

FIN 316
CH-1 compound interest
Formulas

1- Future value = Present value $\times (1 + i)^n$

2- Compound interest = Future value - Present value

OR

Present value $\times [(1 + i)^n - 1]$

3- Present value = Future value $\div (1 + i)^n \Rightarrow$ *by knowing future value*

Present value = Compound Interest $\div [(1 + i)^n - 1] \Rightarrow$ *by knowing Compound Interest*

4- Time / Periods (n) = Future value \div Present value \Rightarrow Press log *by using calculator*

5- interest rate (i) = Future value \div Present value \Rightarrow Press $\sqrt[x]{\quad}$ *by using calculator*

Annual and Partial interest rate	
Annually	$i = \sqrt{\quad}$ $n = \sqrt{\quad}$

Compounded Semi Annually	$i = \div 2$	$n = \times 2$
Compounded Quarterly	$i = \div 4$	$n = \times 4$
Compounded Thirdly	$i = \div 3$	$n = \times 3$
Compounded Monthly	$i = \div 12$	$n = \times 12$

(Every 6 Month) (Semi Annually)	$i = \div 2$	$n = \times 2$
(Each Quarterly) (Every 3 Months)	$i = \div 4$	$n = \times 4$
(Each Thirdly) (Every 4 Months)	$i = \div 3$	$n = \times 3$

FIN 316
CH-2 - Annuity
Formulas

► **(Ordinary) (End) Annuities**

1- **Future value** = $\text{PMT} \times \left[\frac{(1+i)^n - 1}{i} \right]$ ➡ *by using calculator*

Future value = $\text{PMT} \times \text{TABLE (FV of Ordinary Annuity)}$

2- **Present value** = $\text{PMT} \times \left[\frac{1 - (1+i)^{-n}}{i} \right]$ ➡ *by using calculator*

Present value = $\text{PMT} \times \text{TABLE (PV of Ordinary Annuity)}$

3- **PMT = Future value** $\div \left[\frac{(1+i)^n - 1}{i} \right]$

PMT = Present value $\div \left[\frac{1 - (1+i)^{-n}}{i} \right]$

► **(Due) (beginning) Annuities**

1- **Future value** = $\text{PMT} \times \left[\frac{(1+i)^n - 1}{i} \right] \times (1 + i)$ ➡ *by using calculator*

Future value = $\text{PMT} \times \text{TABLE (FV of Annuity Due)}$

2- **Present value** = $\text{PMT} \times \left[\frac{1 - (1+i)^{-n}}{i} \right] \times (1 + i)$ ➡ *by using calculator*

Present value = $\text{PMT} \times \text{TABLE (PV of Annuity Due)}$

3- **PMT = Future value** $\div \left[\frac{(1+i)^n - 1}{i} \right] \div (1 + i)$

PMT = Present value $\div \left[\frac{1 - (1+i)^{-n}}{i} \right] \div (1 + i)$

CH-3 - Capital Budgeting Decision Model

1- Payback period

$$\text{Payback Period} = \frac{\text{cost}}{\text{Annual cash inflow}} \quad \text{(Fixed Cash Inflow)}$$

(Changeable Cash Inflow)

Year	Cash flow	Yet to be recovered	Payback period
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@We choose the project it has the lowest payback period

2- Net Present Value Method

Year	Cash flow	(1 + i) ⁻ⁿ	PV of cash flow
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(If, NPV > 0 ... Accepting the project) (if, NPV < 0 ... Rejecting the project)

@We choose the project the one with the highest positive net present value

3- Profitability Index

$$= \frac{\text{NPV} + \text{Cost}}{\text{Cost}}$$

(if PI > 1, accept the project) (if PI < 1, reject the project)

@ We choose the project the one with the highest Profitability Index

CH-5 Financial Ratio Analysis

► Profitability ratios

1- Gross profit margin (%) = $\frac{\text{Gross Profit}}{\text{Revenue}} \times 100$

2- Profit margin (%) = $\frac{\text{Profit Before Tax}}{\text{Revenue}} \times 100$

3- Return on capital employed (%) = $\frac{\text{Profit Before Tax}}{\text{Capital Employed}} \times 100$

► Liquidity ratios

1- Current ratio = $\frac{\text{Current assets}}{\text{Current liabilities}}$

2- Acid test ratio (Quick Ratio) = $\frac{\text{Current assets} - \text{Inventories}}{\text{Current liabilities}}$

3- Working Capital = Current Assets – Current Liabilities

4- Capital Employed = Total assets – Current liabilities

