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Present Values vs Valuing

- PVs can be **added together to evaluate multiple cash flows**.

$$PV = \frac{C_1}{(1+r)^1} + \frac{C_2}{(1+r)^2} + ... = \sum \frac{C_t}{(1+r)^t}$$

Capitalization rate (cap rate)

$$CR = \frac{NOI}{I}$$

I – Investment costs (aggregate) – eg. Property acquistion
NOI – net operating income (mean)

- Instead of NOI for basic calculation EGI (effective gross income) is sometimes used.

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Market value : Income approach

$$V_{DCF} = C_{F1} * \frac{1}{(1+r)} + C_{F2} * \frac{1}{(1+r)^2} + ...+ C_{Fn} * \frac{1}{(1+r)^n} + RV * \frac{1}{(1+r)^n}$$

V_{DCF} –Market value
RV – Residual value
CF – cash flow (net operating income; NOI)
r – discount rate

$$WACC = r_A = \left(\frac{D}{V} \times r_D\right) + \left(\frac{E}{V} \times r_E\right)$$

D – debt
V- total value
E – eqiuty
r- the firm's cost of eqity

Rate of return (profitability)

$$\text{ROI} = \frac{\text{PROFITS}}{\text{Investments costs}}$$

$$\text{ROE} = \frac{\text{PROFITS}}{\text{average total equity}}$$

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Exercise 1

Nominal value of a bond is $100. We plan to hold it for 3 years. Assumption:

a) interests payment once per year
b) expected rate of return 8 %
c) interest rate is 10 %

If market value is $105.2 should we invest in such a stock? How it will change your decision if interest is charged two times a year (m=2)?

Exercise 2

Using data (table below) please calculate Weighted Average Cost of Capital

Form of capital	Value (PLN)	Capital cost
Net profit from previous year	2 500	15 %
Share capital	6 000	25 %
Debt	1 500	18 %

Exercise 3

Demanding marriage hangs in 2004, enough money to buy a three-room apartment and start searching for that last two years. The money is invested in a bank deposit (interest rate 4%) . Within two years, housing prices have increased by 25% per year.

- A) What was a drop in 'housing' purchasing power of this marriage?
- B) What would be the real growth of capital, if the money was invested in an investment fund for which the value of the certificates has increased in this period by 31% and 46%?

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Exercise 4

Use the payback period and return on investment method to choose between projects A and B

	PROJECT A	PROJECT B
Co	($ 1500)	($ 1500)
C1	500	400
C2	500	500
C3	600	500
C4	200	600
C5	200	600

Exercise 5

Property is located in Krakow (office market). Assuming that we are renting 6 200 m2 of office space with average rent 15 Euro/sq m/ month and annual operating expenses = 105 050 euros please estimate market value of property. Cap rate for office market in Krakow is 8%.

Exercise 6

Assume you purchased 200 shares of stock at the beginning of year for $ 100 per share. At the end of the year you receive an $8 cash dividend per share. The stock is trading at the end of the year at $ 110 per share. Calculate the rate of return in this case.