Note-Formulae

Core Finance Formulae

1) Future Value of a Single Cash Flow Invested for n Periods

$$FV = P \times FF(r, n)$$

$$\text{FV Factor, } FF(r, n) = (1 + r)^n$$

2) Present Value of a Single Cash Flow Received n Periods from now

$$PV = F \times PF(r, n)$$

$$\text{FV Factor, } PF(r, n) = \frac{1}{(1 + r)^n}$$

3) Future Value of a Stream of Cash Flows as of n Periods from now

$$FV = C_1 \times (1 + r)^{n-1} + C_2 \times (1 + r)^{n-2} + \cdots + C_{n-1} \times (1 + r)^1 + C_n$$

4) Present Value of a Stream of Cash Flows

$$PV = \frac{C_1}{(1 + r)^1} + \frac{C_2}{(1 + r)^2} + \cdots + \frac{C_n}{(1 + r)^n}$$

5) Future Value of an Annuity Paying $C at the End of Each of n Periods

$$FV = C \times FAF(r, n)$$

$$\text{FV Annuity Factor, } FAF(r, n) = \frac{1}{r} \times [(1 + r)^n - 1]$$

6) Present Value of an Annuity

$$PV = C \times PAF(r, n)$$

$$\text{PV Annuity Factor, } PAF(r, n) = \frac{1}{r} \times [1 - \frac{1}{(1 + r)^n}]$$

7) Present Value of an Annuity growing at rate g

$$PV = C \times PAF(r, n, g)$$

$$PAF(r, n, g) = \frac{1}{r - g} * [1 - \frac{(1+g)^n}{(1+r)^n}]$$

8) Present Value of a Perpetuity

$$PV_\infty = \frac{C}{r}$$

9) Present Value of a Perpetuity, with growth

$$PV_\infty(g) = \frac{C}{r - g}$$