SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE,
SUNDARAKKOTTAI,MANNARGUDI.
PG & RESEARCH DEPARTMENT OF COMMERCE
II M.COM

INVESTMENT MANAGEMENT

P16MC41

UNIT – IV & V

PREPARED BY,
S.THAZHKUZHALI,
ASSISTANT PROFESSOR

E-CONTENT
UNIT-IV

- Portfolio Analysis
- Traditional and Modern Approach
- Rationale of Diversification of Investment
- Markowitz Theory
- Sharpe Index Model
- Capital Asset Pricing Model

SECURITY ANALYSIS

- Deals with the analysis of securities within the framework of return and risk.
- It is the analysis of tradable financial instruments

called securities i.e. Debt securities, equities, or some hybrid of the two.

- More broadly, future contracts and the credit derivatives are sometimes included.

- It is divided into:

1. ***Fundamental analysis***: which relies upon the examination of fundamental business factors such as financial statements, current interest rates as well as competitor's products and financial market.

2. ***Technical Analysis****:* Analysis of securities and helps the finance professionals to forecast the price trends through past price trends and market data.

PORTFOLIO ANALYSIS

- Portfolio analysis begins where security analysis ends.
- Portfolio refers to invest in a group of securities rather to invest in a single security.

"Don't put all your eggs in one basket".

- Portfolio analysis is the determination of the future risk and return in holding various combinations of individual securities.
- Portfolio analysis helps to make the investment activity more rewarding and less risky.

- Portfolio analysis is broadly carried out for each asset at two levels:

❖***Risk aversion*:** This method analyzes the portfolio composition while considering the risk appetite of an investor. Some investors may prefer to play safe and accept low profits rather than invest in risky assets that can generate high returns.

❖***Analyzing returns*:** While performing portfolio analysis, prospective returns are calculated through the average and compound return methods. An average return is simply the arithmetic average of returns from individual assets. However, compound return is the arithmetic mean that considers the cumulative effect on overall returns.

- The concept of diversification goes side by side with the portfolio analysis.
- Diversification aims at reduction and even elimination of non systematic risk and achieving the specific objective of the investors.
- An investor can even estimate his expected return and expected risk level of a given portfolio of assets from proper diversification.

TRADITIONAL VS MODERN PORTFOLIO ANALYSIS

TRADITIONAL PORTFOLIO ANALYSIS

- Traditional theory analysis the individual securities under the constraint of risk and return.
- This theory assumes that the selection of securities should be on the basis of lowest risk as measured by its standard deviation from the mean of expected returns.
- There exists a direct relationship between the variability of returns and risk under this approach.
- The greater is the variability of returns, the greater is the risk and the vice versa.

- Thus, the investor chooses assets with lowest variability of returns.
- The method of *finding the return on an individual security* is by finding out
  - ✓the amounts of dividend that have been given by the company.
  - ✓the price earnings ratio.
  - ✓the common holding period, and
  - ✓the estimation of market value of shares.

MODERN PORTFOLIO ANALYSIS

- Modern Portfolio theory (MPT) a hypothesis put forth by Harry Markowitz in his paper "Portfolio Selection," (published in 1952 by the *Journal of Finance)*.

- It is an investment theory based on the idea that risk averse investors can construct portfolios to optimize or maximize expected return based on a given level of market risk, emphasizing that risk is an inherent part of higher reward.

- The modern portfolio theory emphasis the need for maximization of returns through a combination of securities whose total variability is lower.

- It is not necessary that the success could be achieved by trying to get all securities of minimum risk.

- By combining a security of low risk with another security of high risk, success can be achieved by an investor in making a choice of investments.

- As per the modern theory, expected returns, the variance of these returns and covariance of the returns of the securities within the portfolio are to be considered for the choice of the portfolio.

- A portfolio is said to be efficient, if it is expected to yield the highest return possible for the lower risk or a given level of risk.

DIVERSIFICATION OF INVESTMENTS

"Don't put all eggs in one basket"

- Diversification is the most basic yet important tool in an intelligent investors hand. If used correctly along with asset allocation, it can be a powerful tool to flaunt and one of the best ways to achieve safe returns on your investment portfolio.
- *Diversification can be defined as "*A risk management technique that mixes a wide variety of investments within a portfolio".
- Diversification helps in the reduction of unsystematic risks and promotes the optimization or maximization of returns.
- Diversification may take any of the following forms:

(a) **Different Assets:** E.g.- Gold, Bullion, real estate, Government securities etc.

(b) **Different instruments** such as shares, debentures, Bonds etc.

(c) **Different Industries** such as Textiles, IT, Pharmaceuticals etc.

(d) **Different Companies** such as New companies, New product Companies etc.

(e) **Different currencies** such as Canadian funds, US dollars and the Euro.

(f) **Level of liquidity** such as term deposits, could be easily cashable. Real estate requires a longer investment horizon.

- It is because the randomness increases the probability of reducing risk.

SOME ACCEPTED METHODS OF EFFECTING DIVERSIFICATION ARE AS FOLLOWS:

1. Random Diversification

- Randomness is a statistical technique which involves placing of companies ***in any order*** **and** ***picking them up in random manner.***
- reduces the probability of choosing wrong companies.
- Probability of reducing risk will be more.
- Some experts suggested that random diversification does not bring the expected return results.

2. Optimum Number of companies.

- Investor to find out the optimum number of companies in which to invest the money.
- If the number of companies *is too small, risk cannot be reduced* adequately.
- If the number of companies *is too large, there will be diseconomies of scale.*

3.**Adequate Diversification**

- An intelligent investor has to choose not only the optimum number of securities but the right kind of securities also.
- Otherwise, the risk cannot be reduced adequately if the companies are positively correlated with each other and the market.
- In such a case, all of them will move in the same direction and many risks will increase instead if being reduced.

4. **Markowitz Diversification**

- A strategy that seeks to combine assets a portfolio with returns that are less than perfectly positively correlated, in an effort to lower portfolio risk (variance) without sacrificing return.
- An approach taken in order to reduce portfolio risk that involves the use of assets that have returns that are not positively correlated.
- According to this theory, the effects of one security purchase over the effects of the other security purchase is taken into consideration and then the results are evaluated.

MARKOWITZ THEORY

- It assists in the selection of the most efficient by analyzing various possible portfolios of the given securities. By choosing securities that do not 'move‘ exactly together, the HM model shows investors how to reduce their risk.

➢ Also known as Mean-Variance Model.

➢ We all agree that holding two stocks is less risky as compared to one stock. But building the optimal portfolio is very difficult. Markowitz provides an answer to it with the help of risk and return relationship.

➢ Determination of a set of efficient portfolios.

➢ Selection of the best portfolio out of the efficient set.

ASSUMPTIONS & CONCEPT

Assumptions:

- Risk of a portfolio is based on the variability of returns from the said portfolio.
- An investor is risk averse.
- An investor prefers to increase consumption.
- The investor's utility function is concave and increasing, due to his risk aversion and consumption preference.
- Analysis is based on single period model of investment.
- An investor either maximizes his portfolio return for a given level of risk or maximizes his return for the minimum risk.
- An investor is rational in nature.

Concept:

In developing the model, Markowitz has given up the single stock portfolio and introduced diversification. The single stock portfolio would be preferable if the investor is perfectly certain that his expectation of higher return would turn out to be real. But in this era of uncertainty most of the investors would like to join Markowitz rather than single stock. It can be shown with the help of example.

	Stock ABC	Stock XYZ
Return %	11 or 17	20 or 8
Probability	.5 each return	.5 each return
Expected return	14	14
Variance	9	36
Standard deviation	3	6

ABC expected return: .5 x 11+ .5x17= 14
XYZ expected return: .5 x 20+ .5x8= 14
ABC variance = $.5(11-14)^2 + .5(17-14)^2 = 9$
XYZ variance= $.5(20-14)^2 + .5(8-14)^2 = 36$
ABC standard deviation= 3
XYZ standard deviation= 6

- Now ABC and XYZ have same expected return of 14 % but XYZ stock is much more risky as compared to ABC because the standard deviation is much more high.
- Suppose the investor holds 2/3 of ABC and 1/3 of XYZ the return can be calculated as follows:

$$Rp=\sum X_1 R_1$$

Let us calculate the expected return for both possibilities

Possibility 1= 2/3 x 11 + 1/3 x 20 = 14
possibility 2= 2/3 x 17 + 1/3 x 8 = 14

- In both the cases the investor stands to gain if the worst occurs, than by holding either of security individually.

- Holding two securities may reduce portfolio risk too.

- The portfolio risk can be calculated with the help of following formula.

$$\sigma p = \sqrt{X_1^2\sigma_1^2 + X_2^2\sigma_2^2 + 2\, X_1\, X_2 (r_{12}\, \sigma_1\sigma_2)}$$

Where,

σp= std. deviation of portfolio
X_1= proportion of stock X_1
X_2= proportion of stock X_2
σ_1= std. deviation of stock X_1
σ_2= std. deviation of stock X_2
r_{12}= correlation coefficient of both stocks

r_{12}= covariance of X_{12}

$\sigma_1 \sigma_2$

Using the same example given in the return analysis , the portfolio return can be estimated

Cov of X_{12}= $1/N \sum(R_1 - \bar{R}_1)(R_2 - \bar{R}_2)$

= ½ [(11-14)(20-14) + (17-14)(8-14)]

= -18

Now r = -18/6x3 = -1

In this example the correlation coefficient is -1.0.That means there is perfect negative correlation between the two and the return moves in opposite direction. If the correlation is +1 it means securities will move in same direction and if it is zero the return of both the securities is independent. Thus the correlation between two securities depend upon the covariance between the two securities and the standard deviation of each security.

$$\sigma p = \sqrt{X_1^2\sigma_1^2 + X_2\sigma_2^2 + 2 X_1 X_2(r_{12} \sigma_1\sigma_2)}$$

$$= \sqrt{(2/3)^2 \times 9 + (1/3)^2 \times 36 + 2x\ 2/3 \times 1/3\ (-1x3x6)}$$

$$= \sqrt{4+4-8} = 0$$

The portfolio risk is nil here.

The change in portfolio proportions can change the portfolio risk. Taking same example of ABC and XYZ stock, the portfolio std. deviation is calculated for different proportions.

Stock ABC	Stock XYZ	Portfolio std. deviation
100	0	3
66.66	33.34	0
50.00	50.00	1.5
0	100	6

Sharpe's SINGLE INDEX MODEL

The model has been generated by **"WILLIAM SHARPE"** in 1963.

The Single Index Model is a simplified analysis of

"PORTFOLIO SELECTION MODEL"

To measure both Risk and Return on the stock.

- **The SINGLE INDEX MODEL greatly reduces the number of calculations that would otherwise have to be made for a large portfolio of thousands of securities.**

ASSUMPTIONS OF SINGLE INDEX MODEL

- There is only 1 macroeconomic factor that causes the **systematic risk** affecting all stock returns and this factor can be represented by the rate of return on a market index, such as the S&P 500.

- The return of any stock can be decomposed into the **expected excess return** of the individual stock due to firm-specific factors, commonly denoted by its **alpha coefficient (α),** which is the return that exceeds the risk-free rate.

- The return due to macroeconomic events that affect the market, and the ***unexpected*** microeconomic events that affect only the firm.

SINGLE INDEX MODEL-RETURNS

The single index model can be expressed by the following equation.

$$R_i = \alpha_i + \beta_i R_M + e_i$$

- R_i= the return on security i
- R_M=the return on the market index
- α_i=that part of security i's return independent of market performance.
- B_i= a constant measuring the expected change in the dependent variable, Ri, given a change in the independent variable RM
- e_i= random residual error.

SINGLE INDEX MODEL-RISK

In Single Index Model, the total risk of a security, as measured by its variance, consists of two components: market risk and unique risk.

$$\sigma_i^2 = \beta_i^2 \sigma_M^2 + \sigma_{ei}^2$$

= Market risk+ company specific risk

- **TOTAL PORTFOLIO VARIANCE=PORTFOLIO MARKET RISK+ PORTFOLIO RESIDUAL VARIANCE**

  This single security variance can be extrapolated for finding the minimum variance set of portfolios.

- In the single index model, **the covariance between two stocks depends only on the market risk** Therefore covariance between two securities can be written as

$$\sigma_{ij} = \beta_i \sigma_M^2$$

REWARD TO RISK RATIO

- We can vary the amount invested in each type of asset and get an idea of the relation between portfolio expected return and beta:

$$\text{Reward-to-Risk Ratio} = \frac{E(R_P) - R_f}{\beta_P}$$

- It estimates the **expected risk premium per unit of risk.**
- We can also calculate the reward to risk ratio for all individual securities.

CAPITAL ASSET PRICING MODEL

- ✓CAPM is an framework for determining the equilibrium expected return for risky assets.
- ✓ Relationship between expected return and systematic risk of individual assets or securities or portfolios.
- ✓William F Sharpe developed the CAPM. He emphasized that risk factor in portfolio theory is a combination of two risk , systematic and unsystematic risk.

ELEMENTS OF CAPM

1. Capital Market Line – risk return relationship for efficient portfolios.

2. Security Market Line – Graphic depiction (representation) of CAPM and market price of risk in capital markets.

a) Systematic Risk

b) Unsystematic Risk

3. Risk Return Relationship

4. Risk Free Rate

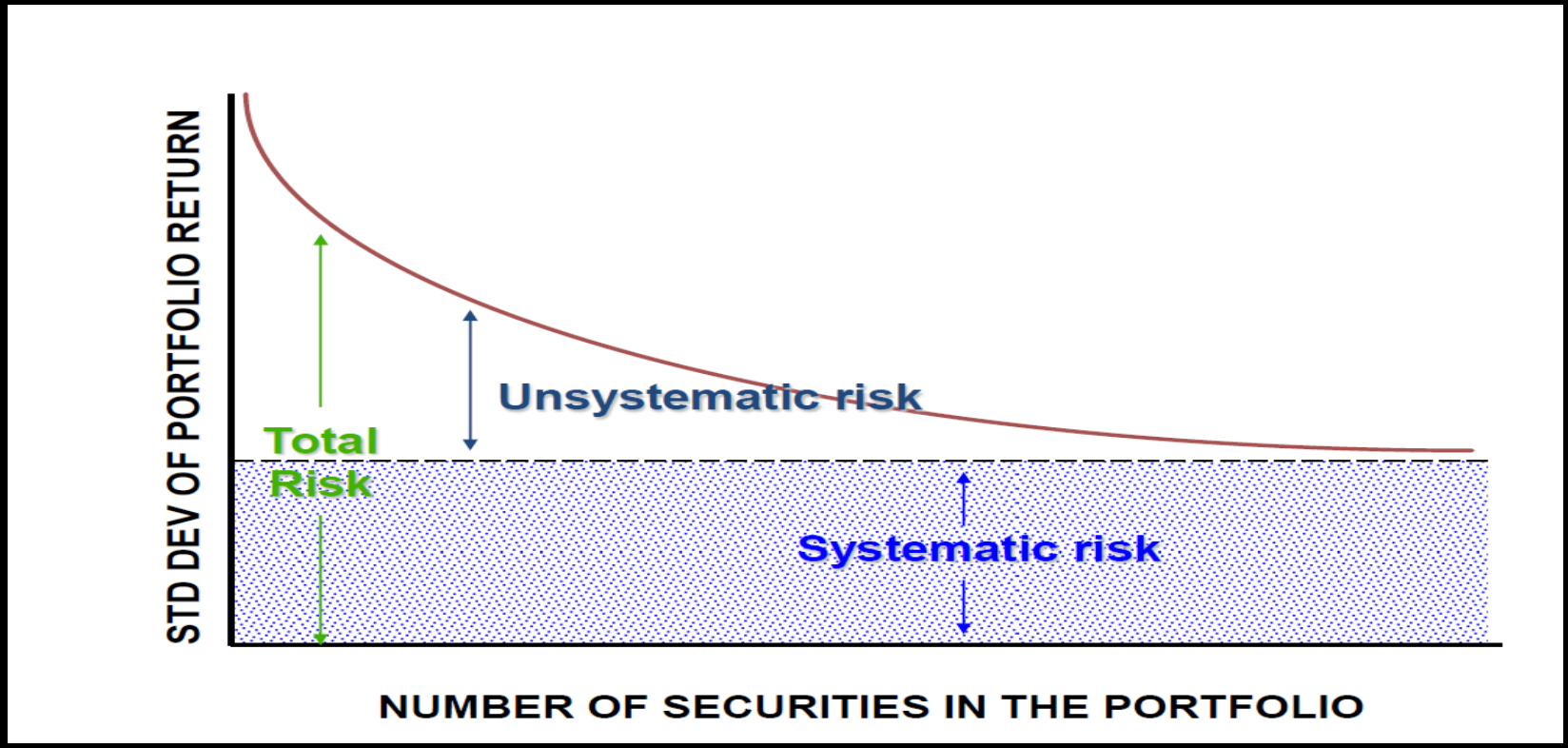
5. Risk Premium on market portfolios

6. Beta - - Measure the risk of an individual asset value to market portfolio. Assets-

a). Defensive Assets and

b). Aggressive Assets.

Total Risk = Systematic Risk + Unsystematic Risk



- Systematic risk…

– It cannot be eliminated through diversification

– It can be measured in relation to the risk of a diversified portfolio or the market.

– According to CAPM, the Non-Diversifiable risk of an investment or security or asset is assessed in terms of the beta co-efficient.

- Unsystematic or Diversifiable Risk

– Is that portion of the total risk of an investment that can be eliminated or minimized through diversification.

– Eg. Management Capabilities and decisions, Strikes, unique government regulations, availability of raw materials, competition, etc.,

ASSUMPTIONS OF CAPM

1. Individuals are risk averse.
2. Individuals seek maximizing the expected return
3. Homogeneous expectations
4. Borrow or Lend freely at risk less rate of interest
5. Market is perfect
6. Quantity of risky securities in market is given
7. No transaction cost.

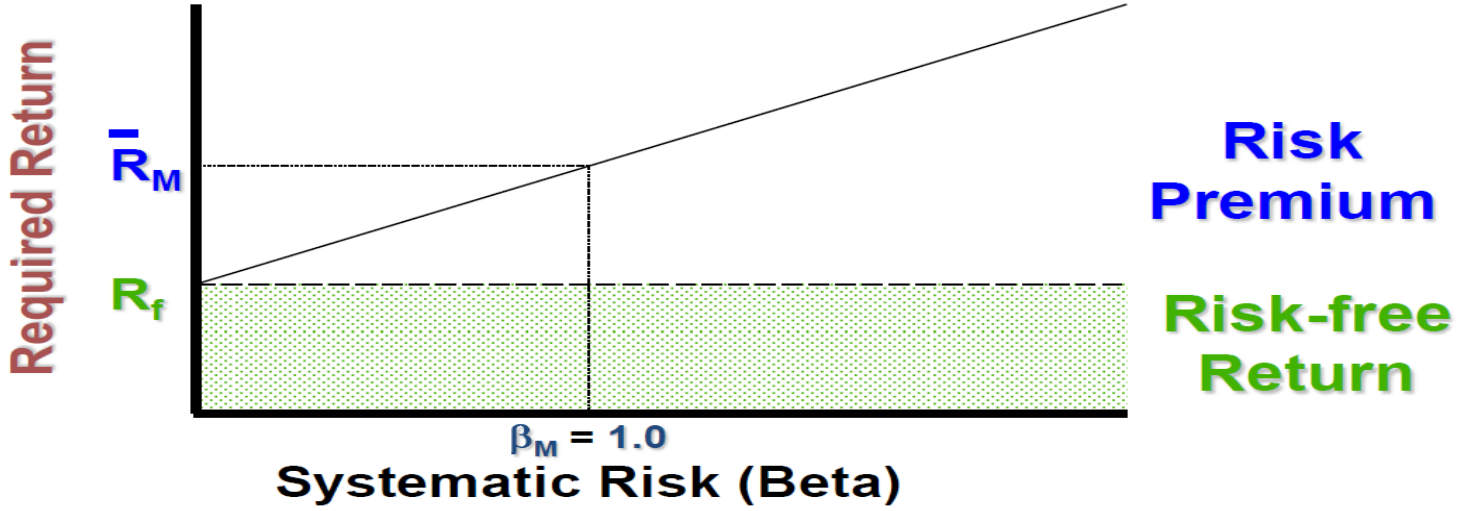
CAPM Formula

CAPM

$Rs = Rf + \beta (Rm - Rf)$

- Rs = Expected Return/ Return required on the investment
- Rf = Risk-Free Return/ Return that can be earned on a riskfree investment
- Rm = Average return on all securities
- β = The securities beta (systematic) risk factor.

$$R_j = R_f + \beta_j(R_M - R_f)$$



CALCULATION OF BETA

- Beta measures non-diversifiable risk
- It shows how the price of a security responds to market forces.
- In effect, the more responsive the price of a security is to changes in the market, the higher will be its beta.
- Betas can be positive or negative however, all betas are positive and most betas lie between 0.4 to 1.9.

• Investors will find beta helpful in assessing systematic risk and understanding the impact market movements can have on the return expected from a share of stock.

• CAPM uses beta to viewed both as a mathematical equation and graphical, as the security market line (SML).

UNIT – V

- Investment Companies in India
- Types Mutual fund operations in India
- UTI
- SEBI & RBI Guidelines for mutual funds .

What is Investment?

Money you earn is partly spent and the rest saved for meeting futures expenses


Needs of Investment
Earn return on your idle resources
Generate a specified sum of money for specific goal in life
Make a provision for an uncertain future

Golden Rules of Investment

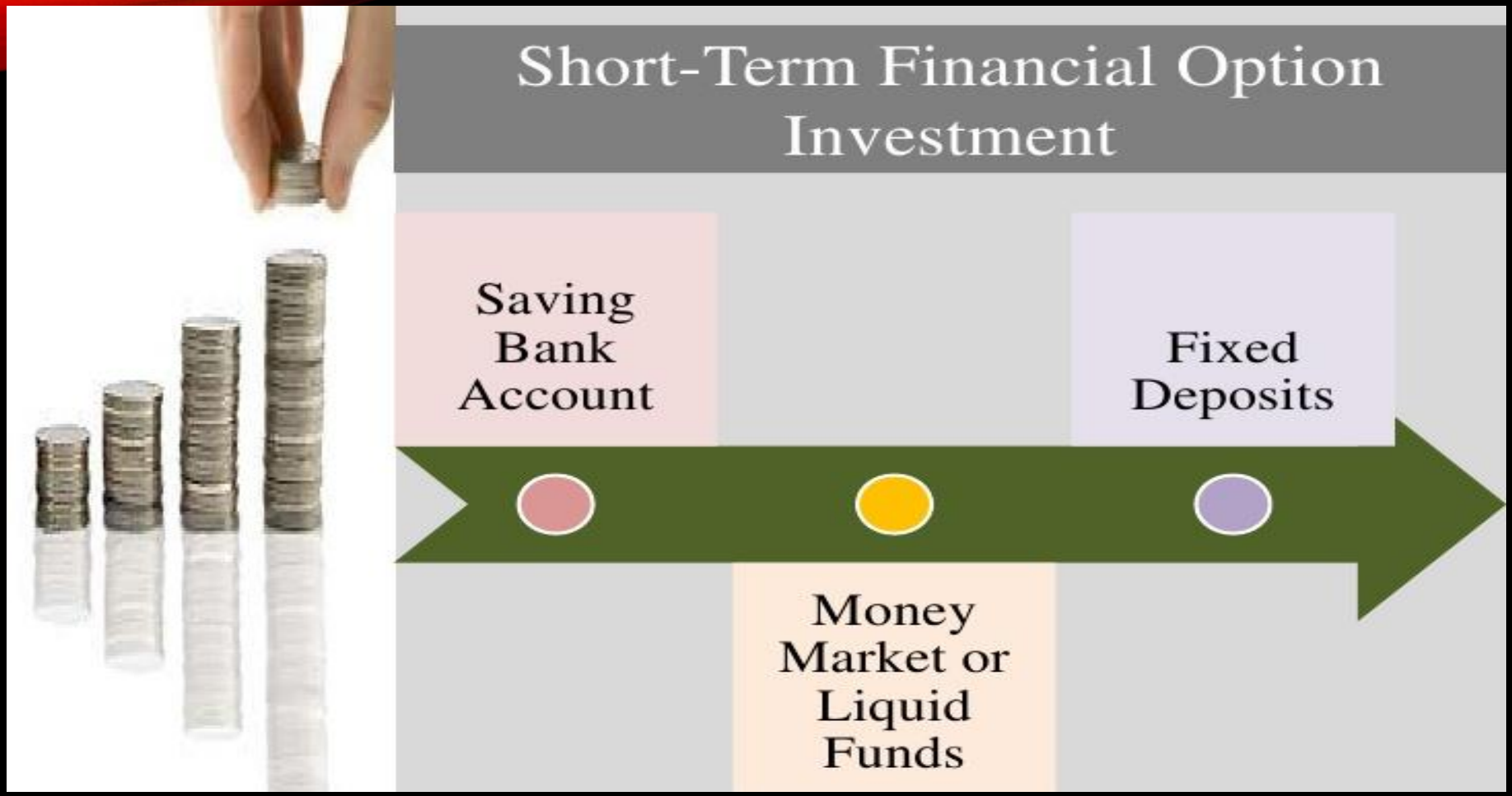
Options for Investment

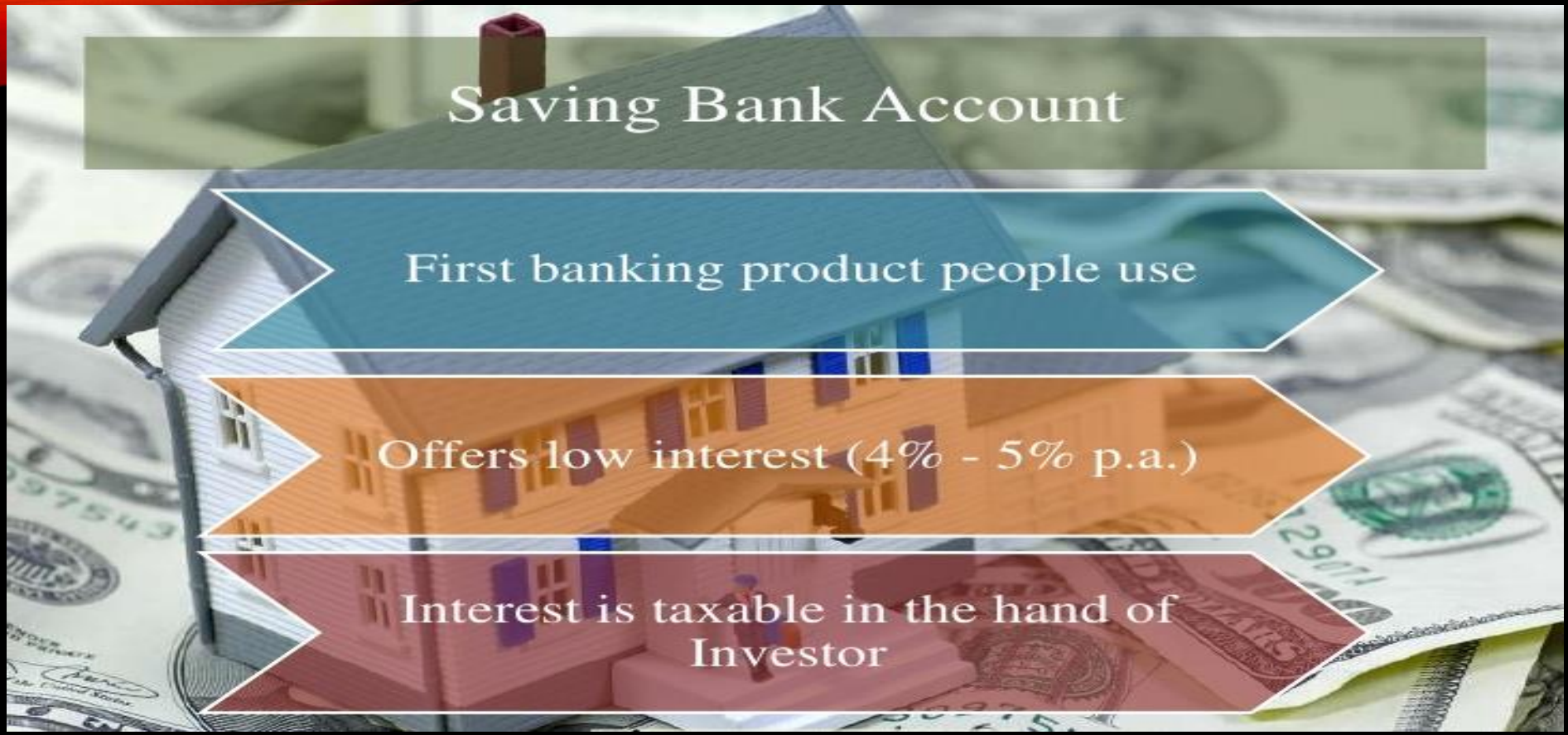
Physical Assets

- Real Estate, Gold / Jewellery, Commodities

Financial Assets

- Fixed Deposit , Small Saving Instruments Mutual Fund,Pension fund and securities market instruments


Short-Term Financial Option Investment
Saving Bank Account
Money Market or Liquid Funds
Fixed Deposits


Saving Bank Account
First banking product people use
Offers low interest (4% - 5% p.a.)
Interest is taxable in the hand of Investor

Money Market / Liquid Funds

Specialized form of mutual funds that invest in extremely short - term

Primarily protecting your capital and then, aim to maximize returns

Money market funds usually yield better than saving accounts, but lower than bank fixed deposits

Fixed Deposits with Banks

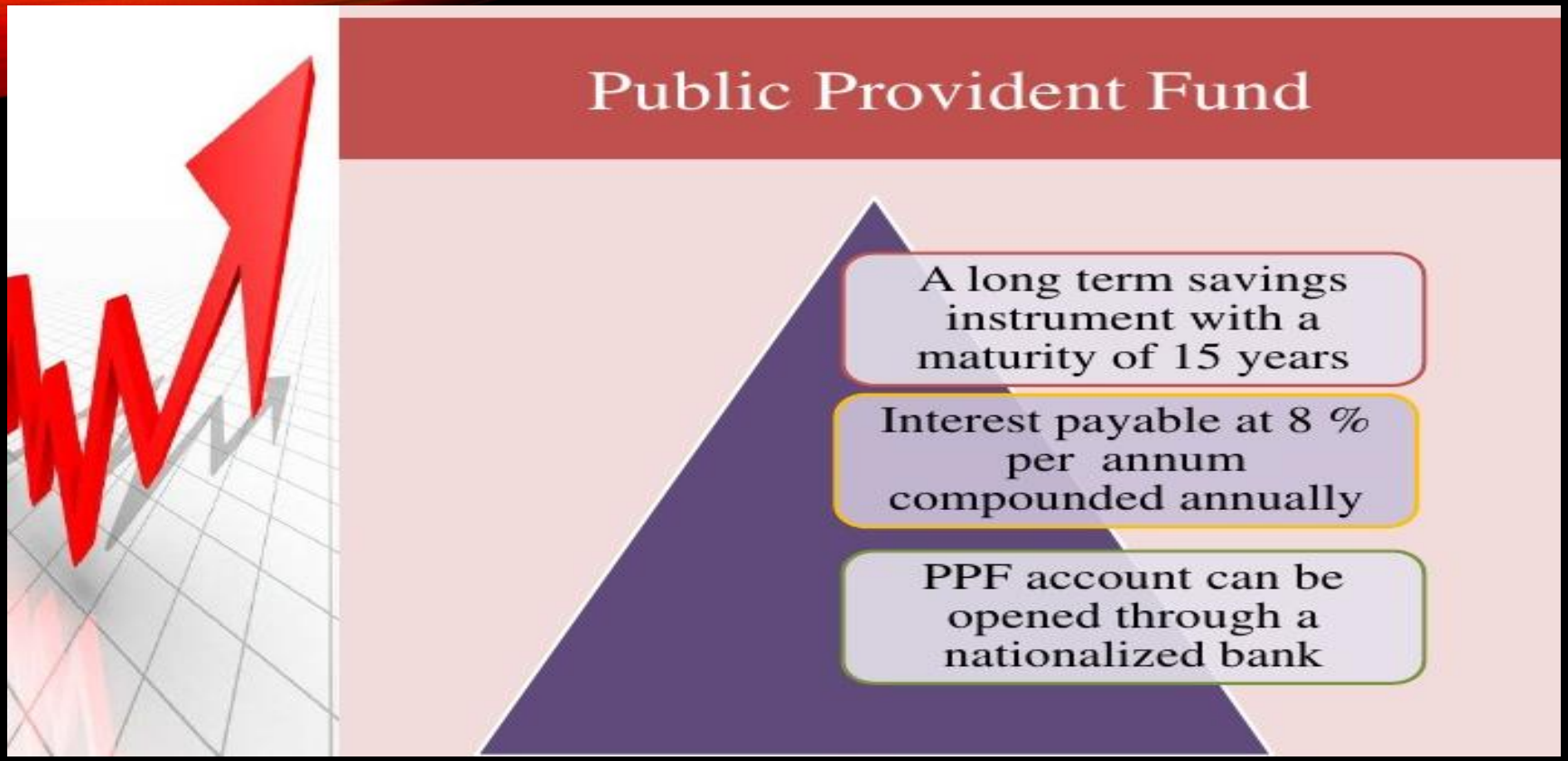
1. Referred to as term deposits
2. Minimum investment period for bank FDs is 30 days
3. FDs with bank are for investor with low risk appetite
4. FDs is lower than money market fund returns

Long-Term Financial Investment

- Post Office Saving Scheme
- Public Provident Fund
- Company Fixed Deposits
- Bonds & Debentures
- Mutual Funds

Post Office Savings

- A low risk saving instrument
- Provides an interest rate of 8% per annum paid monthly
- Minimum amount can be invested is Rs. 1000/-
- Maturity period of 6 years


Public Provident Fund
A long term savings instrument with a maturity of 15 years
Interest payable at 8 % per annum compounded annually
PPF account can be opened through a nationalized bank

Company Fixed Deposits

These are short– term to medium – term borrowings at fixed rate of interest

Payable monthly, quarterly, semi – annually or annually

Rate of interest varies between 6-9% per annum

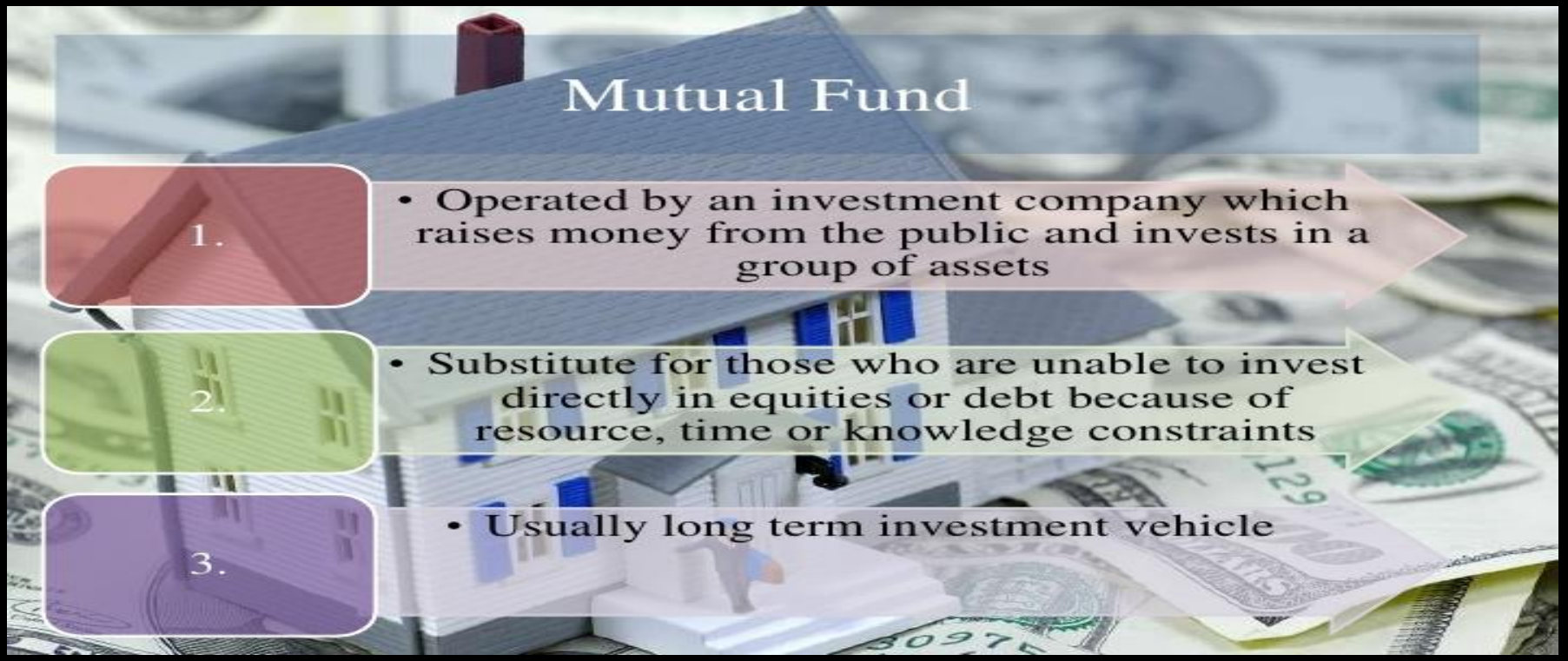
Interest received after deduction of taxes

Bonds

Fixed Income instrument issued for a period of more than one year

Purpose of raising capital

A promise to repay the principal along with a fixed rate of interest on specified date


Mutual Fund
1.
• Operated by an investment company which raises money from the public and invests in a group of assets
2.
• Substitute for those who are unable to invest directly in equities or debt because of resource, time or knowledge constraints
3.
• Usually long term investment vehicle

Share

Total equity capital of a company is divided into equal units of small denominations

The holder of such shares are members of the company and have voting rights

For example, in a company the total equity capital of Rs 2,00,00,000 is divided into 20,00,000 units of Rs 10 each. Each such unit of Rs 10 is called a Share.

Derivative

- A product whose value is derived from the value of one or more basic variables, called underlying.
- Underlying assets can be equity, index, foreign exchange (forex), commodity or any other assets.
- Emerged as hedging devices against fluctuations in commodity prices and commodity-linked derivatives remained the sole form of such products for almost three hundreds years.

TYPES OF MUTUAL FUNDS

Investor have the option of choosing from a wide variety of schemes in a mutual fund, depending upon their requirements.

The Mutual Funds are classified as :

- Operational Based classification
- Return Based Classification
- Investment Based Classification

OPERATIONAL BASED CLASSIFICATION

- Open – ended scheme
- Close – ended scheme
- Interval scheme

RETURN BASED CLASSIFICATION

- Income Fund scheme
- Growth Fund scheme
- Conservative Fund scheme

INVESTMENT BASED CLASSIFICATION

- Equity Fund scheme
- Debt Fund Scheme
- Balanced Fund Scheme
- Index Fund
- Bond Fund scheme
- Liquid Fund
- Sectoral Fund
- Fund-of-Fund scheme
- Leverage Fund

- Gilt Fund
- Tax saving scheme
- Real Estate Fund
- Gold Exchange Traded Funds(G – ETS)
- Other funds
    - Load funds
    - No load funds
    - MMMF
    - Offshore mutual funds

- Other Funds
  - Property funds
  - Art funds
  - Commodity funds
  - Energy funds,etc.,

UNIT TRUST OF INDIA (UTI)

INTRODUCTION

The Unit Trust of India(UTI) was established on 1st February, 1964 under the "Unit Trust of India Act,1963" by the government of India.

OBJECTIVES

There are two primary objectives of UTI :-

(i) To promote and pool the savings from small investors.

(ii) To give them an opportunity to share the benefits.

Organisation and Management:

UTI was established with an initial capital of Rs. 5 crores, contributed by the RBI, LIC, SBI and its subsidiaries and scheduled banks and financial institutions.

FUNCTIONS

The main functions of UTI are as follows:

- To encourage savings of lower and middleclass people.
- To sell units to investors in different parts of the country.
- To convert the small savings into industrial finance.
- To provide liquidity to units.
- To provide merchant banking and investment advisory service.
- To formulate unit scheme or insurance plan.

Schemes of UTI:

- Unit scheme—1964.
- Unit Linked Insurance Plan—1971.
- Children Gift Growth Fund Unit Scheme—1986.
- Rajyalakhmi Unit Scheme—1992.
- Senior Citizen's Unit Plan—1993.
- Monthly Income Unit Scheme.
- Master Equity Plan—1995.
- Money Market Mutual Fund—1997.
- UTI Growth Sector Fund—1999.
- UTI - Unit Linked Insurance Plan

Children Gift Growth Fund Unit Scheme—1986

Unit scheme—1964

UTI: A Review of Progress

- **First phase(1964-1987)**
- **Second Phase (1987-1993)**
- **Third Phase (1993-2003)**
- **Fourth Phase(2003- present):**
  - Specified Undertaking of Unit Trust of India(SUUTI)
  - UTI Mutual Fund Ltd.

Advantages of UTI:

- Good opportunity for small investors
- Wide choice of schemes
- Safe investments
- Steady incomes
- Expert handlings
- Tax concession
- Liquidity

REGULATIONS OF MUTUAL FUNDS IN INDIA

SEBI REGULATIONS :

- Regarding Offer Documents
- Conversion and Consolidation of Schemes and Launch Of Additional Plans
- New Products
- Risk Management system
- Disclosures & Reporting Norms
- Governance Norms
- Secondary Market Issues
- Disclosure of Net Asset Value
- Valuation
- Loads, Fees and Expenses

- Dividend Distribution Procedure
- Investment by Schemes
- Advertisements
- Investor Rights & Obligations
- Certification and Registration of Intermediaries
- Regarding Transaction in Mutual Fund Units

ROLE OF AMFI

The Association of Mutual Funds in India (AMFI) is registered with SEBI and follows its suggestions while executing its activities. It represents the Government of India, the Reserve Bank of India and other related higher authority bodies in the mutual fund operations. AMFI reassures the investors of mutual funds that the mutual fund companies function within the regulatory framework. The different entities such as the AMC and the Custodian operate as per the provisions of the SEBI Mutual Fund Regulation 1996, and the rules and guidelines issued by SEBI. Each of these entities has independent Boards of Directors and separate auditors to monitor the regulatory compliance.

AMFI is engaged in upgrading professional standards and promoting best industry practices in diverse areas such as valuation, disclosure, transparency and also the following:

- By providing professionalism and a proper balance in the mutual fund industry.
- By promoting the highly-efficient business practices as well as the code of conduct in the mutual fund industry among its members and those who are involved in mutual fund investments.
- Training programs to hone the skills of those who are involved in mutual fund investments and also develops a team of efficient and skilled agents.
- Various campaigns and awareness programs to inform the individuals about the basic concept of mutual fund investments.

SEBI keeps a close watch on the mutual funds through periodical reports and each AMC shall submit a quarterly report to SEBI conforming compliance with regulatory provisions. Any deficiency or non-compliance is dealt suitably by SEBI. AMCs are inspected by SEBI once in a year and such inspection is both a detailed scrutiny of operations and a rectification exercise. Thus, the mutual funds and the AMCs are strictly supervised and regulated by SEBI to ensure compliance with its regulation with an aim to match with international standards.

THANK YOU ☺