Investment decisions by companies

Present value of investments

- Companies have to decide whether to make an investment using debt and equity
- They should take into account any future earnings from their investment
- The value of such an investment is the present value of any future cash flows the investment generates
- $V = \sum_{\tau 1}^{T} \frac{V_\tau}{(1+R)^\tau}$

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Investment decisions

- The present value of the investment is compared to the initial investment
- If the value of the investment exceeds the initial investment, the investment should be pursued
- The difference, $V - I$, is known as the Net Present Value (NPV) and a positive value indicates that the investment should be pursued

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Cost of capital

- The discount rate applied will depend on the financing of the investment with debt and equity: $I = D + E$
- Using equity will require a return as determined by asset pricing models, this is referred to as the cost of equity
- The costs of debt is given by the loan rate
- $RI = \mu E + r_L D$, representing the financing costs of the investment

$\Rightarrow$ $R = \mu \frac{E}{D+E} + r_L \frac{D}{D+E}$

- This is known as the Weighted Average Cost of Capital (WACC)

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Limited resources

- The amount of capital is limited as equity and debt cannot be raised beyond certain limits
- This may make it impossible to pursue all investments with a positive Net Present Value
- Companies should then choose the combination of investments that give jointly the highest Net Present Value
- This may result in many smaller investments with lower individual NPVs being pursued rather than one investment with a large NPV

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Impact on stock prices

- The Net Present Value represents the value added if the company undertakes the investment
- This additional value accrues to the equity holders, debt interest has already been deducted from the earnings

$\Rightarrow$ The equity value should increase by the Net Present Value

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