COURSECODE Cheatsheet

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1 Week 1

Terminology: **Interest Rate**

1. P: Principle amount
2. F: Future amount
3. F_N : Future amount in (time unit) N
4. N: Number of periods (e.g. years)
5. i: Interest rate
6. I: Total interest amount
7. r Nominal interest rate (usually for 1 year)
8. m: Number of times compounded (subperiods) per year
9. i_s: Subperiod interest rate
10. i_e: Effective interest rate, the equivalent rate if compounded only once per year.

Definition: Interest Rate

$$i = \frac{I}{P} \tag{1}$$

Definition: Subperiod Interest Rate

$$i_s = \frac{r}{m} \tag{2}$$

Definition: Effective Interest Rate

$$i_e = (1 + i_s)^m - 1 \tag{3}$$

Definition: Simple Interest

$$F_N = P(1 + Ni) \tag{4}$$

Definition: Compound Interest

$$F_N = P(1 + i)^N \tag{5}$$

Definition: Compound Interest with Subperiods

$$F_N = P(1 + i_s)^{Nm} \tag{6}$$

Definition: Continuous Compound Interest The finite amount of i_e as the compounding period becomes infinitesimally small.

$$i_e = \lim_{m \to \infty} (1 + \frac{r}{m})^m - 1 = e^r - 1 \tag{7}$$

Note: i_e increases as the compounding period decreases.

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