

Today is REPO 6.25%

8/December/2022 – Thursday

Financial Planning

- Process of meeting your life goals through proper management of your finances.

Financial planning includes

- Buying a home
- Higher education
- Marriage
- Child's education
- Retirement planning
- Estate Planning

Financial Planning Process

1. Establish Client Partner Relationship
2. Gather Client's Data and Determine Goals and Expectations
3. Analyze Client's Objectives, Needs and Current Financial Situation
4. Develop Appropriate Strategies and Present the Financial Plan (letter of engagement)
5. Implement Financial Plan
6. Monitor the Plan

Data collected from client –

- Quantitative Data
- Qualitative Data

Data collection will happen through interviews or questionnaire

Goals –

S – Specific

M – Measurable/quantifiable

A – Achievable

R – Realistic

T – Time Bound

Risk Tolerance Level – Risk Profiling

Factors that affect risk tolerance

- Cultural Background
- Past Experiences
- Health
- Age
- Knowledge

Define – Risk Capacity, Risk Attitude, Risk Tolerance

Collection documents:

- Balance Sheet
- Cash Flow Statement
- Details of investments
- Insurances policies, mediclaim
- Retirement benefits
- Inheritances/Gift
- Legal Action/Settlement
- Income tax
- Will

Convert needs into goals

Prioritize the goals

1. Prepare financial statements
 $\text{Networth} = \text{Value of all your assets} - \text{Value of your liabilities}$
2. Prepare Cash Flow statements
 $\text{Savings} = \text{Total Income from all sources} - \text{Total Expenses}$

Personal Income Statement

Income (Monthly)	Rs.
Salaried	100,000
House Rent	15000
Total Income	115,000

Expenses (monthly)	Rs.
Electricity Bill	2500
Internet	1500
Mobile Phone Bill	600
Grocery	20000
Cable	500
Travelling	15000
EMI on TV	15000
Car Loan EMI	20000
Mediclaim Premium	1000
Life Insurance	1000
Total Expenses	77100

Balance Sheet as on date

Assets	Rs.
Fixed Deposits	100000
Savings Account	45000
Investments:	
Taxable Investments	400000
Non Taxable Investments	150000

Property	10000000
Vehicle	500000
Total Assets	11195000

Liabilities	Rs.
Home Loan	6500000
Vehicle Loan	1000000
Credit Card	100000
Total Liabilities	7600000

Networth	3595000
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5/January/2022 – Thursday (2 pm to 5pm)
Time Value of Money

Let us assume that you have invested Rs. 10,000 in a bond and the bond promises to pay 6% p.a for 3 years and in the third the bond will be redeemed.

Date

0	1	2	3
Cashflows	600	600	10,600
(-10,000)			

Date 0 → today

Date 1 → next year

TVM – 4 terms

1. Present Value – value of money today
2. Future Value – value of money in the future
3. Period – duration
4. Interest Rate – compensation paid or received for borrowing or investing money.

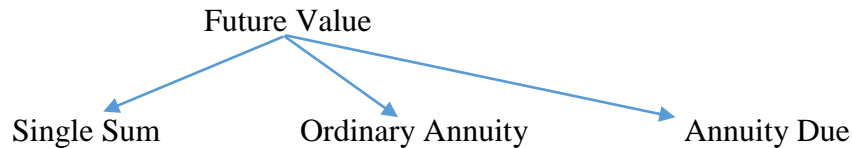
Application of TVM

- Bond Valuation
- Equity Valuation
- Capital Budgeting

Future Value of money

Present Value of money

Future Value of money – uses the concept of compounding



Future Value of a Single Sum (Lumpsum)

Future value of a single sum of money is the amount that will accumulate at the end of n periods if a sum of money at time 0 grows at an interest rate i .

$$A_n = P_0(1 + r)^n$$

A_n is future value at the end of n^{th} period

P_0 is the initial deposit

r is the interest rate

n is the number of periods

Suppose Mr. A invests Rs. 10 lac for 8 years at 12% p.a. Find the amount he will receive after 8 years.

Solution:

$$P = 10,00,000$$

$$R = 12\% = 12/100 = 0.12$$

$$N = 8 \text{ years}$$

$$\begin{aligned} A &= 10,00,000 (1 + 0.12)^8 \\ &= 10,00,000 (1.12)^8 \\ &= 10,00,000 (2.475963176) \\ &= 24,75,963.176 \text{ INR} \end{aligned}$$

2. In 1790 John Jacob Astor bought approximately an acre of land on the east side of Manhattan Island for \$58. Astor, who was considered a shrewd investor, made many such purchases. Required : How much would his descendants have in 2021, if instead of buying the land, Astor had invested the \$58 at 5 per cent compound annual interest?

Solution:

$$P = \$ 58$$

$$R = 5\% = 5/100 = 0.05$$

$$N = 231 \text{ years}$$

$$\begin{aligned} A &= 58 (1 + 0.05)^{231} \\ &= 4551516.052 \end{aligned}$$

In excel

Type =FV(Interest,Period,Type,-P)

$$FV(0.05, 231, 0, -58) = 4551516.052$$

Type = money is received at the beginning of the period or end of the period

If it is received at the end of the period = then type = 0

If it is received at the beginning of the period = then type = 1

3. Avni has just retired from a multinational bank. She received a gratuity of Rs. 72,98,809 which she deposited for five years in a fixed deposit account that pays compound interest at the rate of 6.50 per cent per annum. Required : How much money would Avni receive at the end of the fifth year?

Solution:

$$P = 72,98,809$$

$$N = 5$$

$$R = 6.5 = 0.065$$

$$A = 72,98,809 (1 + 0.05)^5 \\ = 72,98,809 (1.05)^5$$

On Excel

$$= FV(0.065, 5, 0, -72,98,809) = \$10,000,000.87$$

2. Future Value of an Ordinary Annuity

Annuity is of types --- 1) Annuity Due – payments occur at the beginning of the period

2) Ordinary Annuity – Payments occur at the end of the period

Future value of an ordinary annuity

Mr. Amar deposits Rs.10000 at the end of every month in an investment for three months. The interest rate is one per cent per month. How much money would Mr. Amar accumulate at the end of the third month?

Solution:

$$R = 1\% = 0.01$$

Date 0

$$\text{End of the 1 month} = \text{Money invested} = \text{Rs. } 10,000 (1+0.01)^2 = 10,201$$

$$\text{End of the 2}^{\text{nd}} \text{ month} = \text{money invested} = \text{Rs. } 10,000 (1+0.01)^1 = 10,100$$

$$\text{End of the 3}^{\text{rd}} \text{ month} = \text{money invested} = \text{Rs. } 10,000 (1+0.01)^0 = 10,000$$

$$\text{Total amount accumulated at the end of 3 months} = 30,301$$

$$FVOA = PMT \left(\frac{(1 + r)^n - 1}{r} \right)$$

PMT is the amount invested at the end of every period for *n* periods

FVOA is future value of Ordinary Annuity

r is the interest rate

n is the number of period money is deposited

Ashi recently got a job as a financial administrator. She wishes to put aside Rs. 19715 at the end of every month for 20 years. The interest rate may be assumed to be 0.565 per cent per month. Required : approximately, how much money would Ashi accumulate at the end of the 20th year?

Solution:

PMT = 19,715

N = 20 years x 12 month = 240 months

R = 0.565% per month = 0.565/100 = 0.00565

$$FVOA = PMT \left(\frac{(1 + r)^n - 1}{r} \right)$$

PMT is the amount invested at the end of every period for n periods

FVOA is future value of Ordinary Annuity

r is the interest rate

n is the number of period money is deposited

$$\begin{aligned} FVOA &= 19715 \left(\frac{(1+0.00565)^{240}-1}{0.00565} \right) \\ &= 19715 \left(\frac{(1.00565)^{240}-1}{0.00565} \right) \\ &= 100,00,069 \end{aligned}$$

2. Abha is working as an Accounts Receivable Manager in a trading company and earns a salary of Rs. 47370 per month. She wishes to accumulate a sum of Rs. 20 lakhs at the end of the tenth year. The interest rate may be assumed as 0.546 per cent per month.

Required: How much money should she invest each month starting from this month.

Solution:

$$FVOA = PMT \left(\frac{(1 + r)^n - 1}{r} \right)$$

PMT is the amount invested at the end of every period for n periods

FVOA is future value of Ordinary Annuity

r is the interest rate

n is the number of period money is deposited

FVOA = 20,00,000

R = 0.546% per month = 0.546/100 = 0.00546

N = 10 years x 12 months = 120 months

PMT = ?

$$\begin{aligned} 20,00,000 &= PMT \left(\frac{(1+0.00546)^{120}-1}{0.00546} \right) \\ &= PMT \left(\frac{(1.00546)^{120}-1}{0.00546} \right) \\ 20,00,000 &= PMT (168.8825903) \\ PMT &= 20,00,000/168.8825903 \end{aligned}$$

$$= 11842.54693$$

Future Value of an Annuity Due

Mr. Amar deposits Rs.10000 at the beginning of every month in an investment for three months. The interest rate is one per cent per month. How much money would Mr. Amar accumulate at the end of the third month?

Solution:

$$R = 1\% = 0.01$$

Date 0

$$\text{End of the 1 month} = \text{Money invested} = \text{Rs. } 10,000 (1+0.01)^3 = 10,303.01$$

$$\text{End of the 2}^{\text{nd}} \text{ month} = \text{money invested} = \text{Rs. } 10,000 (1+0.01)^3 = 10,201$$

$$\text{End of the 3}^{\text{rd}} \text{ month} = \text{money invested} = \text{Rs. } 10,000 (1+0.01)^1 = 10,100$$

$$\text{Money accumulated at the end of 3 months} = 30,604.01$$

$$FVAD = PMT \left(\frac{(1+r)^n - 1}{r} \right) (1+r)$$

PMT is the amount invested at the beginning of every period for n periods

FVAD is future value of Annuity Due

r is the interest rate

n is the number of period money is deposited

Arna recently got a job as a Financial Planner. She wishes to put aside Rs. 10370 at the beginning of every month for 20 years. The interest rate may be assumed to be 0.5262 per cent per month. Required : Approximately, how much money would Arna have accumulated at the end of the 20th year?

Solution:

$$FVAD = PMT \left(\frac{(1+r)^n - 1}{r} \right) (1+r)$$

PMT is the amount invested at the beginning of every period for n periods

FVAD is future value of Annuity Due

r is the interest rate

n is the number of period money is deposited

$$PMT = 10370$$

$$R = 0.5262\% \text{ per month} = 0.5262/100 = 0.005262$$

$$N = 20 \text{ years} \times 12 \text{ months} = 240 \text{ months}$$

$$FVAD = ?$$

$$\begin{aligned} FVAD &= PMT \left(\frac{(1+r)^n - 1}{r} \right) (1+r) \\ &= 10370 \left(\frac{(1+0.005262)^{240} - 1}{0.005262} \right) (1 + 0.005262) \end{aligned}$$

$$= 5000111.76$$

Asin is working as an Accounts Payable Manager in a trading company and get a salary of Rs. 15114 per month. She wishes to accumulate a sum of Rs. 25 Lakhs at the end of the tenth year. The interest rate may be assumed as 0.5065 per cent per month.

Required: How much money should she invest at the beginning of each month starting this month to accumulate 25 lac?

$$FVAD = PMT \left(\frac{(1+r)^n - 1}{r} \right) (1+r)$$

PMT is the amount invested at the beginning of every period for *n* periods

FVAD is future value of Annuity Due

r is the interest rate

n is the number of period money is deposited

$$FVAD = 25,00,000$$

$$R = 0.5065\% \text{ per month} = 0.5065/100 = 0.005065$$

$$N = 10 \text{ years} \times 12 \text{ months} = 120 \text{ months}$$

$$PMT = ?$$

$$\begin{aligned} FVAD &= PMT \left(\frac{(1+r)^n - 1}{r} \right) (1+r) \\ 25,00,000 &= PMT \left(\frac{(1+0.005065)^{120} - 1}{0.005065} \right) (1 + 0.005065) \\ 25,00,000 &= PMT \left(\frac{(1.005065)^{120} - 1}{0.005065} \right) (1.005065) \\ 25,00,000 &= PMT (165.4084788) \\ PMT &= 25,00,000 / 165.4084788 \\ PMT &= 15114.09825 \end{aligned}$$

Compounding is of two types – 1) Discrete compounding 2) Continuous compounding
All above sums were discrete compounding.

In real life continuous compounding is used.

Future Value formula for continuous compounding is:

$$A = Pe^{rn}$$

A = Amount at the end of the future period

P = initial amount invested

R = rate of interest

N = number of periods

e = financial exponent = 2.71823....

Amie opened a savings account with a commercial bank with an initial deposit of Rs. 100,000. The interest rate is 3.50 per cent per annum calculated closing balance at every microsecond.

Required : Assuming, Amie did not make any other deposit and did not withdraw any amount how much would the balance be at the end of the fifth year. ?

Solution:

$$\begin{aligned}A &= Pe^{rn} \\A &= 100,000 \times 2.71823^{(0.035 \times 5)} \\A &= 100,000 \times 2.71823^{(0.175)} \\A &= 100,000 \times 1.191242242 \\A &= 119124.2242\end{aligned}$$

12th January 2023 – Thursday

Present Value

- Single Sum
- Ordinary Annuity
- Annuity due
- Perpetuity

Present Value = it is the current value of future cash flows. It is calculated by discounting the cash flows at a given discount rate.

Discount rate selection is very critical. (opportunity cost, risk free rate of return, risk premium, cost of capital, cost of equity)

Present Value of Lumpsum

$$PV = \frac{FV}{(1 + r)^n}$$

PV = Present Value

FV = Future Value

R = discount rate

N = number of periods

Adam has invested some money in an investment scheme which promises to pay him Rs. 50000 at the end of the 25th year. Adam's required rate of return is eight per cent per annum.

Required : Determine the present value of the money Adam is going to receive in the future.

Solution:

Given:

FV = 50,000

R = 8% = 8/100 = 0.08

N = 25 years

$$\begin{aligned}PV &= \frac{FV}{(1 + r)^n} \\PV &= \frac{50000}{(1 + 0.08)^{25}} \\PV &= \frac{50000}{(1.08)^{25}}\end{aligned}$$

7300.8952456

Present Value of an Annuity – Ordinary Annuity

Mr. Amar has invested in a scheme which promises to pay him Rs. 10000 at the end of every month for three months. The discount rate is one per cent per month. What is the present value of this stream of cash flows?

Solution:

Time T 0

$$\text{Time T1} \rightarrow 10,000 \rightarrow 1\text{month} = \frac{10,000}{(1+r)^n} = \frac{10,000}{(1+0.01)^1} = \frac{10,000}{(1.01)^1} = 9900.99$$

$$\text{Time T2} \rightarrow 10,000 \rightarrow 2\text{ months} = \frac{10,000}{(1+r)^n} = \frac{10,000}{(1+0.01)^2} = \frac{10,000}{(1.01)^2} = \frac{10,000}{1.0201} = 9802.96$$

$$\text{Time T3} \rightarrow 10,000 \rightarrow 3\text{ months} = \frac{10,000}{(1+r)^n} = \frac{10,000}{(1+0.01)^3} = \frac{10,000}{(1.01)^3} = \frac{10,000}{1.030301} = 9705.90$$

$$\text{Total} = 29,409.85$$

$$PVOA = PMT \left(\frac{1 - (1 + r)^{-n}}{r} \right)$$

PVOA = Present Value of an annuity

PMT = Amount receivable at the end of every period for n periods

R = Interest rate/discount rate

N = number of periods

Mr. Amar has invested in a scheme which promises to pay him Rs. 10000 at the end of every month for three months. The discount rate is one per cent per month. What is the present value of this stream of cash flows?

Solution:

$$PVOA = PMT \left(\frac{1 - (1 + r)^{-n}}{r} \right)$$
$$PVOA = 10,000 \left(\frac{1 - (1 + 0.01)^{-3}}{0.01} \right)$$
$$PVOA = 10,000 \left(\frac{1 - (1.01)^{-3}}{0.01} \right)$$
$$29409.852072$$

Alex is considering investing some money in an investment scheme which promises to pay him Rs. 50000 at the end of every month for 10 years. Alex's required rate of return (discount rate) is 0.75 per cent per month.

Required : Determine the present value of the money Alex is going to receive in the future .

Given:

$$PMT = 50,000$$

$$N = 10 \text{ years} \times 12 \text{ months} = 120 \text{ months}$$

$$R = 0.75\% \text{ per month} = 0.75/100 = 0.0075$$

$$PVOA = PMT \left(\frac{1 - (1 + r)^{-n}}{r} \right)$$

$$PVOA = 50,000 \left(\frac{1 - (1 + 0.0075)^{-120}}{0.0075} \right)$$

$$PVOA = 3947084.6335$$

Amir is considering purchase of a portable dehumidifier costing Rs. 150,000 on instalment basis. The amount must be paid in 12 equated monthly instalments (EMIs) payable at the end of every month; the interest rate is two per cent per month.

Required: Determine the amount of EMI .

Given:

$$PVOA = 150,000$$

$$PMT = ?$$

$$R = 2\% \text{ per month} = 2/100 = 0.02$$

$$N = 12 \text{ months}$$

$$150,000 = PMT \left(\frac{1 - (1 + 0.02)^{-12}}{0.02} \right)$$

$$150,000 = PMT (10.575341221)$$

$$PMT = 150,000 / 10.575341221$$

$$PMT = 14183.939493$$

Present Value of Annuity Due

Mr. Amar has invested in a scheme which promises to pay him Rs. 10000 at the beginning of every month for three months. The discount rate is one per cent per month. What is the present value of this stream of cash flows?

$$T1 \rightarrow 10,000 \rightarrow 0 \text{ months} \rightarrow \frac{10,000}{(1+r)^n} = \frac{10,000}{(1+0.01)^0} = 10,000$$

$$T2 \rightarrow 10,000 \rightarrow 1 \text{ month} \rightarrow \frac{10,000}{(1+r)^n} = \frac{10,000}{(1+0.01)^1} = 9900.99$$

$$T3 \rightarrow 10,000 \rightarrow 2 \text{ month} \rightarrow \frac{10,000}{(1+r)^n} = \frac{10,000}{(1+0.01)^2} = 9802.96$$

$$\text{Total} = 29703.05$$

$$PVAD = PMT + PMT \left(\frac{1 - (1 + r)^{-(n-1)}}{r} \right)$$

PVAD = Present Value of Annuity Due

PMT = Amount receivable at the beginning of every period for n period

N = number of periods

R = rate of interest

Amar has invested some money in an investment scheme which promises to pay him Rs. 10000 at the beginning of every year for 15 years. Amar's required rate of return is nine per cent per annum. Required Determine the present value of all the money Amar is going to receive in the future .

Given:

$$PMT = 10,000$$

$$N = 15 \text{ years}$$

$$R = 9\% \text{ p.a} = 9/100 = 0.09$$

$$PVAD = PMT + PMT \left(\frac{1 - (1 + r)^{-(n-1)}}{r} \right)$$

$$PVAD = 10,000 + 10,000 \left(\frac{1 - (1 + 0.09)^{-(15-1)}}{0.09} \right)$$

$$PVAD = 10,000 + 10,000 \left(\frac{1 - (1.09)^{-(14)}}{0.09} \right)$$

$$PVAD = 87861.503885$$

In Excel =PV(R, N, PMT, FV, type)

R = Rate of interest

N = number of periods

PMT = annuity

FV/PV = optional. Take as 0

Type = 0 → end of the period and 1 → beginning of the period

Till now we did discrete discounting
Real life uses continuous discounting

$$PV = \frac{FV}{e^{rn}} \text{ OR}$$
$$PV = FVe^{-rn}$$

PV = Present Value

FV = Future Value

E = Financial Exponent = 2.71823...

R = rate of interest

N = number of period

Amir is obliged to pay Rs. 100,000 at the end of the third year. Required Assuming continuous discounting what is the present value of the obligation if the discount rate is seven per cent.

FV = 100000

R = 7% p.a = $7/100 = 0.07$

N = 3 years

$$PV = FVe^{-rn}$$
$$PV = 10000e^{-0.07 \times 3}$$
$$PV = 81058.424597$$

Present Value of Perpetuity

Perpetuity means a cash flow that is expected to be received every year forever.

$$PVP = \frac{PMT}{r}$$

PVP = Present Value of Perpetuity

PMT = Annuity

R = discount rate/interest rate

Reliance Industries has issued a perpetual bond, which is a bond that will pay interest forever without repaying the principal amount. The interest payable on this bond is Rs. 1250 per year. Require: If your required rate of return is eight per cent what is the present value (current worth) of all interest receivables?

$$PVP = \frac{PMT}{r}$$
$$PVP = \frac{1250}{0.08}$$
$$PVP = 15,625$$

19th January 2023 – Thursday – 2 pm to 5 pm

Practice questions:

1. Avni has just retired from the post of Chief Finance Officer (CFO) in a multinational bank. She has received a gratuity of Rs. 7,298,809 which she has deposited for five years in a fixed deposit account that pays compound interest at the rate of 6.50 per cent per annum. Required: How much money would Avni receive at the end of the fifth year?

$$FV = P_0 (1 + r)^n$$

$$FV = 72,98,809 (1 + 0.065)^5$$

$$FV = 1,00,00,000.87$$

1. Phillip Brooks, age 33, can invest in artwork for USD 200,000; he is sure he can sell the art for USD 218,000 in two years. He could also invest the USD 200,000 in Certificate of Deposit (CD) that pay 4.85 per cent annually. Required: Ignoring risk, which is the better investment?

$$FV = 200,000 (1.0485)^2 = 219870.45$$

Better investment = Certificate of deposits

2. Alka is working as an Accounts Receivable Manager in a trading company and get a salary of Rs. 70,000 per month. She wishes to accumulate a sum of Rs. 25 lakhs at the end of the tenth year. The interest rate may be assumed as 0.5179 per cent per month. Required How much money should she invest at the beginning of every month to accumulate the target amount?

$$2500000 = PMT \left(\frac{(1+0.005179)^{120}-1}{0.005179} \right) (1 + 0.005179)$$
$$2500000 = PMT(166.66251027)$$
$$PMT = 15000.374085$$

3. Alan is considering purchasing an Apple iPhone Xs for Rs. 99900 on instalment basis. The amount must be paid in 24 equated monthly instalments (EMIs) at the beginning of every month; the interest rate is three per cent per month. Required Determine the amount of EMI.

$$PVAD = PMT + PMT \left(\frac{1 - (1 + r)^{-(n-1)}}{r} \right)$$

$$99,900 = PMT + PMT \left(\frac{1 - (1.03)^{-(24-1)}}{0.03} \right)$$
$$99,900 = PMT + PMT \left(\frac{1 - 0.5066917484}{0.03} \right)$$
$$99,900 = PMT + 16.443608387PMT$$
$$99,900 = 17.44360838PMT$$

$$\text{PMT} = 5727.0260708$$

Investor Life Cycle

1. Accumulation
2. Consolidation
3. Spending
4. Giving

Insurance Planning

Principles of Insurance

1. Principle of Insurable Interest
2. Principle of Uberrima Fides (Utmost Good faith)
3. Principle of Indemnity
4. Principle of Contribution

Suppose if Mr. A insures his house against fire for Rs. 1 crore. He has taken two fire insurance policies – Rs. 70 lac from ICICI Lombard and Rs. 30 Lac from SBI general insurance. If tomorrow a fire takes place and the damage is determined as 50 lac.

As per the principle of contribution this damage will be paid as per the ratio of insurance
ICICI : SBI = 7:3

$$\text{ICICI} = 50 \text{ lac} \times 7/10 = 35 \text{ lac}$$

$$\text{SBI} = 50 \text{ lac} \times 3/10 = 15 \text{ lac}$$

5. Principle of subrogation
6. Principle of minimum loss
7. Principle of Causa Proxima

Right of the insurer

1. Right to avoid policy
2. Right of entry and control over property
3. Right of reinstatement
4. Right of subrogation
5. Right of salvage

Rights of the insured

Duties of the insured

Insurance business is divided into 4 classes.

1. Life Insurance
2. Fire Insurance
3. Marine Insurance
4. Miscellaneous

Types of general insurance

1. Building insurance
2. Contents insurance (replacement)
3. Personal property insurance

4. Personal Liability Insurance
5. Motor Vehicle Insurance (No claim bonus)

Commercial insurance

1. Business Overhead insurance
2. Key Person Insurance
3. Fire and damage insurance
4. Liability Insurance
5. Workers compensation (Worker's Compensation Act 1923)
6. Professional indemnity insurance

Life Insurance

- a. Whole life
- b. Endowment

Term Insurance

How much cover is needed:

6 Steps:

1. Estimate the capital required to pay out outstanding debts.
2. Estimate the capital required to produce family income.
3. Assess the required liquidity reserves.
4. Allow for income from other sources
5. Estimate any other costs.
6. Deduct from the needs listed above, any lump sums and then compare the capital required with the capital received from all sources. The balance remaining will be the level of life insurance cover needed.

Case Study:

Mr A is a 35 year old person. He needs to know how much insurance cover is required.

He lives with his wife and 2 children – 2 years and 7 years old. Their monthly expenses are Rs. 60,000. He pays a EMI of Rs. 30,000 per month on a housing loan of which Rs. 70 lakh is outstanding. He has an investment portfolio of Rs. 30 lakh.

Identify the insurance coverage he requires.

1. Estimate the expenses:

Monthly expenses = Rs. 60,000

Annual expenses = 7.2 lakh

It is recommended to take a multiple of 10 – 15 times to cover for these expenses including inflation costs.

So, suppose if we take a multiple of 15, then the total coverage for future expenses will be
 $= 7.2 \text{ lakh} \times 15 = 1.08 \text{ crore}$

2. Evaluate your liabilities/outstanding debts
 Outstanding debt (home loan) = 70 lac

3. Account for important life goals\

He has two children who have many milestones to achieve. Education and marriage. So he needs to account for this.

Assume he plans Rs. 40 lakh for this.

4. Consider a retirement corpus for your spouse
This is so that the spouse is able to manage expenses after his/her retirement.
Suppose in this case it is = 80 lac
5. Factor in for any income from other sources:
Portfolio value = 40 lac

Total term insurance to cover Mr. A's needs

Expenses/Investments	Particulars	Amount
Future household expense	Utility bills, school fees, medicines etc	1.08 crore
Outstanding debt	Housing Loan	80 lakh
Future life goals	Child education, marriage, etc	40 lakh
Retirement Corpus		80 lakh
(-) Liquid Assets	Portfolio	40 lakh
Total term insurance cover		2.68 crore

PERSONAL RISK INSURANCE – disability risks and ways of protecting against them.

1. Total and permanent disablement (TPD) insurance
2. Income continuation insurance
3. Trauma Insurance Plans
4. Health Insurance (cashless and reimbursement) TPA

Points to consider while selecting a health insurance plan

1. Coverage
2. Premium should be affordable
3. Cashless policies
4. Network hospitals
5. Claim Settlement Ratio
6. Inclusions and exclusions
7. Capings
8. Ambulance charges
9. Day care procedures
10. Pre and post hospitalization
11. Daily allowance
12. Health checkups and vaccinations
13. Co payment

Avenues of investment

UNIT IV – Tax Planning

- Direct Tax (Tax on income) - progressive
- Indirect Tax (tax on expenditures) GST – regressive

Assessment Year: 2022 – 23 – The year in which income tax is calculated.

Previous Year/Financial Year – The year in which you earn income. 1st april to 31st march
Currently the PY (FY) – 2021 – 22 (1st April 2021 – 31st March 2022)

➤ Income tax slabs for Individuals (resident or non resident) less than 60 years

Upto Rs. 250,000 → No Tax

Rs. 250,000 to Rs. 500,000 → 5% tax rate + 4% Health and education cess

Rs. 500,000 to Rs. 10,00,000 → 20% tax rate + 4% Health and education cess

Above Rs. 10,00,000 → 30% tax rate + 4% Health and education cess

➤ Income tax slabs for senior citizens (more than 60 years but less than 80 years)

Upto Rs. 300,000 → No Tax

Rs. 300,000 to Rs. 500,000 → 5% tax rate + 4% Health and education cess

Rs. 500,000 to Rs. 10,00,000 → 20% tax rate + 4% Health and education cess

Above Rs. 10,00,000 → 30% tax rate + 4% Health and education cess

➤ Income tax slabs for super senior citizens (more than 80 years)

Upto Rs. 500,000 → No Tax

Rs. 500,000 to Rs. 10,00,000 → 20% tax rate + 4% Health and education cess

Above Rs. 10,00,000 → 30% tax rate + 4% Health and education cess

Apart from the above the following surcharges are applicable:

- 1) If income ranges in the tax bracket of 50 lac to Rs. 1 crore → surcharge 10%
- 2) For income falling into the tax bracket of Rs. 1 crore to Rs. 2 crore → surcharge 15%
- 3) For income falling into the tax bracket of Rs. 2 crore to 5 crore → surcharge 25%
- 4) For income exceeding Rs. 5 crore → surcharge 37%

Rebate:

If the income lies in the tax bracket of upto Rs. 5 lac, you are eligible for a full tax rebate u/s 87A of the income tax act 1961

➤ Income tax rate for a Firm

Tax rate → 30% + Surcharge 12% (if taxable income > 1 crore) + Health and education cess 4% of Income Surcharge

➤ Income tax rate for a domestic company

If total turnover or gross receipts does not exceed Rs. 400 crore → 25% tax rate

Where a company has opted for Section 115BA → 25% tax rate

Where a company has opted for Section 115BAA → 22% tax rate

Where a company has opted for Section 115BAB → 15% tax rate

Any other domestic company → 30% tax rate

Surcharge:

7% of taxable income if net income exceeds 1 crore but does not exceed Rs. 10 crore and 12% of taxable income if net income exceeds 10 crore.

There are certain reliefs under this.

Health and education cess → 4%

PRACTICAL PROBLEMS on CALCULATION OF TAX LIABILITY

1. Mr. A whose taxable income is Rs. 15,00,000 in the financial year 2021-22 is 39 years old. Calculate his income tax liability.

Solution: Calculation of tax liability (less than 60 years).

Tax Slab	Tax Rate	Income	Tax Liability
0 – 250,000	Nil	250,000	Nil
250,000 – 500,000	5%	250,000	12,500
500,000 – 10,00,000	20%	500,000	100,000
Above 10,00,000	30%	500,000	150,000
	Total		262,500
	+ health and education cess @ 4%		10,500
	Total tax liability		273,000

2. Miss A (78 years) earned a total income of Rs. 14,00,000 in the PV 2021-22. Calculate her tax liability.

Solution: Calculation of tax liability (Less than 80 years)

Tax Slab	Tax Rate	Income	Tax Liability
0 – 300,000	Nil	300,000	Nil
300,000 – 500,000	5%	200,000	10,000
500,000 – 10,00,000	20%	500,000	100,000
Above 10,00,000	30%	400,000	120,000
	Total		230,000
	+ health and education cess @ 4%		9200
	Total tax liability		239,200

3. Mr. A whose taxable income is Rs. 800,000 in PY 2021-22 is 83 years old. Calculate his tax liability.

Solution : Calculation of tax liability (Greater than 80 years)

Tax Slab	Tax Rate	Income	Tax Liability
0 – 500,000	Nil	500,000	Nil
500,000 – 10,00,000	20%	300,000	60,000
	Total		60,000
	+ health and education cess @ 4%		2400
	Total tax liability		62,400

➤ **Tax Deducted at Source (TDS)**

Mr. A works with XYZ Ltd with a salary of Rs. 50,000. The company pays Rs. 45,000 to Mr. A and deducts Rs. 5000 as TDS

XYZ Ltd will deposit this Rs. 5000 TDS to the government in the name Mr. A. The company will provide a TDS certificate to MR. A certifying that Rs. 5000 TDS is deducted from Mr. A's salary. TDS certificate can be downloaded by Mr. A from income tax website. XYZ Ltd will issue Form No 16 to MR. A

TDS certificate – Form 16/16A

➤ **Advance Tax**

It refers to paying a part of your taxes before the end of the financial year.

Who should file advance tax?

Advance tax is generally applicable when an individual has sources of income other than salary.

Businessman, Companies, Corporates, Professionals, Salaried people who earn income from other heads – all have to pay advance tax.

Due dates for payment of advance tax.

Due date of instalment	Amount payable (Installment Payable)
On or before 15 th June	15% of the advance tax liability
On or before 15 th September	45% of the advance tax liability
On or before 15 th December	75% of the advance tax liability
On or before 15 th March	100% of the advance tax liability

PRACTICAL PROBLEMS ON ADVANCE TAX

1. Explain the liability for advance tax payment for Mr. A (less than 60 years) whose income is estimated to be Rs. 800,000 during FY 2021-22

Solution:

Mr. A is a non corporate assessee (individual)

Step 1 – Calculation of income tax liability (less than 60 years)

Tax Slab	Tax Rate	Income	Tax Liability
0 – 250,000	Nil	250,000	Nil
250,000 – 500,000	5%	250,000	12,500
500,000 – 10,00,000	20%	300,000	60,000
	Total		72,500
	+ health and education cess @ 4%		2900
	Total tax liability		75,400

Step 2: Calculation of Advance Tax

Due Date	Working	Cumulative	Installment
On or before 15 th June	15% of 75,400	11,310	11,310
On or before 15 th September	45% of 75,400	33,930	22,620
On or before 15 th December	75% of 75,400	56,550	22,620
On or before 15 th March	100% of 75,400	75,400	18,850
		Total	75,400

Note : Mr A is a non corporate assessee and the tax liability on his income works out to Rs. 75,400 which is greater than Rs. 10,000 and hence he is liable to pay advance tax.

2. Mr. A has estimated his tax payable for the previous year 2021-22 as Rs. 100,000. Show his schedule of advance tax payment.

Solution: MR A is a non corporate assessee with a tax liability of Rs. 100,000 which is greater than Rs. 10,000. Hence he is liable to pay advance tax.

Due Date	Working	Cumulative	Installment
On or before 15 th June	15% of 100,000	15,000	15,000
On or before 15 th September	45% of 100,000	45,000	30,000
On or before 15 th December	75% of 100,000	75,000	30,000
On or before 15 th March	100% of 100,000	100,000	25,000
		Total	100,000

3. PQR Ltd is a company whose income is estimated at Rs. 800,000 during FY 2021-22. Explain the liability for advance tax payment.

Solution:

Step 1 : Computation of tax liability

Note : Income tax rate of a company assessee is 30% for any other domestic company.

Particulars	Rs.
Total Income	800,000
Tax Payable (800,000 x 30%)	240,000
(+) Health and education cess @ 4%	9600
Tax Liability	249,600

Step 2: Advance tax calculation

PQR is a company assessee whose tax liability is 249,600 which is greater than Rs, 10,000. Hence PQR is liable to pay advance tax.

Due Date	Working	Cumulative	Installment
On or before 15 th June	15% of 249,600	37,440	15,000
On or before 15 th September	45% of 249,600	112,320	74,880
On or before 15 th December	75% of 249,600	187,200	74,880
On or before 15 th March	100% of 249,600	249,600	62,400
		Total	249,600

4. XYZ Ltd has income of Rs. 27,00,000 for the previous year 2021 – 22. Compute tax liability and calculate advance tax payable.

Step1: Computation of income tax liability

XYZ ltd is a company.

Particulars	Rs.
Total Income	27,00,000
Tax Payable (27,00,000 x 30%)	810,000
(+) Health and education cess @ 4%	32,400
Tax Liability	842,400

Step 2 : Calculation of advance tax.

XYZ Ltd is a corporate assessee liable to pay a tax of Rs. 842,400 which is more than Rs. 10,000. Hence XYZ Ltd is liable to pay advance tax as under.

Due Date	Working	Cumulative	Installment
On or before 15 th June 2021	15% of 842,400	126,360	126,360
On or before 15 th September 2021	45% of 842,400	379,080	252,720
On or before 15 th December 2021	75% of 842,400	631,800	252,720
On or before 15 th March 2022	100% of 842,400	842,400	210,600
		Total	842,400

5. Home work - Mr. A is an assessee whose income is estimated at Rs. 22,00,000 during the PY. Calculate the advance tax payable.

CAPITAL GAIN

Capital Asset – is defined to include property – movable or immovable. It includes land, building, shares, bonds, debentures, precious metals, precious stones, sculptures, painting, archaeological finds and Units of Mutual Funds.

Any other personal effect is NOT A CAPITAL ASSET

Capital Gain → is the profit that results from the sale of a capital asset.

Capital Loss → is the loss that results from the sale of a capital asset.

Short Term Capital Gain or Loss

When an asset is held for less than 36 months → STCG or STCL

Exceptions : Equity shares, preference shares, debentures, bonds, government securities, Units of Mutual Fund → they will be short term if they are held for less than 12 months.

Long Term Capital Gain or Loss

When an asset is held for more than 36 months it will be long term.

For the above exceptions, long terms means more than 36 months.

From FY 2017 – 18 onwards → immovable property is long term if it is held for more than 24 months (land, building and house property)

Capital gain is possible only when there is a transfer of an asset.

Indexation

It means an adjustment in the purchase price of a capital asset using cost of inflation index.

Cost of Inflation Index FY 2021-22 AY 2022-23 for Capital Gain with base year 2001-02 (www.basunivesh.com)		
Financial Year (FY)	Assessment Year (AY)	Cost of Inflation Index (CII)
2001-02	2002-03	100
2002-03	2003-04	105
2003-04	2004-05	109
2004-05	2005-06	113
2005-06	2006-07	117
2006-07	2007-08	122
2007-08	2008-09	129
2008-09	2009-10	137
2009-10	2010-11	148
2010-11	2011-12	167
2011-12	2012-13	184
2012-13	2013-14	200
2013-14	2014-15	220
2014-15	2015-16	240
2015-16	2016-17	254
2016-17	2017-18	264
2017-18	2018-19	272
2018-19	2019-20	280
2019-20	2020-21	289
2020-21	2021-22	301
2021-22	2022-23	317

Problems on Capital Gain

1. Miss A purchased a residential house on 01-06-1999 for Rs. 100,000. She incurred expenses of Rs. 50,000 towards cost of improvement on 02-07-2003. The fair market value of the house on 01-04-2001 was Rs. 150,000. She sold the house on 10-10-2021 for Rs. 30,00,000.

Compute her Capital gain for AY 2022 – 23.

Solution:

Name of Assessee : Ms. A

Legal Status : Individual

Residential Status : Resident

PY: FY 2021 – 22

AY: 2022 – 23

Computation of Long Term Capital Gain

Particulars	Rs.	Rs.
A) Sales Consideration		30,00,000
(-) B) Expenses		
1) Expenses related to transfer	-	
2) Indexed Cost of Acquisition (WN#1)	475,500	
3) Indexed Cost of Improvement (WN#2)	145,413	620,913
C) Long term Capital Gain (A – B)		23,79,087

WN#1 → ICOA

$$\text{Indexed Cost of Acquisition} = \text{Fair Market Value} \times \frac{\text{CII for the year of transfer (2021 - 22)}}{\text{CII for 2001 - 2002}}$$

$$\text{Indexed Cost of Acquisition} = 150,000 \times \frac{317}{100}$$

$$\text{Indexed Cost of Acquisition} = 475,500$$

WN#2 → ICOI

$$\text{Indexed Cost of Improvement} = \text{COI} \times \frac{\text{CII for the year of transfer (2021 - 22)}}{\text{CII for year of improvement (2003 - 04)}}$$

$$\text{Indexed Cost of Improvement} = 50,000 \times \frac{317}{109}$$

$$\text{Indexed Cost of Improvement} = 145,413$$

2. Mr. A owns a residential house which he purchased on 25-06-1998 for Rs. 150,000. The fair market value of the house on 1.4.2001 was Rs. 300,000. He incurred cost of improvement on 20.8.2006 for Rs. 50,000 on this house. He sold this house on 12.12.2021 for Rs. 40,00,000. He purchased a new residential house for Rs. 25,00,000 on 20.03.2022. Compute Capital Gain.

Name of Assessee : Mr. A

Legal Status : Individual

PY: FY 2021 - 22

Residential Status : Resident

AY: 2022 - 23

Computation of Long Term Capital Gain

Particulars	Rs.	Rs.
A) Sales Consideration		40,00,000
(-) B) Expenses		
1) Expenses related to transfer	-	
2) Indexed Cost of Acquisition (WN#1)	951,000	
3) Indexed Cost of Improvement (WN#2)	129,918	10,80,918
C) Long term Capital Gain (A - B)		29,19,082
D) Less : Exemption u/s 54 for purchase of new residential house		25,00,000
E) LTCG		4,19,082

WN#1 → ICOA

$$\text{Indexed Cost of Acquisition} = \text{Fair Market Value} \times \frac{\text{CII for the year of transfer (2021 - 22)}}{\text{CII for 2001 - 2002}}$$

$$\text{Indexed Cost of Acquisition} = 300,000 \times \frac{317}{100}$$

$$\text{Indexed Cost of Acquisition} = 951,000$$

WN#2 → ICOI

$$\text{Indexed Cost of Improvement} = \text{COI} \times \frac{\text{CII for the year of transfer (2021 - 22)}}{\text{CII for year of improvement (2006 - 07)}}$$

$$\text{Indexed Cost of Improvement} = 50,000 \times \frac{317}{122}$$

$$\text{Indexed Cost of Improvement} = 129,918$$

Exemption u/s 54

An individual or HUF selling Residential property and earning capital gain can avail tax exemption if the capital gain is invested in purchase of house property. The following conditions must be fulfilled.

1. The residential property purchased must be in India
2. It should be purchased before 1 year or after within 2 years from the date of transfer.
3. If it is a house under construction, it should complete within 3 years from the date of transfer.

3. Mr. Aamir sells the following assets on 21st December 2021

Particulars	Gold	Silver
Fair value on the date of transfer	700,000	100,000
Amount recorded in the books of account	800,000	90,000
Actual Cost	80,000	20,000
Year of purchase	2009 - 10	2011 - 12

Compute Capital Gain for AY 2022 - 23

Particulars	Gold	Silver
Sales consideration	800,000	90,000
(-) Expenses		
Indexed Cost of acquisition for Gold	171,351	
Indexed Cost of acquisition for Silver		34,457
LTCG	648,649	55,543

$$\text{ICOA for Gold} = \text{Actual Cost} \times \frac{[\text{CII for the year of transfer (2021 - 22)}]}{\text{CII for the year of purchase (2009 - 10)}}$$

$$\text{ICOA for Gold} = 80,000 \times \frac{317}{148}$$

$$\text{ICOA for Gold} = 171,351$$

$$\text{ICOA for Silver} = \text{Actual Cost} \times \frac{[\text{CII for the year of transfer (2021 - 22)}]}{\text{CII for the year of purchase (2011 - 12)}}$$

$$\text{ICOA for Silver} = 20,000 \times \frac{317}{184}$$

$$\text{ICOA for Silver} = 34,457$$

4. Mr. Frank purchased a house property for Rs. 20,00,000 on 1st September 1995. He incurred expenses of Rs. 7,00,000 in FY 1997 - 98 and Rs. 250,000 in FY 2006- 07.

The fair market value of the property on 1-04-2001 was RS. 25,50,000. He sold the property on 1st December 2021 for Rs. 95,00,000. Brokerage of Rs. 85,000 was incurred on the sale transaction. He purchased a new house on 1.02.2022 for Rs. 30,00,000. Calculate the capital gain.

5. Mr. Sharma sold equity shares on 31/10/2021 for Rs. 400,000. He had purchased the same on 6/06/2006 for Rs. 66,000. FMV on 31/01/2018 was Rs. 175,000.

Calculate Capital Gain.

Grand fathering clause:

This clause is applicable to equity shares or equity oriented mutual funds.

Any investments in the above mentioned securities done before 31/01/2018 will be subject to this clause.

The method of determining the cost of acquisition is as under:

- a) Actual Cost of acquisition
- b) Lower of
Fair Market Value or Full value of consideration

The higher of a and b shall be considered as the CoA.

Further Rs. 100,000 exemption is to be provided.

Solution:

To find CoA we use the grand fathering clause.

Higher of

- a) Actual Cost of acquisition → 66,000
- b) Lower of FMV (175,000) or Sales Value (400,000) → 175,000

Thus higher of a and b → 175,000

Particulars	Rs.
Sales consideration	400,000
(-) Cost of Acquisition	175,000
	225,000
(-) exemption for shares purchased before 31/01/2018	100,000
LTCG	125,000

This will be subject to 10% tax

Capital Gain Tax Rates

Long Term Capital asset for assets greater than 3 years → 20%

Long term capital gain for shares or equity oriented funds → 10%

Short term capital asset (shares) → 15%

Short term other assets → as per tax slabs

6. Mr. D bought equity shares on 23rd October 2016 for Rs. 14,500. FMV of the shares was Rs. 18,000 as on 31st January 2018. He sold the shares on 18th May 2021 for Rs. 7000. What is his capital gain or loss.

Since the shares are purchased before 31/01/2018 they will attract grand fathering clause.

To find CoA we use the grand fathering clause.

Higher of

- c) Actual Cost of acquisition → 14,500
- d) Lower of FMV (18,000) or Sales Value (7000) → 7,000

Thus higher of a and b → 14,500

Particulars	Rs.
Sales Consideration	7000
- <u>CoA</u>	<u>14,500</u>
Capital Loss	(7500)

