

# **CORE FINANCE**

## **FORMULAE**

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

$$FV = P * FF(r, n)$$

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

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

$$PV = F * PF(r, n)$$

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

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

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

4) Present Value of a Stream of Cash Flows

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

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

$$FV = C * FAF(r, n)$$

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

6) Present Value of an Annuity

$$PV = C * PAF(r, n)$$

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

7) Present Value of an Annuity growing at rate  $g$

$$PV = C * PAF(r, n, g)$$

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

8) Present Value of a Perpetuity

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

9) Present Value of a Perpetuity, with growth

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