TIME VALUE OF MONEY

FORMULAE

Some Important Formulae

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

FV=P*FF(r,n) 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) 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

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

4) Present Value of a Stream of Cash Flows

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

Some Important Formulae

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

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

6) Present Value of an Annuity

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

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

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

Some Important Formulae

8) Present Value of a Perpetuity

$$PV = \frac{C}{r}$$

9) Present Value of a Constant Growth Perpetuity

$$PV = \frac{C_1}{r - g}$$