

# 9

## Mutual Funds

---

### Question 1

*Write short notes on the role of Mutual Funds in the Financial Market.*

### Answer

**Role of Mutual Funds in the Financial Market:** Mutual funds have opened new vistas to investors and imparted much needed liquidity to the system. In this process, they have challenged the hitherto dominant role of the commercial banks in the financial market and national economy.

The role of mutual funds in the financial market is to provide access to the stock markets related investments to people with less money in their pocket. Mutual funds are trusts that pool together resources from small investors to invest in capital market instruments like shares, debentures, bonds, treasury bills, commercial paper, etc.

It is quite easy to construct a well diversified portfolio of stocks, if you have 1,00,000 rupees to invest. However, how can one diversify his portfolio and manage risk if he has just 1,000 rupees to invest. It is definitely not possible with direct investments. The only resort here is mutual funds that can provide access to the financial markets even to such small investors. Mutual funds also help small investors for step-by-step monthly saving/investing of smaller amounts.

### Question 2

*Explain how to establish a Mutual Fund.*

### Answer

**Establishment of a Mutual Fund:** A mutual fund is required to be registered with the Securities and Exchange Board of India (SEBI) before it can collect funds from the public. All mutual funds are governed by the same set of regulations and are subject to monitoring and inspections by the SEBI. The Mutual Fund has to be established through the medium of a sponsor. A sponsor means any body corporate who, acting alone or in combination with another body corporate, establishes a mutual fund after completing the formalities prescribed in the SEBI's Mutual Fund Regulations.

The role of sponsor is akin to that of a promoter of a company, who provides the initial capital and appoints the trustees. The sponsor should be a body corporate in the business of financial services for a period not less than 5 years, be financially sound and be a fit party to act as sponsor in the eyes of SEBI.

## 9.2 Strategic Financial Management

The Mutual Fund has to be established as either a trustee company or a Trust, under the Indian Trust Act and the instrument of trust shall be in the form of a deed. The deed shall be executed by the sponsor in favour of the trustees named in the instrument of trust. The trust deed shall be duly registered under the provisions of the Indian Registration Act, 1908. The trust deed shall contain clauses specified in the Third Schedule of the Regulations.

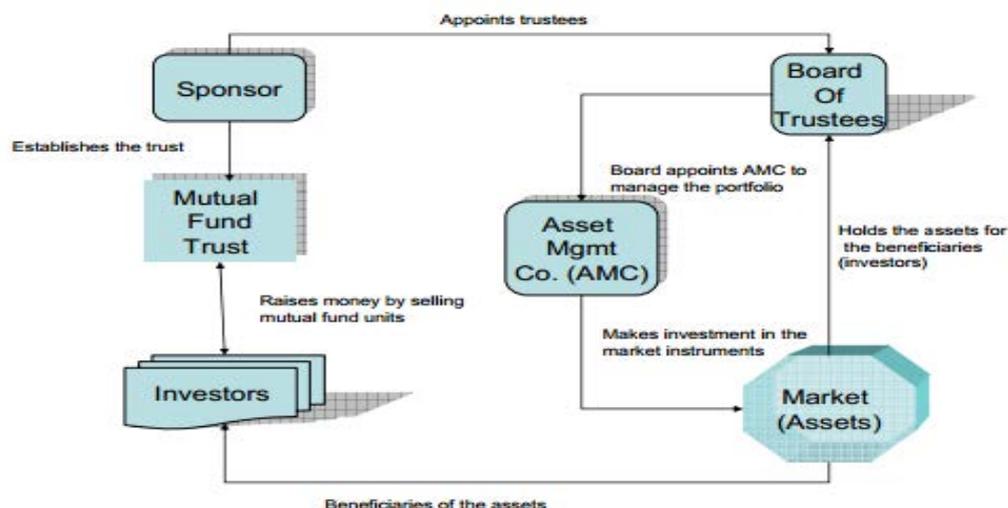
An Asset Management Company, who holds an approval from SEBI, is to be appointed to manage the affairs of the Mutual Fund and it should operate the schemes of such fund. The Asset Management Company is set up as a limited liability company, with a minimum net worth of ₹ 10 crores.

The sponsor should contribute at least 40% to the net worth of the Asset Management Company. The Trustee should hold the property of the Mutual Fund in trust for the benefit of the unit holders.

SEBI regulations require that at least two-thirds of the directors of the Trustee Company or board of trustees must be independent, that is, they should not be associated with the sponsors. Also, 50 per cent of the directors of AMC must be independent. The appointment of the AMC can be terminated by majority of the trustees or by 75% of the unit holders of the concerned scheme.

The AMC may charge the mutual fund with Investment Management and Advisory fees subject to prescribed ceiling. Additionally, the AMC may get the expenses on operation of the mutual fund reimbursed from the concerned scheme.

The Mutual fund also appoints a custodian, holding valid certificate of registration issued by SEBI, to have custody of securities held by the mutual fund under different schemes. In case of dematerialized securities, this is done by Depository Participant. The custodian must be independent of the sponsor and the AMC.



**Question 3**

*What are the advantages of investing in Mutual Funds?*

**Answer**

The advantages of investing in a Mutual Fund are:

1. **Professional Management:** Investors avail the services of experienced and skilled professionals who are backed by a dedicated investment research team which analyses the performance and prospects of companies and selects suitable investments to achieve the objectives of the scheme.
2. **Diversification:** Mutual Funds invest in a number of companies across a broad cross-section of industries and sectors. Investors achieve this diversification through a Mutual Fund with far less money and risk than one can do on his own.
3. **Convenient Administration:** Investing in a Mutual Fund reduces paper work and helps investors to avoid many problems such as bad deliveries, delayed payments and unnecessary follow up with brokers and companies.
4. **Return Potential:** Over a medium to long term, Mutual Fund has the potential to provide a higher return as they invest in a diversified basket of selected securities.
5. **Low Costs:** Mutual Funds are a relatively less expensive way to invest compared to directly investing in the capital markets because the benefits of scale in brokerage, custodial and other fees translate into lower costs for investors.
6. **Liquidity:** In open ended schemes investors can get their money back promptly at net asset value related prices from the Mutual Fund itself. With close-ended schemes, investors can sell their units on a stock exchange at the prevailing market price or avail of the facility of direct repurchase at NAV related prices which some close ended and interval schemes offer periodically.
7. **Transparency:** Investors get regular information on the value of their investment in addition to disclosure on the specific investments made by scheme, the proportion invested in each class of assets and the fund manager's investment strategy and outlook.
8. **Other Benefits:** Mutual Funds provide regular withdrawal and systematic investment plans according to the need of the investors. The investors can also switch from one scheme to another without any load.
9. **Highly Regulated:** Mutual Funds all over the world are highly regulated and in India all Mutual Funds are registered with SEBI and are strictly regulated as per the Mutual Fund Regulations which provide excellent investor protection.
10. **Economies of scale:** The way mutual funds are structured gives it a natural advantage. The "pooled" money from a number of investors ensures that mutual funds enjoy economies of scale; it is cheaper compared to investing directly in the capital markets which involves higher charges. This also allows retail investors access to high entry level markets like real estate, and also there is a greater control over costs.

## 9.4 Strategic Financial Management

---

11. **Flexibility:** There are a lot of features in a regular mutual fund scheme, which imparts flexibility to the scheme. An investor can opt for Systematic Investment Plan (SIP), Systematic Withdrawal Plan etc. to plan his cash flow requirements as per his convenience. The wide range of schemes being launched in India by different mutual funds also provides an added flexibility to the investor to plan his portfolio accordingly.

### Question 4

*What are the drawbacks of investments in Mutual Funds?*

#### Answer

- (a) There is no guarantee of return as some Mutual Funds may underperform and Mutual Fund Investment may depreciate in value which may even effect erosion / Depletion of principal amount
- (b) Diversification may minimize risk but does not guarantee higher return.
- (c) Mutual funds performance is judged on the basis of past performance record of various companies. But this cannot take care of or guarantee future performance.
- (d) Mutual Fund cost is involved like entry load, exit load, fees paid to Asset Management Company etc.
- (e) There may be unethical Practices e.g. diversion of Mutual Fund amounts by Mutual Fund/s to their sister concerns for making gains for them.
- (f) MFs, systems do not maintain the kind of transparency, they should maintain
- (g) Many MF scheme are, at times, subject to lock in period, therefore, deny the market drawn benefits
- (h) At times, the investments are subject to different kind of hidden costs.
- (i) Redressal of grievances, if any, is not easy
- (j) When making decisions about your money, fund managers do not consider your personal tax situations. For example. When a fund manager sells a security, a capital gain tax is triggered, which affects how profitable the individual is from sale. It might have been more profitable for the individual to defer the capital gain liability.
- (k) Liquidating a mutual fund portfolio may increase risk, increase fees and commissions, and create capital gains taxes.

### Question 5

*Explain briefly about net asset value (NAV) of a Mutual Fund Scheme.*

#### Answer

Net Asset Value (NAV) is the total asset value (net of expenses) per unit of the fund calculated by the Asset Management Company (AMC) at the end of every business day. Net Asset Value on a particular date reflects the realizable value that the investor will get for each unit that he

is holding if the scheme is liquidated on that date. The day of valuation of NAV is called the valuation day.

The performance of a particular scheme of a mutual fund is denoted by Net Asset Value (NAV). Net Asset Value may also be defined as the value at which new investors may apply to a mutual fund for joining a particular scheme.

It is the value of net assets of the fund. The investors' subscription is treated as the capital in the balance sheet of the fund, and the investments on their behalf are treated as assets. The NAV is calculated for every scheme of the MF individually. The value of portfolio is the aggregate value of different investments.

$$\text{The Net Asset Value (NAV)} = \frac{\text{Net Assets of the scheme}}{\text{Number of units outstanding}}$$

Net Assets of the scheme will normally be:

Market value of investments + Receivables + Accrued Income + Other Assets – Accrued Expenses – Payables – Other Liabilities

Since investments by a Mutual Fund are marked to market, the value of the investments for computing NAV will be at market value.

The Securities and Exchange Board of India (SEBI) has notified certain valuation norms calculating net asset value of Mutual fund schemes separately for traded and non-traded schemes. Also, according to Regulation 48 of SEBI (Mutual Funds) Regulations, mutual funds are required to compute Net Asset Value (NAV) of each scheme and to disclose them on a regular basis – daily or weekly (based on the type of scheme) and publish them in atleast two daily newspapers.

NAV play an important part in investors' decisions to enter or to exit a MF scheme. Analyst use the NAV to determine the yield on the schemes.

### Question 6

*What are the investors' rights & obligations under the Mutual Fund Regulations? Explain different methods for evaluating the performance of Mutual Fund.*

### Answer

**Investors' Rights and Obligations under the Mutual Fund Regulations:** Important aspect of the mutual fund regulations and operations is the investors' protection and disclosure norms. It serves the very purpose of mutual fund guidelines. Due to these norms it is very necessary for the investor to remain vigilant. Investor should continuously evaluate the performance of mutual fund.

Following are the steps taken for improvement and compliance of standards of mutual fund:

1. All mutual funds should disclose full portfolio of their schemes in the annual report within

## **9.6 Strategic Financial Management**

---

one month of the close of each financial year. Mutual fund should either send it to each unit holder or publish it by way of an advertisement in one English daily and one in regional language.

2. The Asset Management Company must prepare a compliance manual and design internal audit systems including audit systems before the launch of any schemes. The trustees are also required to constitute an audit committee of the trustees which will review the internal audit systems and the recommendation of the internal and statutory audit reports and ensure their rectification.
3. The AMC shall constitute an in-house valuation committee consisting of senior executives including personnel from accounts, fund management and compliance departments. The committee would on a regular basis review the system practice of valuation of securities.
4. The trustees shall review all transactions of the mutual fund with the associates on a regular basis.

### **Investors' Rights**

1. Unit holder has proportionate right in the beneficial ownership of the schemes assets as well as any dividend or income declared under the scheme.
2. For initial offers unit holders have right to expect allotment of units within 30 days from the closure of mutual offer period.
3. Receive dividend warrant within 42 days.
4. AMC can be terminated by 75% of the unit holders.
5. Right to inspect major documents i.e. material contracts, Memorandum of Association and Articles of Association (M.A. & A.A) of the AMC, Offer document etc.
6. 75% of the unit holders have the right to approve any changes in the close ended scheme.
7. Every unit holder have right to receive copy of the annual statement.
8. Right to wind up a scheme if 75% of investors pass a resolution to that effect.
9. Investors have a right to be informed about changes in the fundamental attributes of a scheme. Fundamental attributes include type of scheme, investment objectives and policies and terms of issue.
10. Lastly, investors can approach the investor relations officer for grievance redressal. In case the investor does not get appropriate solution, he can approach the investor grievance cell of SEBI. The investor can also sue the trustees.

### **Legal Limitations to Investors' Rights**

1. Unit holders cannot sue the trust but they can initiate proceedings against the trustees, if they feel that they are being cheated.

2. Except in certain circumstances AMC cannot assure a specified level of return to the investors. AMC cannot be sued to make good any shortfall in such schemes.

### Investors' Obligations

1. An investor should carefully study the risk factors and other information provided in the offer document. Failure to study will not entitle him for any rights thereafter.
2. It is the responsibility of the investor to monitor his schemes by studying the reports and other financial statements of the funds.

### Methods for Evaluating the Performance

#### 1. Sharpe Ratio

The excess return earned over the risk free return on portfolio to the portfolio's total risk measured by the standard deviation. This formula uses the volatility of portfolio return. The Sharpe ratio is often used to rank the risk-adjusted performance of various portfolios over the same time. The higher a Sharpe ratio, the better a portfolio's returns have been relative to the amount of investment risk the investor has taken.

$$S = \frac{\text{Return of portfolio} - \text{Return of risk free investment}}{\text{Standard Deviation of Portfolio}}$$

#### 2. Treynor Ratio

This ratio is similar to the Sharpe Ratio except it uses Beta of portfolio instead of standard deviation. Treynor ratio evaluates the performance of a portfolio based on the systematic risk of a fund. Treynor ratio is based on the premise that unsystematic or specific risk can be diversified and hence, only incorporates the systematic risk (beta) to gauge the portfolio's performance.

$$T = \frac{\text{Return of portfolio} - \text{Return of risk free investment}}{\text{Beta of Portfolio}}$$

#### 3. Jensen's Alpha

The comparison of actual return of the fund with the benchmark portfolio of the same risk. Normally, for the comparison of portfolios of mutual funds this ratio is applied and compared with market return. It shows the comparative risk and reward from the said portfolio. Alpha is the excess of actual return compared with expected return.

### Question 7

*What are the signals that indicate that is time for an investor to exit a mutual fund scheme?*

### Answer

- (1) When the mutual fund consistently under performs the broad based index, it is high time that it should get out of the scheme.

## 9.8 Strategic Financial Management

---

- (2) When the mutual fund consistently under performs its peer group instead of it being at the top. In such a case, it would have to pay to get out of the scheme and then invest in the winning schemes.
- (3) When the mutual fund changes its objectives e.g. instead of providing a regular income to the investor, the composition of the portfolio has changed to a growth fund mode which is not in tune with the investor's risk preferences.
- (4) When the investor changes his objective of investing in a mutual fund which no longer is beneficial to him.
- (5) When the fund manager, handling the mutual fund schemes, has been replaced by a new entrant whose image is not known.

### Question 8

*Briefly explain what is an exchange traded fund.*

### Answer

Exchange Traded Funds (ETFs) were introduced in US in 1993 and came to India around 2002. ETF is a hybrid product that combines the features of an index mutual fund and stock and hence, is also called index shares. These funds are listed on the stock exchanges and their prices are linked to the underlying index. The authorized participants act as market makers for ETFs.

ETF can be bought and sold like any other stock on stock exchange. In other words, they can be bought or sold any time during the market hours at prices that are expected to be closer to the NAV at the end of the day. NAV of an ETF is the value of the underlying component of the benchmark index held by the ETF plus all accrued dividends less accrued management fees.

There is no paper work involved for investing in an ETF. These can be bought like any other stock by just placing an order with a broker.

Some other important features of ETF are as follows:

1. It gives an investor the benefit of investing in a commodity without physically purchasing the commodity like gold, silver, sugar etc.
2. It is launched by an asset management company or other entity.
3. The investor does not need to physically store the commodity or bear the costs of upkeep which is part of the administrative costs of the fund.
4. An ETF combines the valuation feature of a mutual fund or unit investment trust, which can be bought or sold at the end of each trading day for its net asset value, with the tradability feature of a closed-end fund, which trades throughout the trading day at prices that may be more or less than its net asset value.

**Question 9**

*Distinguish between Open-ended and Close-ended Schemes.*

**Answer**

Open Ended Scheme do not have maturity period. These schemes are available for subscription and repurchase on a continuous basis. Investor can conveniently buy and sell unit. The price is calculated and declared on daily basis. The calculated price is termed as NAV. The buying price and selling price is calculated with certain adjustment to NAV. The key feature of the scheme is liquidity.

Close Ended Scheme has a stipulated maturity period normally 5 to 10 years. The Scheme is open for subscription only during the specified period at the time of launch of the scheme. Investor can invest at the time of initial issue and thereafter they can buy or sell from stock exchange where the scheme is listed. To provide an exit route some close-ended schemes give an option of selling back (repurchase) on the basis of NAV. The NAV is generally declared on weekly basis.

The points of difference between the two types of funds can be explained as under

<i>Parameter</i>	<i>Open Ended Fund</i>	<i>Closed Ended Fund</i>
Fund Size	Flexible	Fixed
Liquidity Provider	Fund itself	Stock Market
Sale Price	At NAV plus load, if any	Significant Premium/ Discount to NAV
Availability	Fund itself	Through Exchange where listed
Intra-Day Trading	Not possible	Expensive

**Question 10**

*Write short notes on Money market mutual fund.*

**Answer**

An important part of financial market is Money market. It is a market for short-term money. It plays a crucial role in maintaining the equilibrium between the short-term demand and supply of money. Such schemes invest in safe highly liquid instruments included in commercial papers certificates of deposits and government securities.

Accordingly, the Money Market Mutual Fund (MMMF) schemes generally provide high returns and highest safety to the ordinary investors. MMMF schemes are active players of the money market. They channelize the idle short funds, particularly of corporate world, to those who require such funds. This process helps those who have idle funds to earn some income without taking any risk and with surety that whenever they will need their funds, they will get (generally in maximum three hours of time) the same. Short-term/emergency requirements of

## 9.10 Strategic Financial Management

---

various firms are met by such Mutual Funds. Participation of such Mutual Funds provide a boost to money market and help in controlling the volatility.

### Question 11

- (i) *Who can be appointed as Asset Management Company (AMC)?*
- (ii) *Write the conditions to be fulfilled by an AMC.*
- (iii) *What are the obligations of AMC?*

### Answer

(i) **Asset Management Company (AMC):** A company formed and registered under Companies Act 1956 and which has obtained the approval of SEBI to function as an asset management company may be appointed by the sponsor of the mutual fund as AMC for creation and maintenance of investment portfolios under different schemes. The AMC is involved in the daily administration of the fund and typically has three departments: a) Fund Management; b) Sales and Marketing and c) Operations and Accounting.

### (ii) Conditions to be fulfilled by an AMC

- (1) The Memorandum and Articles of Association of the AMC is required to be approved by the SEBI.
- (2) Any director of the asset management company shall not hold the place of a director in another asset management company unless such person is independent director referred to in clause (d) of sub-regulation (1) of regulation 21 of the Regulations and the approval of the Board of asset management company of which such person is a director, has been obtained. Atleast 50% of the directors of the AMC should be independent (i.e. not associated with the sponsor).
- (3) The asset management company shall forthwith inform SEBI of any material change in the information or particulars previously furnished which have a bearing on the approval granted by SEBI.
  - (a) No appointment of a director of an asset management company shall be made without the prior approval of the trustees.
  - (b) The asset management company undertakes to comply with SEBI (Mutual Funds) Regulations, 1996.
  - (c) No change in controlling interest of the asset management company shall be made unless prior approval of the trustees and SEBI is obtained.
    - (i) A written communication about the proposed change is sent to each unit holder and an advertisement is given in one English Daily newspaper having nation wide circulation and in a newspaper published in the language of the region where the head office of the mutual fund is situated.

- (ii) The unit holders are given an option to exit at the prevailing Net Asset Value without any exit load.
  - (iii) The asset management company shall furnish such information and documents to the trustees as and when required by the trustees.
- (4) The minimum net worth of an AMC should be ₹ 10 crores, of which not less than 40% is to be contributed by the sponsor.

**(iii) Obligations of the AMC**

- (1) The AMC shall manage the affairs of the mutual funds and operate the schemes of such fund.
- (2) The AMC shall take all reasonable steps and exercise due diligence to ensure that the investment of the mutual funds pertaining to any scheme is not contrary to the provisions of SEBI Regulations and the trust deed of the mutual fund.

**Question 12**

*Mr. A can earn a return of 16 per cent by investing in equity shares on his own. Now he is considering a recently announced equity based mutual fund scheme in which initial expenses are 5.5 per cent and annual recurring expenses are 1.5 per cent. How much should the mutual fund earn to provide Mr. A return of 16 per cent?*

**Answer**

Personal earnings of Mr. A =  $R_1 = 16\%$

Mutual Fund earnings =  $R_2$

$$\begin{aligned}
 R_2 &= \frac{1}{1 - \text{Initial expenses (\%)}} R_1 + \text{Recurring expenses (\%)} \\
 &= \frac{1}{1 - 0.055} \times 16\% + 1.5\% \\
 &= 18.43\%
 \end{aligned}$$

Mutual Fund earnings = 18.43%

**Question 13**

*Mr. X earns 10% on his investments in equity shares. He is considering a recently floated scheme of a Mutual Fund where the initial expenses are 6% and annual recurring expenses are expected to be 2%. How much the Mutual Fund scheme should earn to provide a return of 10% to Mr. X?*

## 9.12 Strategic Financial Management

---

### Answer

$$r_2 = \frac{1}{1 - \text{initial exp}} \times r_1 + \text{recurring exp.}$$

The rate of return the mutual fund should earn;

$$= \frac{1}{1 - 0.06} \times 0.1 + 0.02$$

$$= 0.1264 \text{ or } 12.64\%$$

### Question 14

The unit price of Equity Linked Savings Scheme (ELSS) of a mutual fund is ₹ 10/-. The public offer price (POP) of the unit is ₹ 10.204 and the redemption price is ₹ 9.80.

Calculate:

(i) Front-end Load

(ii) Back end Load

### Answer

**Public Offer Price = NAV/ (1 – Front end Load)**

Public Offer Price: ₹ 10.204 and NAV: ₹ 10

Accordingly,

$$10.204 = 10/(1 - F)$$

$$F = 0.0199 \text{ say } 2\%$$

**Redemption Price = NAV/ (1 – Back End Load)**

$$₹ 9.80 = 10/ (1 - \text{Back End Load})$$

$$B = 0.0204 \text{ i.e. } 2.04\%$$

### Alternative

$$(i) \text{ Front End Load} = \frac{10.204 - 10.00}{10.00} = 0.0204 \text{ or } 2.04\%$$

$$(ii) \text{ Exit Load} = \frac{10.00 - 9.80}{10.00} = 0.020 \text{ or } 2.00\%$$

### Question 15

A mutual fund that had a net asset value of ₹ 20 at the beginning of month - made income and capital gain distribution of Re. 0.0375 and Re. 0.03 per share respectively during the month, and then ended the month with a net asset value of ₹ 20.06. Calculate monthly return.

**Answer****Calculation of Monthly Return on the Mutual Funds**

$$r = \left[ \frac{(\text{NAV}_t - \text{NAV}_{t-1}) + I_t + G_t}{\text{NAV}_{t-1}} \right]$$

Where,

$r$  = Return on the mutual fund

$\text{NAV}_t$  = Net assets value at time period  $t$

$\text{NAV}_{t-1}$  = Net assets value at time period  $t - 1$

$I_t$  = Income at time period  $t$

$G_t$  = Capital gain distribution at time period  $t$

$$= \left[ \frac{(\text{₹ } 20.06 - \text{₹ } 20.00) + (\text{₹ } 0.0375 + \text{₹ } 0.03)}{20} \right]$$

$$= \frac{0.06 + 0.0675}{20}$$

$$= \frac{0.1275}{20} = 0.006375$$

Or,  $r = 0.6375\%$  p.m.

Or  $= 7.65\%$  p.a.

**Question 16**

*A mutual fund that had a net asset value of ₹16 at the beginning of a month, made income and capital gain distribution of ₹0.04 and ₹0.03 respectively per unit during the month, and then ended the month with a net asset value of ₹16.08. Calculate monthly and annual rate of return.*

**Answer**

Calculation of monthly return on the mutual funds:

$$r = \frac{(\text{NAV}_t - \text{NAV}_{t-1}) + I_t + G_t}{\text{NAV}_{t-1}}$$

$$\text{Or, } r = \frac{(\text{₹ } 16.08 - \text{₹ } 16.00) + (\text{₹ } 0.04 + \text{₹ } 0.03)}{16}$$

$$= \frac{0.08 + 0.07}{16} = 0.009375 \quad \text{or, } r = 0.9375\% \text{ or } 11.25\% \text{ p.a.}$$

## 9.14 Strategic Financial Management

---

### Question 17

An investor purchased 300 units of a Mutual Fund at ₹ 12.25 per unit on 31<sup>st</sup> December, 2009. As on 31<sup>st</sup> December, 2010 he has received ₹ 1.25 as dividend and ₹ 1.00 as capital gains distribution per unit.

Required :

- (i) The return on the investment if the NAV as on 31<sup>st</sup> December, 2010 is ₹ 13.00.
- (ii) The return on the investment as on 31<sup>st</sup> December, 2010 if all dividends and capital gains distributions are reinvested into additional units of the fund at ₹ 12.50 per unit.

### Answer

Return for the year (all changes on a per year basis)

Particulars	₹ /Unit
Change in price (₹ 13.00 – ₹ 12.25)	0.75
Dividend received	1.25
Capital gain distribution	<u>1.00</u>
Total Return	<u>3.00</u>

$$\text{Return on investment} = \frac{3.00}{12.25} \times 100 = 24.49\%$$

Alternatively, it can also be computed as follows:

$$\begin{aligned} & \frac{(\text{NAV}_1 - \text{NAV}_0) + D_1 + \text{CG}_1}{\text{NAV}_0} \times 100 \\ &= \frac{(13 - 12.25) + 1.25 + 1.00}{12.25} \times 100 \\ &= 24.49\% \end{aligned}$$

If all dividends and capital gain are reinvested into additional units at ₹ 12.50 per unit the position would be.

$$\text{Total amount reinvested} = ₹ 2.25 \times 300 = ₹ 675$$

$$\text{Additional units added} = \frac{₹ 675}{12.50} = 54 \text{ units}$$

$$\text{Value of 354 units as on 31-12-2010} = ₹ 4,602$$

$$\text{Price paid for 300 units on 31-12-2009} (300 \times ₹ 12.25) = ₹ 3,675$$



## 9.16 Strategic Financial Management

---

- Distributions made in the nature of Income - ₹ 0.50 and ₹ 0.32  
& Capital gain (per unit respectively).

You are required to:

- (1) Calculate the month end net asset value of the mutual fund scheme (limit your answers to two decimals).
- (2) Provide a brief comment on the month end NAV.

### Answer

- (1) Calculation of NAV at the end of month:

Given Annual Return = 15%

Hence Monthly Return = 1.25% (r)

$$r = \frac{(\text{NAV}_t - \text{NAV}_{t-1}) + I_t + G_t}{\text{NAV}_{t-1}}$$

$$0.0125 = \frac{(\text{NAV}_t - ₹ 65.78) + ₹ 0.50 + ₹ 0.32}{₹ 65.78}$$

$$0.82 = \text{NAV}_t - ₹ 64.96$$

$$\text{NAV}_t = ₹ 65.78$$

- (2) There is no change in NAV.

### Question 20

Orange purchased 200 units of Oxygen Mutual Fund at ₹ 45 per unit on 31<sup>st</sup> December, 2009. In 2010, he received ₹ 1.00 as dividend per unit and a capital gains distribution of ₹ 2 per unit.

Required:

- (i) Calculate the return for the period of one year assuming that the NAV as on 31<sup>st</sup> December 2010 was ₹ 48 per unit.
- (ii) Calculate the return for the period of one year assuming that the NAV as on 31<sup>st</sup> December 2010 was ₹ 48 per unit and all dividends and capital gains distributions have been reinvested at an average price of ₹ 46.00 per unit.

Ignore taxation.

### Answer

- (i) Returns for the year

(All changes on a Per -Unit Basis)

Change in Price: ₹ 48 – ₹ 45 = ₹ 3.00

Dividends received:	₹ 1.00
Capital gains distribution	<u>₹ 2.00</u>
Total reward	<u>₹ 6.00</u>
Holding period reward:	$\frac{₹ 6.00}{₹ 45} \times 100 = 13.33\%$

- (ii) When all dividends and capital gains distributions are re-invested into additional units of the fund @ (₹ 46/unit)

Dividend + Capital Gains per unit = ₹ 1.00 + ₹ 2.00 = ₹ 3.00

Total received from 200 units = ₹ 3.00 x 200 = ₹ 600/-.

Additional Units Acquired = ₹ 600/₹ 46 = 13.04 Units.

Total No. of Units = 200 units + 13.04 units = 213.04 units.

Value of 213.04 units held at the end of the year

= 213.04 units x ₹48 = ₹ 10225.92

Price Paid for 200 Units at the beginning of the year = 200 units x ₹ 45 = ₹ 9000.00

Holding Period Reward ₹ (10225.92 – 9000.00) = ₹1225.92

Holding Period Reward =  $\frac{₹1225.92}{₹ 9000} \times 100 = 13.62\%$

### Question 21

*Cinderella Mutual Fund has the following assets in Scheme Rudolf at the close of business on 31<sup>st</sup> March, 2014.*

Company	No. of Shares	Market Price Per Share
Nairobi Ltd.	25000	₹ 20
Dakar Ltd.	35000	₹ 300
Senegal Ltd.	29000	₹ 380
Cairo Ltd.	40000	₹ 500

*The total number of units of Scheme Rudolf are 10 lacs. The Scheme Rudolf has accrued expenses of ₹ 2,50,000 and other liabilities of ₹ 2,00,000. Calculate the NAV per unit of the Scheme Rudolf.*

## 9.18 Strategic Financial Management

### Answer

Shares	No. of shares	Price	Amount (₹)
Nairobi Ltd.	25,000	20.00	5,00,000
Dakar Ltd.	35,000	300.00	1,05,00,000
Senegal Ltd.	29,000	380.00	1,10,20,000
Cairo Ltd.	40,000	500.00	2,00,00,000
			4,20,20,000
Less: Accrued Expenses			2,50,000
Other Liabilities			2,00,000
Total Value			4,15,70,000
No. of Units			10,00,000
NAV per Unit (4,15,70,000/10,00,000)			41.57

### Question 22

A Mutual Fund Co. has the following assets under it on the close of business as on:

Company	No. of Shares	1 <sup>st</sup> February 2012	2 <sup>nd</sup> February 2012
		Market price per share ₹	Market price per share ₹
L Ltd	20,000	20.00	20.50
M Ltd	30,000	312.40	360.00
N Ltd	20,000	361.20	383.10
P Ltd	60,000	505.10	503.90

Total No. of Units 6,00,000

(i) Calculate Net Assets Value (NAV) of the Fund as on 1<sup>st</sup> February.

(ii) Following information is given:

Assuming one Mr. A, submits a cheque of ₹ 30,00,000 to the Mutual Fund and the Fund manager of this company purchases 8,000 shares of M Ltd; and the balance amount is held in Bank. In such a case, what would be the position of the Fund?

(iii) Find new NAV of the Fund as on 2<sup>nd</sup> February 2012.

**Answer****(i) NAV of the Fund**

$$= \frac{\text{₹ } 4,00,000 + \text{₹ } 93,72,000 + \text{₹ } 72,24,000 + \text{₹ } 3,03,06,000}{6,00,000}$$

$$= \frac{\text{₹ } 4,73,02,000}{6,00,000} = \text{₹ } 78.8366 \text{ rounded to ₹ } 78.84$$

**(ii) The revised position of fund shall be as follows:**

Shares	No. of shares	Price	Amount (₹)
L Ltd.	20,000	20.00	4,00,000
M Ltd.	38,000	312.40	1,18,71,200
N Ltd.	20,000	361.20	72,24,000
P Ltd.	60,000	505.10	3,03,06,000
Cash			<u>5,00,800</u>
			<u>5,03,02,000</u>

$$\text{No. of units of fund} = 6,00,000 + \frac{30,00,000}{78.8366} = 6,38,053$$

**(iii) On 2<sup>nd</sup> February 2012, the NAV of fund will be as follows:**

Shares	No. of shares	Price	Amount (₹)
L Ltd.	20,000	20.50	4,10,000
M Ltd.	38,000	360.00	1,36,80,000
N Ltd.	20,000	383.10	76,62,000
P Ltd.	60,000	503.90	3,02,34,000
Cash			<u>5,00,800</u>
			<u>5,24,86,800</u>

$$\text{NAV as on 2<sup>nd</sup> February 2012} = \frac{\text{₹ } 5,24,86,800}{6,38,053} = \text{₹ } 82.26 \text{ per unit}$$

**Question 23**

On 1<sup>st</sup> April 2009 Fair Return Mutual Fund has the following assets and prices at 4.00 p.m.

Shares	No. of Shares	Market Price Per Share (₹)
A Ltd.	10000	19.70
B Ltd.	50000	482.60

## 9.20 Strategic Financial Management

C Ltd.	10000	264.40
D Ltd.	100000	674.90
E Ltd.	30000	25.90
No. of units of funds		8,00,000

Please calculate:

- (a) NAV of the Fund on 1<sup>st</sup> April 2009.
- (b) Assuming that on 1<sup>st</sup> April 2009, Mr. X, a HNI, send a cheque of ₹ 50,00,000 to the Fund and Fund Manager immediately purchases 18000 shares of C Ltd. and balance is held in bank. Then what will be position of fund.
- (c) Now suppose on 2 April 2009 at 4.00 p.m. the market price of shares is as follows:

Shares	₹
A Ltd.	20.30
B Ltd.	513.70
C Ltd.	290.80
D Ltd.	671.90
E Ltd.	44.20

Then what will be new NAV.

**Answer**

- (a) **NAV of the Fund.**

$$= \frac{₹ 1,97,000 + ₹ 2,41,30,000 + ₹ 26,44,000 + ₹ 6,74,90,000 + ₹ 7,77,000}{800000}$$

$$= \frac{₹ 9,52,38,000}{800000} = ₹ 119.0475 \text{ rounded to } ₹ 119.05$$

- (b) **The revised position of fund shall be as follows:**

Shares	No. of shares	Price	Amount (Rs.)
A Ltd.	10000	19.70	1,97,000
B Ltd.	50000	482.60	2,41,30,000
C Ltd.	28000	264.40	74,03,200
D Ltd.	100000	674.90	674,90,000
E Ltd.	30000	25.90	7,77,000
Cash			<u>2,40,800</u>
			<u>10,02,38,000</u>

$$\text{No. of units of fund} = 800000 + \frac{5000000}{119.0475} = 842000$$

(c) On 2<sup>nd</sup> April 2009, the NAV of fund will be as follows:

Shares	No. of shares	Price	Amount (₹)
A Ltd.	10000	20.30	2,03,000
B Ltd.	50000	513.70	2,56,85,000
C Ltd.	28000	290.80	81,42,400
D Ltd.	100000	671.90	6,71,90,000
E Ltd.	30000	44.20	13,26,000
Cash			<u>2,40,800</u>
			<u>10,27,87,200</u>

$$\text{NAV as on 2<sup>nd</sup> April 2009} = \frac{\text{₹ } 10,27,87,200}{842000} = \text{₹ } 122.075 \text{ per unit}$$

**Question 24**

A has invested in three Mutual Fund Schemes as per details below:

Particulars	MF A	MF B	MF C
Date of investment	01.12.2009	01.01.2010	01.03.2010
Amount of investment	₹ 50,000	₹ 1,00,000	₹ 50,000
Net Asset Value (NAV) at entry date	₹ 10.50	₹ 10	₹ 10
Dividend received upto 31.03.2010	₹ 950	₹ 1,500	Nil
NAV as at 31.03.2010	₹ 10.40	₹ 10.10	₹ 9.80

Required:

What is the effective yield on per annum basis in respect of each of the three schemes to Mr. A upto 31.03.2010?

**Answer**

Scheme	Investment ₹	Unit Nos. (Investment/NAV at entry date)	Unit NAV 31.3.2010 ₹	Total NAV 31.3.2010 (Unit Nos. X Unit NAV as on 31.3.2010) ₹
MF A	50,000	4761.905	10.40	49,523.812
MF B	1,00,000	10,000	10.10	1,01,000
MF C	50,000	5,000	9.80	49,000

## 9.22 Strategic Financial Management

Scheme	NAV (+) / (-) (NAV as on 31.3.2010 – Investment) ₹	Dividend Received ₹	Total Yield Change in NAV +Dividend ₹	Number of days	Effective Yield (% P.A.) (Total Yield/ Investment) X (365/No. of days) X 100
MF A	(-)476.188	950	473.812	121	2.858%
MF B	(+)1,000	1,500	2,500	90	10.139%
MF C	(-)1,000	Nil	(-)1,000	31	(-)24%

### Question 25

Mr. Sinha has invested in three Mutual fund schemes as per details below:

	Scheme X	Scheme Y	Scheme Z
Date of Investment	01.12.2008	01.01.2009	01.03.2009
Amount of Investment	₹5,00,000	₹1,00,000	₹50,000
Net Asset Value at entry date	₹10.50	₹10.00	₹10.00
Dividend received upto 31.03.2009	₹9,500	₹1,500	Nil
NAV as at 31.3.2009	₹10.40	₹10.10	₹9.80

You are required to calculate the effective yield on per annum basis in respect of each of the three schemes to Mr. Sinha upto 31.03.2009.

### Answer

Calculation of effective yield on per annum basis in respect of three mutual fund schemes to Mr. Sinha up to 31-03-2009:

Particulars	Mfx	Mfy	Mfz
(a) Investments	₹ 5,00,000	₹ 1,00,000	₹ 50,000
(b) Opening NAV	₹10.50	₹10.00	₹10.00
(c) No. of units (a/b)	47,619.05	10,000	5,000
(d) Unit NAV ON 31-3-2009	₹ 10.40	₹ 10.10	₹ 9.80
(e) Total NAV on 31-3-2009 (c x d)	₹ 4,95,238.12	₹ 1,01,000	₹ 49,000
(f) Increase / Decrease of NAV (e - a)	(₹ 4,761.88)	₹ 1,000	(₹ 1,000)
(g) Dividend Received	₹ 9,500	₹ 1,500	Nil
(h) Total yield (f + g)	₹ 4,738.12	₹ 2,500	(₹ 1,000)

(i) Number of Days	121	90	31
(j) Effective yield p.a. $(h/a \times 365/i \times 100)$	2.859%	10.139%	(-) 23.55%

**Question 26**

Mr. Y has invested in the three mutual funds (MF) as per the following details:

Particulars	MF 'X'	MF 'Y'	MF 'Z'
Amount of Investment (₹)	2,00,000	4,00,000	2,00,000
Net Assets Value (NAV) at the time of purchase (₹)	10.30	10.10	10
Dividend Received up to 31.03.2018 (₹)	6,000	0	5,000
NAV as on 31.03.2018 (₹)	10.25	10	10.20
Effective Yield per annum as on 31.03.2018 (percent)	9.66	-11.66	24.15

Assume 1 Year = 365 days

Mr. Y has misplaced the documents of his investment. Help him in finding the date of his original investment after ascertaining the following:

- (i) Number of units in each scheme;
- (ii) Total NAV;
- (iii) Total Yield; and
- (iv) Number of days investment held.

**Answer**

**(i) Number of Units in each Scheme**

MF 'X'	$\frac{₹ 2,00,000}{₹ 10.30}$	= 19,417.48
MF 'Y'	$\frac{₹ 4,00,000}{₹ 10.10}$	= 39,603.96
MF 'Z'	$\frac{₹ 2,00,000}{₹ 10.00}$	= 20,000.00

**(ii) Total NAV on 31.03.2018**

MF 'X'	= 19,417.48 x ₹ 10.25	₹ 1,99,029.17
MF 'Y'	= 39,603.96 x ₹ 10.00	₹ 3,96,039.60
MF 'Z'	= 20,000.00 x ₹ 10.20	₹ 2,04,000.00
Total		₹ 7,99,068.77

## 9.24 Strategic Financial Management

### (iii) Total Yield

	Capital Yield	Dividend Yield	Total
MF 'X'	₹ 1,99,029.17 - ₹ 2,00,000 = - ₹ 970.83	₹ 6,000	₹ 5,029.17
MF 'Y'	₹ 3,96,039.60 - ₹ 4,00,000 = - ₹ 3,960.40	Nil	- ₹ 3,960.40
MF 'Z'	₹ 2,04,000 - ₹ 2,00,000 = ₹ 4,000	₹ 5,000	₹ 9,000.00
Total			₹ 10,068.77

$$\text{Total Yield} = \frac{₹ 10,068.77}{₹ 8,00,000} \times 100 = 1.2586\%$$

### (iv) No. of Days Investment Held

	MF 'X'	MF 'Y'	MF 'Z'
Let No. of days be	X	Y	Z
Initial Investment (₹)	2,00,000	4,00,000	2,00,000
Yield (₹)	5,029.17	-3,960.40	9,000.00
Yield (%)	2.5146	- 0.9901	4.5
Period of Holding (Days)	$\frac{2.5146}{9.66} \times 365$ = 95 Days	$\frac{-0.9901}{-11.66} \times 365$ = 31 Days	$\frac{4.5}{24.15} \times 365$ = 68 Days

Date of Original Investment      26.12.17                      28.02.18                      22.01.18

### Question 27

Mr. X on 1.7.2007, during the initial offer of some Mutual Fund invested in 10,000 units having face value of ₹ 10 for each unit. On 31.3.2008, the dividend paid by the M.F. was 10% and Mr. X found that his annualized yield was 153.33%. On 31.12.2009, 20% dividend was given. On 31.3.2010, Mr. X redeemed all his balance of 11,296.11 units when his annualized yield was 73.52%. What are the NAVs as on 31.3.2008, 31.3.2009 and 31.3.2010?

### Answer

$$\text{Yield for 9 months} = (153.33 \times 9/12) = 115\%$$

$$\text{Market value of Investments as on 31.03.2008} = 1,00,000/- + (1,00,000 \times 115\%)$$

$$= ₹ 2,15,000/-$$

$$\text{Therefore, NAV as on 31.03.2008} = (2,15,000 - 10,000) / 10,000 = ₹ 20.50$$

(NAV would stand reduced to the extent of dividend payout, being  $(10,000 \times 10 \times 10\%) = ₹10,000$ )

Since dividend was reinvested by Mr. X, additional units acquired =  $\frac{₹10,000}{₹20.50} = 487.80$  units

Therefore, units as on 31.03.2008 =  $10,000 + 487.80 = 10,487.80$

[Alternately, units as on 31.03.2008 =  $(2,15,000/20.50) = 10,487.80$ ]

Dividend as on 31.03.2009 =  $10,487.80 \times 10 \times 0.2 = ₹20,975.60$

Let X be the NAV on 31.03.2009, then number of new units reinvested will be  $₹20,975.60/X$ . Accordingly 11296.11 units shall consist of reinvested units and 10487.80 (as on 31.03.2008). Thus, by way of equation it can be shown as follows:

$$11296.11 = \frac{20975.60}{X} + 10487.80$$

Therefore, NAV as on 31.03.2009 =  $20,975.60/(11,296.11 - 10,487.80)$   
= ₹25.95

NAV as on 31.03.2010 =  $₹1,00,000 (1 + 0.7352 \times 33/12) / 11296.11$   
= ₹26.75

### Question 28

On 01-07-2010, Mr. X Invested ₹ 50,000/- at initial offer in Mutual Funds at a face value of ₹ 10 each per unit. On 31-03-2011, a dividend was paid @ 10% and annualized yield was 120%. On 31-03-2012, 20% dividend and capital gain of ₹ 0.60 per unit was given. Mr. X redeemed all his 6271.98 units when his annualized yield was 71.50% over the period of holding. Calculate NAV as on 31-03-2011, 31-03-2012 and 31-03-2013.

For calculations consider a year of 12 months.

### Answer

Yield for 9 months  $(120\% \times 9/12) = 90\%$

Market value of Investments as on 31.03.2011 =  $₹50,000/- + (₹50,000 \times 90\%) = ₹95,000/$

Therefore, NAV as on 31.03.2011 =  $(₹95,000 - ₹5,000) / 5,000 = ₹18.00$

Since dividend was reinvested by Mr. X, additional units acquired =  $\frac{₹5,000}{₹18} = 277.78$  unit

Therefore, units as on 31.03.2011 =  $5,000 + 277.78 = 5,277.78$

Alternatively, units as on 31.03.2011 =  $(₹95,000/₹18) = 5,277.78$

## 9.26 Strategic Financial Management

---

Dividend as on 31.03.2012 = 5,277.78 x ₹ 10 x 0.2	= ₹10,555.56
Capital Gain (5277.78 x ₹ 0.60)	= ₹ 3,166.67
	<u>= ₹13,722.23</u>

Let X be the NAV on 31.03.2012, then number of new units reinvested will be ₹13,722.23/X.

Accordingly, 6,271.98 units shall consist of reinvested units and 5277.78 (as on 31.03.2011).

Thus, by way of equation it can be shown as follows:

$$6,271.98 = \frac{₹ 13,722.23}{X} + 5,277.78$$

$$\text{Therefore, NAV as on 31.03.2012} = ₹ 13,722.23 / (6,271.98 - 5,277.78) = ₹ 13.80$$

$$\text{NAV as on 31.03.2013} = ₹ 50,000 (1 + 0.715 \times 33/12) / 6,271.98 = ₹ 23.65$$

### Question 29

Mr. X on 1.7.2012, during the initial public offer of a Mutual Fund (MF) invested ₹ 1,00,000 at Face Value of ₹ 10. On 31.3.2013, the MF declared a dividend of 10% when Mr. X calculated that his holding period return was 115%. On 31.3.2014, MF again declared a dividend of 20%. On 31.3.2015, Mr. X redeemed all his investment which had accumulated to 11,296.11 units when his holding period return was 202.17%.

Calculate the NAVs as on 31.03.2013, 31.03.2014 and 31.03.2015.

### Answer

$$\text{Yield for 9 months} = 115\%$$

$$\begin{aligned} \text{Market value of Investments as on 31.03.2013} &= 1,00,000/- + (1,00,000 \times 115\%) \\ &= ₹ 2,15,000/- \end{aligned}$$

$$\text{Therefore, NAV as on 31.03.2013} = (2,15,000 - 1,00,000) / 10,000 = ₹ 20.50$$

$$\text{(NAV would stand reduced to the extent of dividend payout, being } (₹100,000 \times 10\%) = ₹ 10,000)$$

Since dividend was reinvested by Mr. X, additional units acquired

$$= \frac{₹ 10,000}{₹ 20.50} = 487.80 \text{ units}$$

$$\text{Therefore, units as on 31.03.2013} = 10,000 + 487.80 = 10,487.80$$

$$[\text{Alternately, units as on 31.03.2013} = (2,15,000 / 20.50) = 10,487.80]$$

$$\text{Dividend as on 31.03.2014} = 10,487.80 \times 10 \times 0.2 = ₹ 20,975.60$$

Let X be the NAV on 31.03.2014, then number of new units reinvested will be ₹ 20,975.60/X. Accordingly 11296.11 units shall consist of reinvested units and 10487.80 (as on 31.03.2013). Thus, by way of equation it can be shown as follows:

$$11296.11 = \frac{20975.60}{X} + 10487.80$$

$$\begin{aligned} \text{Therefore, NAV as on 31.03.2014} &= 20,975.60 / (11,296.11 - 10,487.80) \\ &= ₹ 25.95 \end{aligned}$$

$$\begin{aligned} \text{NAV as on 31.03.2015} &= ₹ 1,00,000 (1+2.0217) / 11296.11 \\ &= ₹ 26.75 \end{aligned}$$

### Question 30

A Mutual Fund having 300 units has shown its NAV of ₹8.75 and ₹9.45 at the beginning and at the end of the year respectively. The Mutual Fund has given two options:

- (i) Pay ₹0.75 per unit as dividend and ₹0.60 per unit as a capital gain, or
- (ii) These distributions are to be reinvested at an average NAV of ₹8.65 per unit.

What difference it would make in terms of return available and which option is preferable?

### Answer

- (i) Returns for the year

(All changes on a Per -Unit Basis)

Change in Price: ₹ 9.45 – ₹8.75 = ₹ 0.70

Dividends received: ₹ 0.75

Capital gains distribution ₹ 0.60

Total reward ₹ 2.05

Holding period reward:  $\frac{₹ 2.05}{₹ 8.75} \times 100 = 23.43\%$

- (ii) When all dividends and capital gains distributions are re-invested into additional units of the fund @ (₹ 8.65/unit)

Dividend + Capital Gains per unit

$$= ₹ 0.75 + ₹ 0.60 = ₹ 1.35$$

Total received from 300 units = ₹1.35 x 300 = ₹405/-.

Additional Units Acquired

$$= ₹405 / ₹8.65 = 46.82 \text{ Units.}$$

Total No.of Units\_ = 300 units + 46.82 units = 346.82 units.

## 9.28 Strategic Financial Management

Value of 346.82 units held at the end of the year

$$= 346.82 \text{ units} \times ₹9.45 = ₹3277.45$$

Price Paid for 300 Units at the beginning of the year

$$= 300 \text{ units} \times ₹8.75 = ₹2,625.00$$

### Holding Period Reward

$$₹ (3277.45 - 2625.00) = ₹652.45$$

$$\text{Holding Period Reward} = \frac{₹ 652.45}{₹ 2625.00} \times 100 = 24.85\%$$

**Conclusion:** Since the holding period reward is more in terms of percentage in option-two i.e., reinvestment of distributions at an average NAV of ₹8.65 per unit, this option is preferable.

### Question 31

On 1-4-2012 ABC Mutual Fund issued 20 lakh units at ₹ 10 per unit. Relevant initial expenses involved were ₹ 12 lakhs. It invested the fund so raised in capital market instruments to build a portfolio of ₹ 185 lakhs. During the month of April 2012 it disposed off some of the instruments costing ₹ 60 lakhs for ₹ 63 lakhs and used the proceeds in purchasing securities for ₹ 56 lakhs. Fund management expenses for the month of April 2012 was ₹ 8 lakhs of which 10% was in arrears. In April 2012 the fund earned dividends amounting to ₹ 2 lakhs and it distributed 80% of the realized earnings. On 30-4-2012 the market value of the portfolio was ₹ 198 lakhs.

Mr. Akash, an investor, subscribed to 100 units on 1-4-2012 and disposed off the same at closing NAV on 30-4-2012. What was his annual rate of earning?

### Answer

	Amount in ₹ lakhs	Amount in ₹ lakhs	Amount in ₹ lakhs
Opening Bank (200 - 185 - 12)	3.00		
Add: Proceeds from sale of securities	63.00		
Add: Dividend received	<u>2.00</u>	68.00	
Deduct:			
Cost of securities purchased	56.00		
Fund management expenses paid (90% of 8)	7.20		
Capital gains distributed = 80% of (63 - 60)	2.40		
Dividend distributed = 80% of 2.00	<u>1.60</u>	<u>67.20</u>	
Closing Bank			0.80

Closing market value of portfolio			<u>198.00</u>
			198.80
Less: Arrears of expenses			<u>0.80</u>
Closing Net Assets			<u>198.00</u>
Number of units (Lakhs)			20
Closing NAV per unit (198.00/20)			9.90

Rate of Earning (Per Unit)

	Amount
Income received (₹ 2.40 + ₹ 1.60)/20	₹ 0.20
Loss: Loss on disposal (₹ 200 - ₹ 198)/20	<u>₹ 0.10</u>
Net earning	<u>₹ 0.10</u>
Initial investment	₹ 10.00
Rate of earning (monthly)	1%
Rate of earning (Annual)	12%

**Question 32**

*Sun Moon Mutual Fund (Approved Mutual Fund) sponsored open-ended equity oriented scheme "Chanakya Opportunity Fund". There were three plans viz. 'A' – Dividend Re-investment Plan, 'B' – Bonus Plan & 'C' – Growth Plan.*

*At the time of Initial Public Offer on 1.4.1999, Mr. Anand, Mr. Bacchan & Mrs. Charu, three investors invested ₹ 1,00,000 each & chosen 'B', 'C' & 'A' Plan respectively.*

*The History of the Fund is as follows:*

Date	Dividend %	Bonus Ratio	Net Asset Value per Unit (F.V. ₹ 10)		
			Plan A	Plan B	Plan C
28.07.2003	20		30.70	31.40	33.42
31.03.2004	70	5 : 4	58.42	31.05	70.05
31.10.2007	40		42.18	25.02	56.15
15.03.2008	25		46.45	29.10	64.28
31.03.2008		1 : 3	42.18	20.05	60.12
24.03.2009	40	1 : 4	48.10	19.95	72.40
31.07.2009			53.75	22.98	82.07

*On 31st July all three investors redeemed all the balance units.*

### 9.30 Strategic Financial Management

Calculate annual rate of return to each of the investors.

Consider:

1. Long-term Capital Gain is exempt from Income tax.
2. Short-term Capital Gain is subject to 10% Income tax.
3. Security Transaction Tax 0.2 per cent only on sale/redemption of units.
4. Ignore Education Cess

**Answer**

#### Mrs. Charu Plan A Dividend Reinvestment

(Amount in ₹)

Date	Investment	Dividend payout (%)	Dividend Re-invested (Closing Units X Face value of '10 X Dividend Payout %)	NAV	Units	Closing Unit Balance Σ Units
01.04.1999	1,00,000.00			10.00	10,000.00	10,000.00
28.07.2003		20	20,000.00	30.70	651.47	10,651.47
31.03.2004		70	74,560.29	58.42	1,276.28	11,927.75
30.10.2007		40	47,711.00	42.18	1,131.13	13,058.88
15.03.2008		25	32,647.20	46.45	702.85	13,761.73
24.03.2009		40	55,046.92	48.10	1,144.43	14,906.16

Redemption value 14,906.16 × 53.75	8,01,206.10
Less: Security Transaction Tax (STT) is 0.2%	<u>1,602.41</u>
Net amount received	7,99,603.69
Less: Short term capital gain tax @ 10% on 1,144.43 (53.64* – 48.10 <sup>=</sup> ) = 6,340	<u>634</u>
Net of tax	7,98,969.69
Less: Investment	<u>1,00,000.00</u>
	<u>6,98,969.69</u>

\*(53.75 – STT @ 0.2%) ≈ This value can also be taken as zero

$$\text{Annual average return (\%)} = \frac{6,98,969.69}{1,00,000} \times \frac{12}{124} \times 100 = 67.64 \%$$

**Mr. Anand Plan B – Bonus**

(Amount in ₹)				
Date	Units	Bonus units	Total Balance	NAV per unit
01.04.1999	10,000		10,000	10
31.03.2004		12,500	22,500	31.05
31.03.2008		7,500	30,000	20.05
24.03.2009		7,500	37,500	19.95

Redemption value 37,500 × 22.98	8,61,750.00
Less: Security Transaction Tax (STT) is 0.2%	<u>1,723.50</u>
Net amount received	8,60,026.50
Less: Short term capital gain tax @ 10%	
7,500 × (22.93 <sup>†</sup> – 19.95) = 22,350	<u>2,235.00</u>
Net of tax	8,57,791.50
Less: Investment	<u>1,00,000.00</u>
Net gain	<u>7,57,791.50</u>

†(22.98 – STT @ 0.2%)

Annual average return (%)  $\frac{7,57,791.50}{1,00,000} \times \frac{12}{124} \times 100 = 73.33\%$

**Mr. Bacchan Plan C – Growth**

Particulars	(Amount in ₹)
Redemption value 10,000 × 82.07	8,20,700.00
Less: Security Transaction Tax (S.T.T) is .2%	<u>1,641.40</u>
Net amount received	8,19,058.60
Less: Short term capital gain tax @ 10%	<u>0.00</u>
Net of tax	8,19,058.60
Less: Investment	<u>1,00,000.00</u>
Net gain	<u>7,19,058.60</u>

Annual average return (%)  $\frac{7,19,058}{1,00,000} \times \frac{12}{124} \times 100 = 69.59\%$

**Note:** Alternatively, figure of \* and † can be taken as without net of Tax because, as per Proviso 5 of Section 48 of IT Act, no deduction of STT shall be allowed in computation of Capital Gain.

## 9.32 Strategic Financial Management

### Question 33

A mutual fund company introduces two schemes i.e. Dividend plan (Plan-D) and Bonus plan (Plan-B). The face value of the unit is ₹ 10. On 1-4-2005 Mr. K invested ₹ 2,00,000 each in Plan-D and Plan-B when the NAV was ₹ 38.20 and ₹ 35.60 respectively. Both the plans matured on 31-3-2010.

Particulars of dividend and bonus declared over the period are as follows:

Date	Dividend %	Bonus Ratio	Net Asset Value (₹)	
			Plan D	Plan B
30-09-2005	10		39.10	35.60
30-06-2006		1:5	41.15	36.25
31-03-2007	15		44.20	33.10
15-09-2008	13		45.05	37.25
30-10-2008		1:8	42.70	38.30
27-03-2009	16		44.80	39.10
11-04-2009		1:10	40.25	38.90
31-03-2010			40.40	39.70

What is the effective yield per annum in respect of the above two plans?

### Answer

#### Plan – D

$$\text{Unit acquired} = \frac{2,00,000}{38.20} = 5235.60$$

Date	Units held	Dividend		Reinvestment Rate	New Units	Total Units
		%	Amount			
01.04.2005						5235.60
30.09.2005	5235.60	10	5235.60	39.10	133.90	5369.50
31.03.2007	5369.50	15	8054.25	44.20	182.22	5551.72
15.09.2008	5551.72	13	7217.24	45.05	160.20	5711.92
27.03.2009	5711.92	16	9139.07	44.80	204	5915.92
31.03.2010	Maturity Value		(₹ 40.40 X 5915.92)			₹ 2,39,003.17
	Less: Cost of Acquisition					₹ 2,00,000.00
	Total Gain					₹ 39,003.17

$$\therefore \text{Effective Yield} = \frac{\text{₹}39,003.17}{\text{₹}2,00,000} \times \frac{1}{5} \times 100 = 3.90\%$$

Alternatively, it can be computed by using the IRR method as follows:

$$\text{NPV at 4\%} = -2,00,000 + 1,96,443 = -3,557$$

$$\text{NPV at 2\%} = -2,00,000 + 2,16,473 = 16,473$$

$$\text{IRR} = \text{LR} + \frac{\text{NPV at LR}}{\text{NPV at LR} - \text{NPV at HR}} (\text{HR} - \text{LR}) = 2\% + \frac{16473}{16473 - (-3557)} (4\% - 2\%) = 3.645\%$$

**Plan – B**

Date	Particulars	Calculation Working	No. of Units	NAV (₹)
1.4.05	Investment	₹2,00,000/35.60=	5617.98	35.60
30.6.06	Bonus	5617.98/5 =	<u>1123.60</u>	36.25
			6741.58	
30.10.08	"	6741.58/8 =	<u>842.70</u>	38.30
			7584.28	
11.4.09	"	7584.28/10 =	<u>758.43</u>	38.90
			8342.71	
31.3.10	Maturity Value	8342.71 x ₹ 39.70=		3,31,205.59
	Less: Investment			<u>2,00,000.00</u>
	Gain			<u>1,31,205.59</u>

$$\therefore \text{Effective Yield} = \frac{1,31,205.59}{2,00,000} \times \frac{1}{5} \times 100 = 13.12\%$$

Alternatively, it can be computed by using the IRR method as follows:

$$\text{NPV at 13\%} = -2,00,000 + 1,79,765 = -20,235$$

$$\text{NPV at 8\%} = -2,00,000 + 2,25,413 = 25,413$$

$$\text{IRR} = \text{LR} + \frac{\text{NPV at LR}}{\text{NPV at LR} - \text{NPV at HR}} (\text{HR} - \text{LR}) = 8\% + \frac{25413}{25413 - (-20235)} (13\% - 8\%) = 10.78\%$$

**Question 34**

A mutual fund made an issue of 10,00,000 units of ₹ 10 each on January 01, 2008. No entry load was charged. It made the following investments:

### 9.34 Strategic Financial Management

Particulars	₹
50,000 Equity shares of ₹100 each @ ₹160	80,00,000
7% Government Securities	8,00,000
9% Debentures (Unlisted)	5,00,000
10% Debentures (Listed)	<u>5,00,000</u>
	<u>98,00,000</u>

During the year, dividends of ₹12,00,000 were received on equity shares. Interest on all types of debt securities was received as and when due. At the end of the year equity shares and 10% debentures are quoted at 175% and 90% respectively. Other investments are at par.

Find out the Net Asset Value (NAV) per unit given that operating expenses paid during the year amounted to ₹5,00,000. Also find out the NAV, if the Mutual fund had distributed a dividend of ₹0.80 per unit during the year to the unit holders.

#### Answer

In order to find out the NAV, the cash balance at the end of the year is calculated as follows-

Particulars	₹
Cash balance in the beginning (₹100 lakhs – ₹98 lakhs)	2,00,000
Dividend Received	12,00,000
Interest on 7% Govt. Securities	56,000
Interest on 9% Debentures	45,000
Interest on 10% Debentures	<u>50,000</u>
	15,51,000
(-) Operating expenses	<u>5,00,000</u>
Net cash balance at the end	<u>10,51,000</u>
<b>Calculation of NAV</b>	₹
Cash Balance	10,51,000
7% Govt. Securities (at par)	8,00,000
50,000 equity shares @ ₹175 each	87,50,000
9% Debentures (Unlisted) at cost	5,00,000
10% Debentures @90%	<u>4,50,000</u>
Total Assets	<u>1,15,51,000</u>
No. of Units	10,00,000
NAV per Unit	₹11.55

Calculation of NAV, if dividend of ₹ 0.80 is paid –

Net Assets (₹ 1,15,51,000 – ₹ 8,00,000)	₹ 1,07,51,000
No. of Units	10,00,000
NAV per unit	₹ 10.75

### Question 35

Based on the following information, determine the NAV of a regular income scheme on per unit basis:

Particulars	₹ Crores
Listed shares at Cost (ex-dividend)	20
Cash in hand	1.23
Bonds and debentures at cost	4.3
Of these, bonds not listed and quoted	1
Other fixed interest securities at cost	4.5
Dividend accrued	0.8
Amount payable on shares	6.32
Expenditure accrued	0.75
Number of units (₹ 10 face value)	20 lacs
Current realizable value of fixed income securities of face value of ₹ 100	106.5
The listed shares were purchased when Index was	1,000
Present index is	2,300
Value of listed bonds and debentures at NAV date	8

There has been a diminution of 20% in unlisted bonds and debentures. Other fixed interest securities are at cost.

### Answer

Particulars	Adjusted Values ₹ crores
Equity Shares	46.00
Cash in hand	1.23
Bonds and debentures not listed	0.80
Bonds and debentures listed	8.00
Dividends accrued	0.80
Fixed income securities	4.50
<b>Sub total assets (A)</b>	<b>61.33</b>

### 9.36 Strategic Financial Management

<b>Less: Liabilities</b>	
Amount payable on shares	6.32
Expenditure accrued	0.75
<b>Sub total liabilities (B)</b>	<b>7.07</b>
<b>Net Assets Value (A) – (B)</b>	<b>54.26</b>
No. of units	20,00,000
Net Assets Value per unit (₹ 54.26 crore / 20,00,000)	₹ 271.30

#### Question 36

Based on the following data, estimate the Net Asset Value (NAV) on per unit basis of a Regular Income Scheme of a Mutual Fund:

	₹ (in lakhs)
Listed Equity shares at cost (ex-dividend)	40.00
Cash in hand	2.76
Bonds & Debentures at cost of these, Bonds not listed & not quoted	8.96
Other fixed interest securities at cost	2.50
Dividend accrued	9.75
Amount payable on shares	1.95
Expenditure accrued	13.54
	1.76

Current realizable value of fixed income securities of face value of ₹ 100 is ₹ 96.50.

Number of Units (₹ 10 face value each): 275000

All the listed equity shares were purchased at a time when market portfolio index was 12,500. On NAV date, the market portfolio index is at 19,975.

There has been a diminution of 15% in unlisted bonds and debentures valuation.

Listed bonds and debentures carry a market value of ₹ 7.5 lakhs, on NAV date.

Operating expenses paid during the year amounted to ₹ 2.24 lakhs.

#### Answer

Particulars	Adjusted Value ₹ lakhs
Equity Shares	63.920
Cash in hand	2.760
Bonds and debentures not listed	2.125
Bonds and debentures listed	7.500

Dividends accrued	1.950
Fixed income securities	9.409
Sub total assets (A)	87.664
Less: Liabilities	
Amount payable on shares	13.54
Expenditure accrued	1.76
Sub total liabilities (B)	15.30
Net Assets Value (A) – (B)	72.364
No. of units	2,75,000
Net Assets Value per unit (₹ 72.364 lakhs / 2,75,000)	₹ 26.3142

**Question 37**

On 1<sup>st</sup> April, an open ended scheme of mutual fund had 300 lakh units outstanding with Net Assets Value (NAV) of ₹ 18.75. At the end of April, it issued 6 lakh units at opening NAV plus 2% load, adjusted for dividend equalization. At the end of May, 3 Lakh units were repurchased at opening NAV less 2% exit load adjusted for dividend equalization. At the end of June, 70% of its available income was distributed.

In respect of April-June quarter, the following additional information are available:

	₹ in lakh
Portfolio value appreciation	425.47
Income of April	22.950
Income for May	34.425
Income for June	45.450

You are required to calculate

- (i) Income available for distribution;
- (ii) Issue price at the end of April;
- (iii) repurchase price at the end of May; and
- (iv) net asset value (NAV) as on 30<sup>th</sup> June.

**Answer**

**Calculation of Income available for Distribution**

	Units (Lakh)	Per Unit (₹)	Total (₹ In lakh)
Income from April	300	0.0765	22.9500
Add: Dividend equalization collected on issue	6	0.0765	0.4590
	306	0.0765	23.4090

### 9.38 Strategic Financial Management

Add: Income from May		0.1125	34.4250
	306	0.1890	57.8340
Less: Dividend equalization paid on repurchase	3	0.1890	(0.5670)
	303	0.1890	57.2670
Add: Income from June		0.1500	45.4500
	303	0.3390	102.7170
Less: Dividend Paid		0.2373	(71.9019)
	303	0.1017	30.8151

#### Calculation of Issue Price at the end of April

	₹
Opening NAV	18.750
Add: Entry Load 2% of ₹ 18.750	(0.375)
	19.125
Add: Dividend Equalization paid on Issue Price	0.0765
	19.2015

#### Calculation of Repurchase Price at the end of May

	₹
Opening NAV	18.750
Less: Exit Load 2% of ₹ 18.750	(0.375)
	18.375
Add: Dividend Equalization paid on Issue Price	0.1890
	18.564

#### Closing NAV

		₹ (Lakh)
Opening Net Asset Value (₹ 18.75 × 300)		5625.0000
Portfolio Value Appreciation		425.4700
Issue of Fresh Units (6 × 19.2015)		115.2090
Income Received (22.950 + 34.425 + 45.450)		102.8250
		6268.504
Less: Units repurchased (3 × 18.564)	-55.692	
Income Distributed	-71.9019	(-127.5939)

Closing Net Asset Value	6140.9101
Closing Units (300 + 6 – 3) lakh	303 lakh
∴ Closing NAV as on 30 <sup>th</sup> June	₹ 20.2670

**Question 38**

Five portfolios experienced the following results during a 7- year period:

Portfolio	Average Annual Return ( $R_p$ ) (%)	Standard Deviation ( $S_p$ )	Correlation with the market returns ( $r$ )
A	19.0	2.5	0.840
B	15.0	2.0	0.540
C	15.0	0.8	0.975
D	17.5	2.0	0.750
E	17.1	1.8	0.600
Market Risk ( $\sigma_m$ )		1.2	
Market rate of Return ( $R_m$ )	14.0		
Risk-free Rate ( $R_f$ )	9.0		

Rank the portfolios using (a) Sharpe’s method, (b) Treynor’s method and (c) Jensen’s Alpha

**Answer**

Let portfolio standard deviation be  $\sigma_p$

Market Standard Deviation =  $\sigma_m$

Coefficient of correlation =  $r$

$$\text{Portfolio beta } (\beta_p) = \frac{\sigma_p r}{\sigma_m}$$

$$\text{Required portfolio return } (R_p) = R_f + \beta_p (R_m - R_f)$$

Portfolio	Beta	Return from the portfolio ( $R_p$ ) (%)
A	1.75	17.75
B	0.90	13.50
C	0.65	12.25
D	1.25	15.25
E	0.90	13.50

## 9.40 Strategic Financial Management

Portfolio	Sharpe Method		Treyner Method		Jensen's Alpha	
	Ratio	Rank	Ratio	Rank	Ratio	Rank
A	4.00	IV	5.71	V	1.25	V
B	3.00	V	6.67	IV	1.50	IV
C	7.50	I	9.23	I	2.75	II
D	4.25	III	6.80	III	2.25	III
E	4.50	II	9.00	II	3.60	I

### Question 39

There are two Mutual Funds viz. D Mutual Fund Ltd. and K Mutual Fund Ltd. Each having close ended equity schemes.

NAV as on 31-12-2014 of equity schemes of D Mutual Fund Ltd. is ₹ 70.71 (consisting 99% equity and remaining cash balance) and that of K Mutual Fund Ltd. is 62.50 (consisting 96% equity and balance in cash).

Following is the other information:

Particular	Equity Schemes	
	D Mutual Fund Ltd.	K Mutual Fund Ltd.
Sharpe Ratio	2	3.3
Treyner Ratio	15	15
Standard deviation	11.25	5

There is no change in portfolios during the next month and annual average cost is ₹ 3 per unit for the schemes of both the Mutual Funds.

If Share Market goes down by 5% within a month, calculate expected NAV after a month for the schemes of both the Mutual Funds.

For calculation, consider 12 months in a year and ignore number of days for particular month.

### Answer

#### Working Notes:

- (i) Decomposition of Funds in Equity and Cash Components

	D Mutual Fund Ltd.	K Mutual Fund Ltd.
NAV on 31.12.14	₹ 70.71	₹ 62.50
% of Equity	99%	96%
Equity element in NAV	₹ 70	₹ 60
Cash element in NAV	₹ 0.71	₹ 2.50

(ii) Calculation of Beta

(a) D Mutual Fund Ltd.

$$\text{Sharpe Ratio} = 2 = \frac{E(R) - R_f}{\sigma_D} = \frac{E(R) - R_f}{11.25}$$

$$E(R) - R_f = 22.50$$

$$\text{Treynor Ratio} = 15 = \frac{E(R) - R_f}{\beta_D} = \frac{22.50}{\beta_D}$$

$$\beta_D = 22.50/15 = 1.50$$

(b) K Mutual Fund Ltd.

$$\text{Sharpe Ratio} = 3.3 = \frac{E(R) - R_f}{\sigma_K} = \frac{E(R) - R_f}{5}$$

$$E(R) - R_f = 16.50$$

$$\text{Treynor Ratio} = 15 = \frac{E(R) - R_f}{\beta_K} = \frac{16.50}{\beta_K}$$

$$\beta_K = 16.50/15 = 1.10$$

(iii) Decrease in the Value of Equity

	D Mutual Fund Ltd.	K Mutual Fund Ltd.
Market goes down by	5.00%	5.00%
Beta	1.50	1.10
Equity component goes down	7.50%	5.50%

(iv) Balance of Cash after 1 month

	D Mutual Fund Ltd.	K Mutual Fund Ltd.
Cash in Hand on 31.12.14	₹ 0.71	₹ 2.50
Less: Exp. Per month	₹ 0.25	₹ 0.25
Balance after 1 month	₹ 0.46	₹ 2.25

NAV after 1 month

	D Mutual Fund Ltd.	K Mutual Fund Ltd.
Value of Equity after 1 month		
70 x (1 - 0.075)	₹ 64.75	-
60 x (1 - 0.055)	-	₹ 56.70
Cash Balance	0.46	2.25
	65.21	58.95

## 9.42 Strategic Financial Management

### Question 40

ANP Plan, a hedge fund currently has assets of ₹ 20 crore. CA. X, the manager of fund charges fee of 0.10% of portfolio asset. In addition to it he charges incentive fee of 2%. The incentive will be linked to gross return each year in excess of the portfolio maximum value since the inception of fund. The maximum value the fund achieved so far since inception of fund about one and half year ago was ₹ 21 crores.

You are required to compute the fee payable to CA. X, if return on the fund this year turns out to be (a) 29%, (b) 4.5%, (c) -1.8%

### Answer

(a) If return is 29%

	₹
Fixed fee (A) 0.10% of ₹ 20 crore	2,00,000
New Fund Value (1.29 x ₹ 20 crore)	25.80 crore
Excess Value of best achieved (25.8 crore – 21.0 crore)	4.80 crore
Incentive Fee (2% of 4.80 crores) (B)	9,60,000
Total Fee (A)+(B)	11,60,000

(b) If return is 4.5%

	₹
Fixed (A) 0.10% of ₹ 20 crore	2,00,000
New Fund Value (1.045 x ₹ 20 crore)	20.90 crore
Excess Value of best achieved (20.90 crore – 21.00 crore)	(₹ 0.10 crore)
Incentive Fee (as does not exceed best achieved) (B)	Nil
Total Fee (A)+(B)	2,00,000

(c) If return is (-1.8%)

No incentive only fixed fee of ₹ 2,00,000 will be paid

### Question 41

Ms. Sunidhi is working with an MNC at Mumbai. She is well versant with the portfolio management techniques and wants to test one of the techniques on an equity fund she has constructed and compare the gains and losses from the technique with those from a passive buy and hold strategy. The fund consists of equities only and the ending NAVs of the fund he constructed for the last 10 months are given below:

Month	Ending NAV (₹/unit)	Month	Ending NAV (₹/unit)
December 2008	40.00	May 2009	37.00

January 2009	25.00	June 2009	42.00
February 2009	36.00	July 2009	43.00
March 2009	32.00	August 2009	50.00
April 2009	38.00	September 2009	52.00

Assume Sunidhi had invested a notional amount of ₹ 2 lakhs equally in the equity fund and a conservative portfolio (of bonds) in the beginning of December 2008 and the total portfolio was being rebalanced each time the NAV of the fund increased or decreased by 15%.

You are required to determine the value of the portfolio for each level of NAV following the Constant Ratio Plan.

**Answer**

**Constant Ratio Plan:**

Stock Portfolio NAV (₹)	Value of Conservative Portfolio (₹)	Value of aggressive Portfolio (₹)	Total value of Constant Ratio Plan (₹)	Revaluation Action	Total No. of units in aggressive portfolio
40.00	1,00,000	1,00,000	2,00,000	-	2500
25.00	1,00,000	62,500	1,62,500	-	2500
	81,250	81,250	1,62,500	Buy 750 units	3250
36.00	81,250	1,17,000	1,98,250	-	3250
	99,125	99,125	1,98,250	Sell 496.53 units	2753.47
32.00	99,125	88,111.04	1,87,236.04	-	2753.47
38.00	99,125	1,04,631.86	2,03,756.86	-	2753.47
	1,01,878.43	1,01,878.43	2,03,756.86	Sell 72.46 units	2681.01
37.00	1,01,878.50	99,197.37	2,01,075.87	-	2681.01
42.00	1,01,878.50	1,12,602.42	2,14,480.92	-	2681.01
43.00	1,01,878.50	1,15,283.43	2,17,161.93	-	2681.01
50.00	1,01,878.50	1,34,050.50	2,35,929	-	2681.01
	1,17,964.50	1,17,964.50	2,35,929	Sell 321.72 units	2359.29
52.00	1,17,964.50	1,22,683.08	2,40,647.58	-	2359.29

Hence, the ending value of the mechanical strategy is ₹ 2,40,647.58 and buy & hold strategy is ₹ 2,60,000.