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Tata McGraw-Hill Professional: Securities Markets Series

## Mutual Funds and Retirement Planning

#### Tata McGraw-Hill Professional: Securities Markets Series

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Tata McGraw-Hill Professional: Securities Markets Series

## Mutual Funds and Retirement Planning

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To My Parents Savitri Parameswaran and Late A.S. Parameswaran

## PREFACE

This is the ninth volume of a series on Securities Markets. The book covers mutual funds, both open and closedend, exchange traded funds, and pension funds.

Mutual funds are a very popular investment vehicle for retail market participants who are unable to actively manage their own portfolios. Firstly, these investors typically have a relatively small corpus at their disposal which makes it infeasible for them to hold a welldiversified portfolio. Secondly, they lack the required skills to actively monitor the performance of a portfolio of assets. Mutual funds, which invest after pooling the contributions of many such investors, obviously are in position to keep the cost of investing at a reasonable level. These entities are also in a position to employ professionals who can evaluate various investment options and take judicious decisions. Consequently, such funds are a key component of the indirect financial market in a market-driven economy. In India too, such funds have proved to be extremely popular over the past two decades, after the financial sector was opened in 1991. Such funds, however, have certain shortcomings which are addressed to a degree by a new category of funds known as Exchange Traded *Funds* or ETFs. In India, such funds are available on stock indices such as the NIFTY and on gold which is an eternal favourite among Indians as an investment vehicle.

Pension funds too are key intermediaries in the indirect market. They pool the contributions of investors seeking to save for their post-retirement life and make investments

#### Preface.

in the capital markets. In most countries investments in such funds entitles the contributor to tax breaks in some form or the other. There are two broad categories of such plans defined benefit plans and defined contribution plans. The trend in the market is to move towards the latter type of pension plans, and the underlying merits and demerits are being debated in India as well.

The volume commences with an in-depth study of the mutual fund industry, with the primary focus being on funds of the open-end type. The second chapter covers the different varieties of funds available, which have been structured to cater to the different requirements of various investor clienteles. The fundamentals of exchange traded funds is also dealt with in adequate detail. The following chapter covers the different services offered by funds, and the investment strategies available to investors. The final chapter covers the various options available to the would-be pensioners such as 401(k) plans, individual retirement accounts (IRAs), and variable annuities.

The focus of the book is on the fundamental principles underlying the products and markets. There is a strong US focus and flavour, although the products and their core features are universal.

Each volume in this series is self-contained and the series should serve as valuable study material for a course on Securities Markets. The manuscripts have been used in business schools as well as corporate training programmes, and consequently are a blend of academic rigour and practical insights. Students of finance, and market professionals, particularly those in the BFSI space of information technology, should find these books to be a lucid and concise resource, for developing a strong foundation in the field.

VIII

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I wish to thank the various participants at the executive education programmes on Securities Markets that I have been conducting for my corporate clients over the years. Their suggestions and feedback have been invaluable for enhancing the manuscript and improving the expositional clarity.

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#### SUNIL K. PARAMESWARAN

## CONTENTS

Preface		vii
Acknowledgeme	ents	ix
Chapter 1	Fundamentals of Mutual Funds	1
Chapter 2	Types of Mutual Funds and Exchange Traded Funds	36
Chapter 3	Services Offered by Mutual Funds and Investment Strategies	58
Chapter 4	Retirement Plans	73
Appendix 1:	Sources & References	94
Appendix 2:	Test Your Concepts	97



# Fundamentals of Mutual Funds

## Introduction

HAT ARE MUTUAL FUNDS? A mutual fund is a financial intermediary in the indirect financial market. A fund is a collection of stocks, bonds, and other assets, that are purchased by pooling the investments made by a large group of investors. The assets of the fund are managed by a professional investment company.

When an investor makes an investment in a mutual fund, his money is pooled with that of other investors who have chosen to invest in the fund. The pooled sum is used to build an investment portfolio if the fund is just commencing its operations, or to expand its portfolio, if it is already in business. Every investor receives shares of the fund in proportion to the amount of money invested by him or her. Every share that an investor owns represents

#### 2 \_\_\_\_\_ Mutual Funds and Retirement Planning \_\_\_\_\_

a proportional interest in the portfolio of securities managed by the fund. As can be surmised the practice in the US is to refer to the securities issued by the mutual fund as *shares*. In India we use the term units for such securities.

When a fund is offering shares for the first time, known as an Initial Public Offering or IPO, the shares will be issued at par. The typical par value in India is Rs 10. Subsequent issues of shares will be made at a price that is based on what is known as the Net Asset Value (NAV) of the fund. The Net Asset Value of a fund at any point in time, is equal to the total value of all securities in its portfolio less any outstanding liabilities, divided by the total number of shares issued by the fund. In India, an IPO of a mutual fund is known as a New Fund Offering or NFO.

The NAV will fluctuate from day to day as the value of the securities held by the fund changes. On a given day, from the perspective of a shareholder, the NAV may be higher or lower than the price that he paid per share at the time of acquisition. Thus, just like the shareholders of a corporation, mutual fund owners partake in the profits and losses as well as in the income and expenses of the fund.

The US has a booming mutual fund industry. The Investment Company Institute (ICI) has estimated that as of end 2008 investors all over the world had invested 19 trillion US dollars in mutual funds. Investors in the US had invested more than 10 trillion dollars in mutual funds as of that year. It also estimated that as of end 2008, 93 million US investors had invested in mutual funds. As of that time, there were approximately 8,900 open-ended funds in the US alone. Mutual funds have become so popular in the US, that they now outnumber the number of companies listed on the NYSE and AMEX combined.

The list of the top mutual funds in the US, in terms of their asset base is given below.

Table 1.1			
The Biggest Mutual Funds in the US			
Fund	Assets		
American Funds Growth Fund of	\$ 79 billion		
America			
Vanguard 500 Index	\$ 71 billion		
American Funds Investment	\$ 71 billion		
Company of America			
Fidelity Contrafund	\$ 67 billion		
American Funds Washington Mutual	65 billion		
Dodge & Cox Stock	\$ 64 billion		
PIMCO Total Return	\$59 billion		
American Funds Capital Inc Bldr	\$ 56 billion		
American Funds Capital World G/I	\$ 55 billion		
American Funds Euro Pacific Growth	\$52 billion		
Fidelity Magellan	\$45 billion		
Vanguard 500 Index Adm	\$ 44 billion		
Fidelity Diversified International	\$ 44 billion		
Vanguard Institutional Index	\$ 43 billion		

Source: www.galttech.com

The top 10 asset management companies in the world in terms of assets under management are the following.

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4.	4 Mutual Funds and Retirement Planning				
	Table 1.2				
	Top 10 Asset Management Compani	es in the World			
Ra	nk Company A Bill	Assets in ions of USL	Country D		
1	Barclays Global Investors	1,400.491	UK		
2	State Street Global Advisors	1,367.269	US		
3	Fidelity Investments	1,299.400	) US		
4	Capital Group Companies	1,050.435	5 US		
5	Legg Mason	891.400	US		
6	The Vanguard Group	852.000	US		
7	Allianz Global Investors	790.513	Germany		
8	JP Morgan Asset Management	t <b>782.646</b>	US		
9	Mellon Financial Corporation	738.294	US		
10	Deutsche Asset Management	723.366	Germany		

Source: en.wikipedia.org

### **Pros and Cons of Investing in a Fund**

Why would an investor prefer to invest in a mutual fund rather than invest directly in financial assets using the secondary markets? Firstly, as compared to a typical individual investor, a mutual fund by definition has a large amount of funds at its disposal. Consequently, given the size of its typical investment, its transactions costs tend to be much lower. Such costs need to be measured not just in terms of the commissions which have to be paid every time a security is bought or sold, but also in terms of the time required to manage a portfolio. To handle a

portfolio successfully, an enormous amount of research is required, and elaborate records have to be maintained. This is particularly important from the standpoint of an investor who seeks to build a well diversified portfolio of financial assets. The costs involved in investing a limited amount of funds across a spectrum of assets can be prohibitive. On the other hand, by investing in the shares of a mutual fund, an investor effectively ensures that his money is invested across a pool of assets, and at the same time is able to take advantage of reduced transactions costs. Yet another feature of mutual funds, is that they can afford to employ a team of well qualified and experienced professionals who can evaluate the merits of investment in a particular asset before committing funds. Most funds engage full-time investment managers who are responsible for obtaining and conducting the needed research and financial analyses required to select the securities that are to be included in the fund's portfolio. Fund managers are responsible for all facets of the fund's portfolio such as asset diversification; buying and selling decisions; riskreturn tradeoffs; and investment performance. Individual investors lack such expertise, and at the same time cannot afford to hire the services of people with such skill sets.

Most mutual funds have a well diversified asset base, and invest in a wide variety of securities. Individual investors can, if they desire so, take diversification one step further by investing in funds promoted by several different investment companies.

Liquidity is another of the major benefits of investing in a mutual fund. If the market for a stock or a bond is not very deep, an investor holding such a security may not be able to sell it easily and quickly. It may often be easier to sell the shares of a mutual fund which has invested in such shares and bonds.

5

#### 6 \_\_\_\_\_ Mutual Funds and Retirement Planning \_\_\_\_

Mutual funds also offer safety from unethical practices. There is a very negligible chance of loss stemming from fraud on account of the management company. The legal structure, and stringent regulations, applicable to mutual funds provide substantial protection to the shareholders.

However, investing in a mutual fund is not without its disadvantages. Firstly, an investor in a mutual fund has no control over the cost of investing incurred by the fund. As long as he remains invested in a fund, he has to pay the required investment management fees. In practice, such fees have to be continued to be paid even though the value of the assets of the fund may be declining. Moreover mutual funds incur sales and marketing expenditure which will eventually get passed on to the investor as you will see shortly. An individual investing by himself, will obviously not have to incur such costs. Second, when an investor invests in securities via the mutual fund route, he is delegating the choice of securities to be held to the professional fund manager. Thus an investor loses the option to design a portfolio to meet his specific objectives. This may not be satisfactory for High Net Worth (HNW) investors or for institutional investors. In practice, mutual fund managers try to remedy this shortcoming by offering a number of different schemes, which are essentially a family of funds, in which each member fund has been set up with a different objective.

However, the availability of a wide variety of funds within a family, may itself pose a problem for certain investors. For, they may once again need expert advice as to which scheme to select. It must be remembered that most individuals lack the skills to take independent investment decisions, which is the reason why they deem it appropriate to invest in a mutual fund. Considering this fact, the availability of a variety of funds, is essentially

comparable to some extent to a situation where an investor in contemplating as to which financial security to invest in.

## **Open-end versus Closed-end Funds**

In the case of an open-end fund, an investor can buy or sell shares of the fund from/to the fund itself at any point in time at the NAV. The NAV of a fund is determined once each day, at the close of trading on that day. All new investments into the fund or withdrawals from the fund in the course of a day, are priced at the NAV that is computed at the close of that day. As the market prices of the securities in which a fund has invested fluctuate, so will the NAV, and the total value of the fund.

The number of shares outstanding at any point in time can either go up or go down subsequently, depending on whether additional shares are issued, or existing shares repurchased. The fund size and its investable corpus will go up if the number of new subscriptions by new/existing investors exceeds the number of redemptions by existing investors. The fund size and corpus will however stand reduced, if the redemptions exceed the fresh subscriptions.

An open-end fund need not always stand ready to issue fresh shares. Many successful funds, stop issuing further subscriptions after they reach a target size. This would be the case if they were to feel that further growth cannot be managed without adversely affecting the profitability of the fund. When a fund shuts its doors to fresh capital, it is said to be *closed*. However, the closure is not permanent as most funds do re-open after a point. Too large an asset base, can hurt a fund's performance. Most fund managers have a relatively small group of favourite stocks, which in their opinion are likely to perform well. As the size of the fund grows, eventually the managers will have no choice

#### 8 \_\_\_\_\_ Mutual Funds and Retirement Planning \_

but to buy stocks, which in their opinion are less desirable, and are unlikely to yield the desired results. This could have a negative impact on a fund's performance. However, even open-end funds that are closed to fresh subscriptions, rarely deny investors the facility to redeem shares held by them.

Every mutual fund will maintain a cash reserve which is usually about 5% of the total assets of the firm. These funds are reserved to cover shareholders' redemption requests. However, should the amount required for redemption exceed the money available, the fund manager will have no choice but to liquidate some of the securities to obtain the necessary cash.

Closed-end funds are similar to open-end funds in the sense that they too provide professional expertise and portfolio diversification. However, such funds make a one time sale of a fixed number of shares at the time of the IPO. Consequently, the number of shares issued by them usually remains fixed. Unlike open-end funds, they do not allow investors to buy or redeem shares from/with them. However, in order to provide liquidity to investors, many closed-end funds list themselves on a stock exchange. If a fund were to be listed on an exchange, then investors can buy and sell its shares through a broker, just the way they buy and sell shares of other listed companies.

The price of a closed-end fund's shares need not be equal to its NAV. The definition of the NAV in the case of a closed-end fund, is the same as in the case of an openend fund. However, the price of a closed-end fund could be significantly different from its NAV. The shares may trade at a discount or a premium to the NAV based on the investors' perceptions about its future performance and other market factors affecting the demand for or supply of its shares. Shares selling below the NAV are

said to be '*trading at a discount*', while those trading above the NAV, are said to be '*trading at a premium*'. The premium or discount is calculated as follows:

 $Premium/Discount = \frac{Price - NAV}{NAV}$ 

Some closed-end funds choose to remain unlisted. Shares of such funds can be traded over-the-counter. In the case of a mutual fund, there could be large inflows or outflows due to a sudden issue of a large number of shares, or due to a large scale redemption of shares. This can be a problem for fund managers who may have to buy or sell securities at inopportune times. This, however, is not a problem for the fund manager of a closed-end fund. Consequently, they can stay focused on long-term gains, which is a plus point for their shareholders. In the US, the term *mutual fund* is used to refer to an open-end fund. Closed-end funds are referred to explicitly.

Closed-end funds can raise capital in three ways, if they seek to raise capital subsequent to an IPO.<sup>1</sup>

- 1. Rights issues: These are a means to raise money from existing shareholders. As an incentive to shareholders, most funds allow shareholders to buy more shares at a slight discount to the market price.
- 2. Leveraging: A closed-end fund can borrow. This is a strategy that is used by bond funds, especially those that invest in municipal bonds.
- 3. Secondary stock offerings: This refers to the issues of shares to the public after the IPO. This is not very common.

A critical feature of such funds is that the subscribers to the IPO bear the entire cost of underwriting and marketing

<sup>&</sup>lt;sup>1</sup> See Fredman and Wiles (1998).

#### 10 \_\_\_\_\_ Mutual Funds and Retirement Planning \_\_\_\_

incurred by the fund at the time of the issue. This is because the fund's investable corpus at the outset is equal to the amount raised via the IPO less the issuance costs, which include selling fees paid to the retail brokerage houses which market such shares to the public. The high commission rates offered by such funds, provide a strong incentive to brokers marketing such funds, to recommend these funds to their clients. At the same time, since they can reduce the investable corpus substantially, these commissions provide a disincentive to the potential investors from the standpoint of subscribing to the IPO.

#### **Unit Trusts**

Unit Trusts also known as Unit Investment Trusts are similar to closed-end funds, in the sense that they are capitalized only once. Most unit trusts usually invest in bonds. However, they differ from a conventional mutual fund in one critical respect. Once the portfolio of securities (bonds) is assembled by the sponsor of the unit trust<sup>2</sup>, the bonds are held until they are redeemed by the issuer of the debt. Thus there is no trading of the securities which comprise the portfolio held by a unit trust. Hence, a unit trust is essentially an unmanaged portfolio of stocks and/or bonds.

When a trust is established, a sponsor will assemble a portfolio of stocks or bonds. There will be a trustee who will hold the securities for safekeeping, and will be entrusted with the task of collecting income and principal payments and remitting them to the unit holders. The bonds are usually held till maturity, but may be prematurely called by the issuer, if they are callable in nature. Usually the only time the trustee of a unit trust can sell a bond held by the trust, is if there is a significant decline in the credit quality of the issue. New bonds cannot be acquired once a trust is assembled. A trust normally

<sup>&</sup>lt;sup>2</sup> The sponsor is usually a brokerage firm or a bond underwriter.

cannot be liquidated until the bonds with the longest maturity have matured, but they will keep losing assets in the meantime. Principal from the trust will flow back to the investors from bonds that are called, sold prematurely, or reach their maturity date. Unit holders can reinvest the interest and principal distributed to them into a mutual fund but not back into the unit trust. Thus, such investment vehicles are more suitable for investors who seek regular income.

Due to the lack of active trading, the cost of operating a unit trust is considerably less than the costs incurred by open-end and closed-end funds. Secondly, most unit trusts have a fixed termination date. And finally, unlike an investor in a mutual fund, who is constantly exposed to a changing portfolio composition, an investor in a unit trust knows from the outset the exact composition of the investment portfolio of the trust.

#### # of Investment Companies

The number of investment companies in the US, classified according to their structure, and the value of assets managed by them as of end 2008, is given in the table below.

Table 1.3				
Number of Funds by Type				
Type of Fund #	of Entities	Assets Under Management in Billions of USD		
Open-end Funds	8,889	9,601		
Closed-end Funds	646	188		
Exchange Traded Funds	743	531		
Unit Investment Trusts	5,984	29		
Total	16,262	10,349		

Source: www.icifactbok.org

12 \_\_\_\_\_ Mutual Funds and Retirement Planning \_\_\_\_

### **Calculating the NAV**

The net assets of a fund is defined as:

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

The NAV is defined as Net Assets ÷ No. of shares outstanding.

A fund's NAV is affected by various factors:

- Purchase and sale of investment securities
- Valuation of all investment securities held
- Other assets and liabilities
- Units sold or redeemed
- Distribution of dividends or capital gains to shareholders

The term 'receivables' includes any income due to the fund but not received as on the valuation date, like for example, dividends which have been announced by a company whose shares the fund is holding, but which are yet to be received. The term also includes proceeds from the sale of investments which have not yet been realized, and payments due from institutional shareholders who have acquired shares from the fund, but are yet to pay for them.

Other liabilities have to include expenses payable by the fund such as custodian fees or even the management fee that is payable to the Asset Management Company (AMC). These income and expenditure items have to be accrued and included in the computation of the NAV. An AMC may incur many expenses specifically for given schemes as well as other expenses that are common to all

schemes. All expenses should be clearly identified and allocated to the individual schemes. The expenses may be broadly categorized as:

- Investment management and advisory fees
- Initial expenses of launching schemes
- Recurring expenses

Recurring expenses include:

- Marketing and selling expenses including agents' commissions
- Brokerage and transactions costs
- Registrar services for transfer of units sold or redeemed
- Fees and expenses of trustees
- Audit fees
- Custodian fees
- Costs related to investor communication
- Costs of providing account statements and dividend/ redemption cheques and warrants
- Winding up costs for terminating a fund or a scheme
- Costs of statutory advertisements

#### Example 1.1

A mutual fund in the US has acquired 1,000 shares of IBM, 2,000 shares of Exxon, and 2,000 shares of General Motors. It has issued 20,000 shares to its shareholders. The NAV based on current prices may be calculated as depicted below.

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14 Mutual Funds and Retirement Planning				
Table 1.4				
NAV of a Mutual Fund on a Given Day				
Company	# of Shares	Price	Value	
IBM	1,000	35	35,000	
Exxon	2,000	80	160,000	
GM	2,000	60	120,000	
Total	5,000		315,000	

$$NAV = \frac{315,000}{20,000} = \$ \ 15.75$$

Now assume that the prices on the following day are as follows.

Table 1.5			
NAV of a Mutual Fund on the Following Day			
Company	# of Shares	Price	Value
IBM	1,000	40	40,000
Exxon	2,000	90	180,000
GM	2,000	75	150,000
Total	5,000		370,000

$$NAV = \frac{407,000}{22,000} = \$ \ 18.50$$

The NAV will not change immediately if the fund issues additional shares. For instance assume that the fund issues 2,000 shares at an NAV of \$ 15.75. This will lead to an

inflow of \$31,500. The total asset base of the fund will be \$346,500. Since the fund has now issued a total of 22,000

shares, the NAV will be  $\frac{346,500}{22,000} =$ \$ 15.75 which is the

same as earlier.

However, the NAV on the following day could be different if the fund issues additional shares. Assume that the fund issues 2,000 additional shares at the NAV of 15.75, which leads to an inflow of \$ 31,500. This can be used to acquire 100 shares of IBM, 200 shares of Exxon, and 200 shares of GM. If so, the NAV will not change since the incoming funds are being used to acquire shares in the existing proportions.

Table 1.6			
NAV of a Mutual Fund on the Following Day if Shares are Acquired in the Existing			
Proportions			
Company	# of Shares	Price	Value
IBM	1,100	40	44,000
Exxon	2,200	90	198,000
GM	2,200	75	165,000
Total	5,500		407,000

$$NAV = \frac{407,000}{22,000} = \$ \ 18.50$$

But what if the fund were to acquire 300 shares of IBM, 150 shares of Exxon, and 150 shares of GM. The NAV will then be:

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16	6 Mutual Funds and Retirement Planning			
Table 1.7				
NAV of a Mutual Fund on the Following Day if Shares are Acquired in Different Proportions				
Company	# of Shares	Price	Value	
IBM	1,300	40	52,000	
Exxon	2,150	90	193,500	
GM	2,150	75	161,250	
Total	5,500		406,750	

 $NAV = \frac{406,750}{22,000} = \$ \ 18.4886$ 

### **Dividend-Related Options**

Investors in a mutual fund usually have three choices. One is the *growth* option. In this case the fund will not make any payouts. Rather the income and profits from the underlying securities will be reinvested in the fund. The second option is called the *dividend* option. In this case, the investor will periodically receive cash payouts from the fund. Obviously the NAV of the fund will decline when the dividend is declared. The third alternative is a *dividend re-investment* option. In this case, the fund will declare a dividend, the NAV will decline, but the investor will receive additional shares of the fund, in lieu of the dividend amount.

Different options do not imply different returns for a shareholder. However, the dividend payout option if it is availed off, would deny the investor the benefit of

compounding. For instance assume that an investor owns X shares of a mutual fund with an NAV of \$ N. Assume that the cum-dividend NAV after a year is  $N_1$ , and the dividend per share is \$ D. The quantum of the portfolio of the investor for each of the options may be computed as follows.

**Growth Option**: Value =  $N_1 \times X$ **Dividend Option**: Value =  $(N_1 - D) \times X + D \times X = N_1 \times X$ . **Dividend Re-investment Option**: Value =  $(N_1 - D) \times X$ 

$$+\frac{DX}{N_1-D}\times(N_1-D)=N_1X$$

Thus the investor's wealth at the end of the period is independent of the option chosen. However, his choice of the option will have implications for his wealth in a subsequent period. Let us assume that next year the NAV goes up by 10%. The value of the investor's portfolio under each of the options is as shown below.

**Growth Option**: Value =  $1.10 \times N_1 \times X = 1.10 N_1 X$ **Dividend Option**: Value = $1.10 \times (N_1 - D) \times X + D \times X = 1.10 N_1 X - 0.1 DX$ 

**Dividend Re-investment Option**: Value =  $1.10 \times (N_1 - N_2)$ 

$$D) \times X + \frac{DX}{N_1 - D} \times 1.10 \times (N_1 - D) = 1.10 \times N_1 X$$

As can be seen, there is no difference in the portfolio irrespective of whether the growth option or the dividend re-investment option is chosen. However, the terminal portfolio value in the case of the dividend option is less by a magnitude of 0.1D*X*, which reflects the fact that since the payout was taken in the form of cash, the benefit of the re-investment income is lost.

#### 18 \_\_\_\_\_ Mutual Funds and Retirement Planning \_\_\_\_

#### Example 1.2

A mutual fund currently has a NAV of \$25. Andrew is in possession of 500 shares. After one year the NAV is \$30 per share. In the case of a growth option no dividend will be declared. Andrew's portfolio will be worth:

$$500 \times 30 =$$
\$ 15,000  $\equiv 20\%$ 

Thus he gets a rate of return of 20%, on his initial investment of \$ 12,500.

Now assume that the fund declares a dividend of \$ 2 after a year. The ex-dividend NAV will be \$ 28. If Andrew were to have opted for a dividend option, he would have:

$$28 \times 500 + 2 \times 500 =$$
\$ 15,000  $\equiv 20\%$ 

On the other hand if he were to have opted for a reinvestment option, he would be issued an additional

$$\frac{2 \times 500}{28} = 35.7143$$

shares at the end of the year. The value of his portfolio will be:

$$28 \times (500 + 35.7143) =$$
\$ 15,000  $\equiv 20\%$ 

Thus the terminal wealth in all three cases is \$15,000 which represents a 20% rate of return.

Now assume that the NAV increases by 10% at the end of the following year. Andrew's wealth, if he were to have opted for the growth option, would be:

 $1.10 \times 30 \times 500 = 16,500 \equiv 10\%$ 

However, if he were to have opted for a dividend option, the NAV would be:

 $1.10 \times (30 - 2) =$ \$30.80

The value of 500 shares would be:

 $500 \times 30.80 =$ \$ 15,400

If we add the dividend received in the previous year, assuming that it has not been re-invested, we would get a terminal portfolio value of \$ 16,400, which would represent a return of 9.33%.

Now let us consider the dividend-reinvestment option. The terminal portfolio value is:

 $1.10 \times 28 \times (500 + 35.7143) =$ \$ 16,500  $\equiv 10\%$ 

Thus while the growth and dividend re-investment options yield the same terminal wealth after two years, the dividend option gives a lower rate of return, because the dividend received at the intermediate stage is not reinvested.

### Costs

The costs borne by an investor in a mutual fund can be classified under two heads. The first is what is known as a *sales charge* or a *shareholder fee*. This is a one time charge which is debited to the investor at the time of a transaction. The transaction could take the form of a purchase, a redemption, or an exchange of shares of one fund for that of another. The amount of the sales charge would depend on the method adopted for distributing the shares. The second category of costs is the annual operating expense incurred by the fund, which is called the *expense ratio*. The largest component of this expense, is the investment management fee. This cost is of course independent of the method adopted for the distribution of shares.

#### **Sales Charges**

There are two routes for distributing the shares of a mutual fund. They can either be sold using a sales force (or a wholesale distributor) or they could be sold directly. The

#### 20 \_\_\_\_\_ Mutual Funds and Retirement Planning \_\_\_\_

first method necessarily requires an intermediary like, an agent, a stockbroker, an insurance agent, or other similar entity, who is capable of providing investment advice to the client, and is also capable of servicing the investment subsequently. This can be construed as an '*active*' approach, in the sense that the '*fund is sold and not bought*'.

In the case of the direct approach, however, there is no intermediary or salesman who will actively approach the client in order to provide advice and service. In such cases, the client will have to directly contact the fund (usually by dialing a toll-free number) in response to an advertisement or information obtained from elsewhere. In such cases, little or no investment advice is provided either initially or subsequently. This can, therefore, be termed as a '*passive*' approach, in the sense that the '*fund is bought and not sold*'.<sup>3</sup>

The agent based system carries an attached price tag. This cost is a sales charge which has to be borne by the client, and which constitutes a fee for the services rendered by the agent. The sales charges levied by such funds are referred to as '*loads*'. The traditional practice has been to deduct this load up front from the investor's initial contribution at the time of his entry into the fund, and pass it on to the agent/distributor. The remainder constitutes the net amount that is investable in the fund in the name of the client. This method is known as '*front-end loading*', and the corresponding loads are referred to as '*front-end*' or '*entry*' loads. Since the amount paid by the investor per share exceeds the NAV of the fund, such funds are said to be '*purchased above the NAV*'.

On the other hand, a directly placed mutual fund would not incur the payment of a sales charge, since there is no

<sup>&</sup>lt;sup>3</sup> It must be remembered that even though a fund may adopt a passive approach for selling its shares, it may nevertheless advertise aggressively.

role for an intermediary. Such funds are therefore known as 'no-load' mutual funds. In this case, the entire amount paid by an investor will be invested in the fund in his name. Consequently, such funds are said to be 'purchased at NAV'.

It was thought at one point in time that load funds would become obsolete and that the mutual fund industry would come to be dominated by no-load funds. The underlying rationale for this argument is of course that no rational investor would like to pay a sales charge if the same can be avoided. It was felt that individual investors, given their increasing levels of sophistication, would prefer to make their own investment decisions, rather than rely on agents for advice and service. However, the subsequent trend has been to the contrary. There are two reasons why load funds continue to be popular with investors.

Firstly, many investors have remained dependent on the advice and the initiative of investment agents. Secondly, load funds have shown a lot of ingenuity and flexibility in devising new methods for imposing the sales charge, which serve the purpose of compensating the agent/distributor, without appearing to be a burden for the investors. These innovations have come in the form of 'back-end' loads and 'level' loads. Unlike a front-end load, which is imposed at the time of an investor's entry into a fund, a back-end also known as an 'exit' load, is imposed at the time of redemption of shares. The advantage of this approach is that the entire investment made by the investor is ploughed into the fund without being subject to an up front deduction.

Yet another variant is the level load. In this case, a uniform sales charge is imposed every year. Consequently the reported NAVs would be lower than what they would have been in the absence of a sales charge. However, in

#### 22 \_\_\_\_\_ Mutual Funds and Retirement Planning \_\_\_\_

this case as well, the entire amount paid by the investor at the outset would be investable in the securities held by the fund. Level loads appeal to investors who are more comfortable with the concept of an annual fee rather than commissions, irrespective of whether these are payable at entry or on exit. Such investors are referred to as *fee-based planners*.

The most common form of an exit load is the 'contingent deferred sales charge'. This approach imposes a load on withdrawal, which is a function of the period that the investor has stayed with the fund. Obviously the longer an investor stays invested, the lower will be the load on redemption. For instance consider a 3, 2, 1, 0 contingent deferred sales charge, which would mean that a 3% load would be imposed if the shares are redeemed within one year, a 2% load if the shares are redeemed after one year but within two years, and a 1% load if the redemption takes place after two years but within three years. Obviously there is no sales charge if the redemption were to occur after three years.

Many mutual fund families often offer their funds with a choice of loading mechanisms, and allow the distributor and the client to pick the method of their choice. Shares subject to front-end loads are usually called '*Class A shares*', those subject to back-end loads are known as '*Class B shares*', while those for which a level load is applicable, are known as '*Class C shares*'. The NAV of the shares will differ from class to class.

In the case of funds with front-end and back-end loads, the declared NAV will not include the load. Thus in the case of funds that impose a front-end load, an investor must add the load amount per share to the NAV per share, in order to calculate his purchase price. Similarly, in the case of a back-end load fund, the investor has to deduct

the load amount per share from the NAV per share, in order to know his net sale proceeds.

Some funds levy what is termed as a *redemption fee*. This is akin to an exit load, but is retained by the fund and is not passed on to the sales agent. It is intended to cover costs associated with a redemption, other than the sales related expenses.

In the US, by law the total front-end and back-end loads may not exceed 8.50% of the initial investment. However, most funds in practice charge far less than the maximum amount permitted by law.

#### Example 1.3

A fund has a declared NAV of \$ 20.00. The front-end

load is 2.5%. So the price payable by the investor is  $\frac{20.00}{.975}$ 

= 20.5128. This can be expressed in a different way as follows.

In the absence of the load, an investment of \$ 1,000 would fetch the investor  $\frac{1,000}{20.00} = 50.00$  shares. However,

with a front-end load it will fetch  $only \frac{1,000 \times .975}{20.00}$ = 48.75 shares. Investors in mutual funds are allowed to acquire fractional shares. In the US, the number of shares is calculated to three decimal places. For instance, if the NAV is 20.125, and the load is 2.50%, then an investment

Similarly, if the fund were to charge an exit load of 2.5% the investor would effectively get only  $20.00 \times .975 = 19.50$  per share. Thus the sale of 100 shares, which would have fetched him \$ 2,000 in the absence of a load, would now fetch him only \$ 1,950.

of \$ 1,000 will lead to the acquisition of 48.447 shares.

### 24 \_\_\_\_\_ Mutual Funds and Retirement Planning \_\_\_\_\_

Let us continue with the above example on an entry load. Assume that the NAV at the end of the year is \$ 22.50. Take the case of an investor who has invested \$ 20,000 at the outset, and has acquired 1,000 shares. In the absence of a load, the profit per share will be \$ 2.50. The rate of return will be:

 $\frac{2.50 \times 1,000}{20,000} \equiv 12.50\%$ 

Now consider the impact of an entry load of 2.5%. An investment of \$20,000 would result in the acquisition of:

$$\frac{20,000 \times 0.975}{20.00} = 975 \text{ shares.}$$

The cash flow when the shares are redeemed will be:

 $975 \times 22.50 = $21,937.50$ 

The rate of return is:

$$\frac{(21,937.50 - 20,000)}{20,000} \equiv 9.6875\%$$

In some markets an entry load is levied as follows. If the NAV is \$ 20, and the load is 2.50%, the load adjusted NAV will be taken as:

$$20 \times (1.025) =$$
\$20.50

Thus if \$ 1,000 were to be invested, it would result in the acquisition of:

$$\frac{1,000}{20.50} = 48.78$$
 shares.

The adjusted NAV is  $\frac{\text{NAV}}{(1-X)}$  where the load is *X*%, if the

first method is used, and NAV(1 + X) if the second method is used. From the Maclaurin series expansion, we know that: Fundamentals of Mutual Funds \_\_\_\_\_ 25  $\frac{1}{1-X} = 1 + X + X^2 + X^3 + \dots$  > 1 + X

Thus the load adjusted NAV is greater if the first method is used, and consequently the number of shares corresponding to a given dollar investment will be lower.

#### **Annual Operating Expenses**

The operating expense is debited annually from the fund's assets by the sponsor of the fund. The three main categories of such expenses are the *management fee*, the *distribution fee*, and other expenses. These expenses will be mentioned in the prospectUS Everything else being equal, one should seek funds with low operating expenses.

The management fee, also known as the *investment advisory fee*, is the fee charged by the investment advisor for managing the fund's portfolio. The fees charged would depend on the type of fund, and as is to be expected, the greater the efforts and skills required to manage the fund, the higher will be the management fee that is charged. For instance, in the case of an index fund, which passively tracks a stock market index such as the S&P 500, the investment advisory fee will be low. However, for an actively managed stock fund, the fee could be significant.

In 1980, the SEC approved the imposition of a fixed annual fee called the *12b-1 fee*. This is intended to cover distribution costs including continuing agent compensation, and the fund's marketing and advertising expenses. By law, the 12b-1 fee cannot exceed 1% of the fund's assets in a given year.<sup>4</sup> This fee may include a service fee, to compensate sales professionals for providing services or for maintaining shareholders accounts. The amount,

<sup>&</sup>lt;sup>4</sup> This is also a lifetime cap which is based on the overall sales of the fund.

#### 26 \_\_\_\_\_ Mutual Funds and Retirement Planning \_\_\_\_\_

which accrues to the selling agent, is to provide him with an incentive to continue to service the accounts even after having received a transaction based fee such as a frontend load. The balance of the 12b-1 fee, which accrues to the fund sponsor, is intended to provide it with an incentive to continue advertising and marketing efforts. Within the 1% limit, there is a sub-limit of 0.25% for the salespersons' compensation, and 0.75% for advertising and marketing related expenditure. A fund is allowed to levy a 12b-1 fee only if it has adopted a 12b-1 plan, which has been approved by the directors of the fund.

In the case of funds that offer multiple share classes, Class A shares have a low or nil 12b-1 fee. Class B and Class C shares are, however, usually accompanied by a 12b-1 fee.

Some funds levy what is referred to as an *account maintenance fee*. This is usually required to be paid by clients maintaining a low balance account.

The sum total of the annual management fee, the annual distribution fee, and other annual expenses like the ones described above, is called the expense ratio.

#### **Switching Fees**

For many years there was no charge for switching from one mutual fund to another within the same family. But of late, some funds have started to charge a flat fee. These funds justify such charges by arguing that these are being levied to discourage frequent switching, which increases the administrative costs involved in keeping track of customer accounts. These charges are directly recovered from the shareholder, and do not therefore impact the NAV. Switching fees are also known as *exchange fees*.

### Voting

Mutual funds differ from conventional companies, in the sense that they do not hold regular shareholder meetings. However, they periodically ask investors to vote on important proposals such as fundamental changes in investment policies. If an issue of importance were to come up, the fund must convene a meeting of shareholders and issue a proxy statement discussing the agenda and seeking shareholder approval on the changes that are proposed to be effected. Every shareholder will receive one vote for each share held by him.

What are the sort of issues that a shareholder may be asked to vote on? Here are some examples.  $^{5}$ 

• Changes in sales charges

Switch from a load to a no-load format

Institution of a 12b-1 fee

- Changes in advisory fees. For instance, management may want to change from a 'flat' management fee to an 'incentive-fee' arrangement.
- Changes in investment policy. A fund that has so far focused only on equities may want to invest in a balanced portfolio, consisting of bonds as well as stocks.
- Name changes
- Mergers and structural changes

## Distributions

Mutual funds make two types of distributions:

<sup>&</sup>lt;sup>5</sup> See Fredman and Wiles (1998).
- Income distributions
- Capital gains distributions

Income distributions are also referred to as *dividend distributions*. They are paid out of the net investment income received by the fund. The net investment income is defined as the gross investment income minus the operating expenses. There are three principal sources of gross investment income for a mutual fund.

- 1. Dividends from the equity and preferred shares held by the fund.
- 2. Interest from fixed income securities held by the fund.
- 3. Short-term capital gains due to the sale of securities from the portfolio held by the fund.

There are no restrictions on how often dividends can be paid. Certain money market funds declare dividends on a daily basis, and pay out weekly or monthly. Consequently, the NAV of most money market funds stays at \$ 1.00, and investors do not experience any capital gains.

Capital gains distributions are paid from the long-term capital gains realized by the fund from the sale of assets. Capital losses can be used to offset the capital gains, in order to compute the net gains. Distribution of capital gains to shareholders is normally made only once a year.

### **Taxation Issues**

In the US, a mutual fund must distribute at least 90% of its net investment income earned, by way of coupon interest from bonds and in the form of dividend income from shares, exclusive of realized capital gains or losses, to the shareholders in order to be considered a regulated

#### Fundamentals of Mutual Funds \_\_\_\_\_

investment company (RIC). Regulated companies are not subject to a dividend distribution tax at the fund level, prior to the distribution of income to the shareholders. At the hands of the shareholders, however, any income received from a fund is taxable.

Capital gains made by the fund are required to be distributed annually, and such distributions are usually made late during the calendar year. The capital gains earned may be construed as either short-term gains or as long-term gains, depending on whether the fund has held the security in question for less than a year or for a longer period. Mutual fund investors have no control over the size of the distributions from the fund, and hence the timing and amount of taxes payable on their fund holdings is largely out of their control. In particular, if a block of investors were to redeem their shares, it could trigger off a sale of securities by the fund, which could cause capital gains to be realized, and could, in turn, lead to a tax liability for investors who choose to retain their holdings in the fund.

A new investor may assume a tax liability, even though he may have no gains. This is because a shareholder as of the date of record will receive a full year's worth of capital gains, even though he may have held the share for only one day. This lack of control over capital gains taxes, is one of the major limitations of a mutual fund.

#### Example 1.4

Alan Mathew has acquired 1,000 shares of a fund which is trading at an NAV of \$ 20.00. So his investment is \$ 20,000. Assume that after three days the fund declares a distribution of \$ 2.50 per share. Assuming that there are no other factors that impact the NAV, the NAV will decline to \$ 17.50. Alan's 1,000 shares will be worth

29

\$ 17,500. He will have \$ 2,500 with him in the form of the distributed income. However, irrespective of whether he chooses to take the distribution in the form of cash or re-invest it in the fund, he will have to pay taxes on the \$ 2,500 distributed by the fund. Assume that Alan chooses to re-invest and that the applicable tax rate is 20%. If so, his share holding will be worth \$ 19,500. Thus Alan has seen his wealth erode by \$ 500. This has nothing to do with market forces, and is entirely due to the tax applicable.

As can be appreciated from the above example, taxes are payable on any distribution of income from the fund, irrespective of whether the investor chooses to take it in the form of cash, or re-invest it in shares of the fund.

### **The Prospectus**

A prospectus is a formal printed document offering to sell a security. The Securities Act of 1933 requires the delivery of a prospectus prior to, or with, any solicitation for an order for mutual funds. The document must be updated at least annually.

The prospectus is required to disclose important information about the security. As a minimum, it must disclose, the fund's financial history; its investment objectives; and information about the management.

A typical prospectus will have a table of contents showing:

- Description of the fund
- Objectives of the fund
- Management of the fund
- Performance history
- Operating expenses

Fundamentals of Mutual Funds \_\_\_\_\_ 31

- Schedule of fees
- How to buy shares
- How to redeem shares
- Shareholder services
- Distributions and taxes
- Yield information
- Schedule of investments
- Financial statements

What should an investor look for in a standard prospect. First, there should be an explanation of a fund's goals or objectives. There should be a description of the investment strategy, and the types of risks that a shareholder faces. Every prospectus will have a table depicting the sales charges if any and the operating expenses of the fund. The prospectus should also contain a description of the fund's financial history based on data in the financial highlights table that is contained in the document. The document should also state the fund's annual returns for the past 10 years, or for the life of the fund, if it has been in existence for less than 10 years. The prospectus should give information about the fund's investment advisor and the fees charged by him. There should also be an explanation of how shares can be purchased and redeemed including initial and subsequent investment minimums. The services offered by the fund should be described. Finally, a prospectus should contain information on when and how distributions are paid out.

Any investor who wants more details can request for a copy of the fund's Statement of Additional Information, which is known as Part B of the prospect. 'Profiles' or summary prospectuses are also becoming available. 32 \_\_\_\_\_ Mutual Funds and Retirement Planning \_\_\_\_\_ Communications from the Fund

When an investor acquires the shares of a fund, he will receive a confirmation immediately. Mutual fund shareholders, typically receive account statements on a quarterly basis. Investors receive Form 1099-DIV at the end of each calendar year, which describes as to what portion of the distributions from the fund constitutes dividends, and the quantum of what can be construed as capital gains. The information contained in this form, is reported to the shareholders as well as to the tax authorities.

The SEC requires fund companies to prepare and issue both an annual as well as a semi-annual shareholder report. The annual reports give information in a fair amount of detail, and contain a statement by independent auditors. Most fund groups also issue quarterly reports which contain less extensive information. The various reports include a list of investments within the fund's portfolio.

# **Newspaper Quotes**

Newspapers use various symbols to connote the charges levied by a fund. The letters 'NL' next to a fund's name, indicate that it is a no-load fund. The symbol 'r' indicates that the fund charges a redemption fee, while the symbol 'p' indicates a 12b-1 distribution charge. If a fund were to be shown with a symbol 't', it indicates that both redemption as well as 12b-1 fees are being charged.

Newspapers generally carry two prices—one at which an investor can buy shares of the fund and the other at which he can sell shares of the fund. Obviously, the buy price will be higher than the sell price if there is an entry load, or an exit load. If the two prices are the same, it Fundamentals of Mutual Funds \_\_\_\_\_ 33

obviously indicates a no-load fund. If we denote the buy price by '*B*' and the sell price by '*S*', then the load may be calculated as  $\frac{B-S}{B}$ . Let us first consider the case where there is an entry load of *X*%. If so, the buy price is  $\frac{\text{NAV}}{1-X}$ 

and the sell price is NAV. Thus:

$$\frac{B-S}{B} = 1 - \frac{\text{NAV}}{\frac{\text{NAV}}{1-X}} = 1 - (1-X) = X$$

In the case of an exit load, buy price will be NAV, and the sell price will be NAV(1 - X). If so:

$$\frac{B-S}{B} = 1 - (1-X) = X$$

In those cases where the entry price is computed as NAV

(1 + X), the load may be calculated as  $\frac{B-S}{S}$ .

# Structure of a Mutual Fund

Each mutual fund, whether it is a stand alone entity or a part of a family, is a separate company. A fund may be set up as a corporation or as a trust, and is owned by the individual shareholders.<sup>6</sup>

The party who promotes the mutual fund is known as the *sponsor*. The sponsor is not the mutual fund. It is the corporation or the trust created by the sponsor, which is referred to as the mutual fund. The sponsor may be a bank like HSBC, a brokerage house like DSP, an

<sup>&</sup>lt;sup>6</sup> In India, mutual funds are set up as trusts as per the Indian Trusts Act, 1882.

insurance company like LIC, or an independent financial intermediary like Franklin Templeton.

A mutual fund is organized as follows. The shareholders who are the owners of the fund, are represented by a board of directors, who are elected by the shareholders. These directors are also known as the trustees of the fund, and are responsible for the overall management of the fund. Members of the board may be '*interested*' or '*inside*' directors who are affiliated with the fund, or else they may be '*independent*' or '*outside*' directors who are not affiliated with the fund in any manner. The board is responsible for the overall management of the fund, and is required to monitor the functioning of the management company. A dissatisfied board may always decide not to renew the contract of the management company, and appoint a new fund manager.

The fund's portfolio is managed by an Investment Advisor or a Management Company. The advisor can in practice, be an affiliate of a brokerage firm, an insurance company, a bank, an investment management firm, or an independent entity. In addition, many mutual funds will also engage the services of a distributor, whose task it is to sell shares to the public, either directly or through other firms. The distributor typically acts as a wholesaler who sells shares to brokerage houses. The brokerage houses will then sell shares to the public. Such distributors are essentially broker-dealers who may or may not be affiliated with the fund and/or the investment advisor.

The fund is also linked to three external service providers, namely, a Custodian, a Transfer Agent, and an Independent Public Accountant. The role of the custodian is to hold the fund's assets, and ensure that they are segregated from the accounts of others. This protects the shareholders against theft by management. The custodian

#### Fundamentals of Mutual Funds \_\_\_\_\_

also handles payments and receipts related to the fund's investment transactions, by taking part in a clearing and settlement system involving approved *depository participants* (DPs). It is also required to monitor corporate actions like cash dividends, stock dividends, and rights issues, which have implications for the securities being held by the mutual fund. Regulators require the sponsor and the custodian to be separate entities. Registrars and transfer agents perform the task of processing orders at the time of purchase and redemption, and transferring securities and cash to the concerned parties. They also collect dividends and coupons, and distribute them to the shareholders. The transfer agent is usually a bank or a trust company. Transfer agents maintain shareholder records and are responsible for computing the NAV on a daily basis. When a request for the acquisition of additional shares is received, the transfer agent will determine the applicable NAV, and the entry load if any. Similarly, at the time of redemption, it will have to determine the amount to be paid to the client, based on the prevailing NAV, and any applicable exit load.

The job of the accountant is, of course, to audit the financial statements of the fund. In addition, every fund has various internal departments to comply with legal and procedural requirements, and to take care of marketing related issues.

35



# Types of Mutual Funds and Exchange Traded Funds

# **Types of Mutual Funds**

E HAVE EXAMINED A GENERAL classification of mutual funds as open-end versus closed-end, and as no-load versus load funds. Mutual funds can also be distinguished from each other based on their investment objectives, and the types of securities that they invest in.

Today's mutual fund industry has become highly specialized and funds offer enormous diversity. An investor can, therefore, easily choose a fund to meet his specific objectives. This is important because no two investors are exactly alike. Some may be conservative while others may be aggressive. While one person may seek a tax-free investment option, another may be quite prepared to invest in a taxable fund. Besides, while most investors are likely

### Types of Mutual Funds and Exchange Traded Funds\_\_\_\_\_\_ 37

to be content with domestic portfolio options, some may seek to hold globally diversified portfolios.

One way of categorizing mutual funds is on the basis of the securities in which they invest. Consequently, we have equity or stock funds, bond funds, hybrid funds (which invest in a mix of stocks and bonds), and money market funds. There are also funds that invest in physical rather than financial assets. Hence, we have precious metals funds, real estate funds etc. As of 2008, there were 4,830 equity mutual funds in the US, 1,916 bond funds, 784 money market funds, and 492 hybrid funds.<sup>1</sup>

Another way of classifying funds, would be on the basis of their investment objectives. Different funds have their own investment objectives and consequently cater to different clienteles. Growth funds invest in order to get capital appreciation in the medium to long-term. Income funds focus on earning regular income and are less concerned with capital appreciation. Value funds are those which invest in equities that are perceived to be undervalued, and which are consequently expected to rise in price with the passage of time.

Funds may also be classified on the basis of their risk profile. Equity funds have a greater risk of capital loss than debt funds, which seek to protect capital while generating regular income. Money market funds which invest in short-term debt securities are even less exposed to market risk as compared to debt funds.

Fund managers can create different types of funds to cater to various investor profiles by mixing investments across categories. For example, equity income funds tend to invest in shares which do not fluctuate much in terms of value, but tend to provide dividends on a steady basis. Utility companies like power-sector companies will

<sup>&</sup>lt;sup>1</sup>Source:www.icifactbook.org.

constitute suitable investments for such funds. Balanced funds are those which seek to reduce risk by mixing equity investments with investments in fixed-income securities. They can also be perceived as funds which try to strike a balance between the need for capital appreciation and the requirement for steady income.

Now we will go on to discuss specific types of funds.

### **Money Market Funds**

Such funds invest in securities with one year or less to maturity. Typical securities acquired by such funds include Treasury bills or T-bills, which are issued by the government, certificates of deposit or CDs (which are essentially time deposit receipts issued by banks), commercial paper, which are short-term unsecured, promissory notes issued by companies, and bankers' acceptances, which are bills of exchange accepted by commercial banks. These investments, particularly T-bills are highly liquid and carry relatively low credit risk. Money market funds may be divided into two broad categories, namely taxable and tax-free. In the US, both the Federal as well as state governments are empowered to levy income tax. There, what is known as a *Guideline of Mutual Reciprocity.* That is, income from Federal securities is exempt from state taxes, while income from securities issued by state municipalities is exempt from Federal income tax. The income from municipal securities is consequently totally tax exempt for residents of the issuing state. Thus there are two classes of tax-exempt money market funds. Those who invest in a spectrum of municipal securities, which are all exempt from Federal tax, and those which invest in municipal obligations of a single state, which attract no income tax at all. Funds which invest in taxable securities are also sub-divided into

#### Types of Mutual Funds and Exchange Traded Funds\_\_\_\_\_\_ 39

government funds, and non-government funds. Government funds invest in T-bills and other short-term debt securities issued by the federal government, and quasi-federal agencies, while non-government funds invest in securities issued by business entities, such as negotiable CDs, commercial paper, and bankers' acceptances.

The SEC has issued new regulations to improve the safety, liquidity, and diversity of all money market funds.

- 1. Except for US government securities, a money market fund cannot invest more than 5% of its assets in securities issued by a single issuer.
- 2. The SEC also requires such funds to invest the bulk of their assets in the highest quality or 'first tier' commercial paper. They are allowed to place no more than 5% of their assets in 'second tier' paper, which obviously carry more risk.
- 3. They have to maintain average weighted maturities of no more than 90 days.

Money market funds are like bank accounts in the sense that they permit shareholders to write cheques against their account balances. Such funds also tend to keep the NAV of their shares steady at \$ 1. Consequently they distribute income to their shareholders on a very frequent basis.

These funds are ideal for investors seeking stability of principal, high liquidity, check-writing facilities, and earnings that are as high or higher than those available through bank CDs. Unlike bank CDs, these funds do not come with early withdrawal penalties. However, there is one disadvantage with respect to bank CDs. While CDs are insured up to \$ 250,000, money market funds are uninsured.<sup>2</sup>

<sup>&</sup>lt;sup>2</sup>A common mistake made by investors is that they assume that money market funds, are insured by the Federal Deposit Insurance Corporation (FDIC), if they are purchased through a commercial bank.

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40 \_\_\_\_\_ Mutual Funds and Retirement Planning \_\_\_\_

# **Debt Funds**

These funds also known as income funds invest in fixedincome securities issued not only by governments, but also those issued by private companies, banks and financial institutions, and other entities like infrastructure companies and public utilities. These instruments carry lower risk as compared to equities, and tend to provide stable income. However compared to a money market fund, most debt funds have greater market risk or price risk, as well as credit risk.

One category of debt funds are government bond funds, also known as gilt funds. These invest in government securities with a time to maturity in excess of one year. Obviously these securities are devoid of default risk. However, these securities are subject to interest rate risk. Bonds are vulnerable to interest rate risk in two ways. Firstly holders of coupon paying bonds face the risk that the coupons when received may have to be re-invested at a lower rate of interest than what was anticipated at the outset. This is known as *re-investment risk*, and is the risk that market interest rates may decline.<sup>3</sup> The second type of interest rate risk is what we call *price* or *market* risk. If the market rates were to rise, the price at which a bond can be sold will obviously decline.

Debt funds are known as income funds because their focus is primarily on earning high income, and not on capital appreciation. These funds therefore distribute a substantial part of their surplus to shareholders on a regular basis. We can further sub-classify debt funds based on investment objectives.

A diversified corporate bond fund, is defined as a debt fund which invests in virtually all types of debt securities,

<sup>&</sup>lt;sup>3</sup>Obviously holders of zero coupon securities such as T-bills do not face this risk.

### Types of Mutual Funds and Exchange Traded Funds\_\_\_\_\_ 41

issued by entities across all sectors and industries. Although debt securities carry less risk as compared to equities, since they represent contractual obligations on the part of the issuing firm, such securities nevertheless expose investors to default risk. The advantage of investing in a diversified fund is that the idiosyncratic or firm specific default risk gets diversified away. Thus, as compared to debt funds which invest only in securities issued by firms in a particular industry or sector of the economy, diversified funds are less risky. We also have debt funds which invest in non-investment grade or speculative grade bonds. These funds can give high yields to investors, but expose them to a higher degree of default risk. Such funds are also known as *high-yield* bond funds or *junk* bond funds. At the other end of the spectrum we have funds which invest in insured corporate bonds. These offer a greater level of safety because interest and principal payments are guaranteed by an insurance company. However, unlike Treasury securities, these bonds are not free of default risk because the insurance company can always go bankrupt.

Municipal bond funds invest in medium to long-term debt securities issued by municipalities. They may invest in a portfolio of multi-state bonds, in which case the income from the underlying securities will be exempt from federal taxes, or in the bonds of a single state, in which case the income is free from all taxes for residents of that state.

There are also debt funds that invest in mortgage-backed securities such as Ginnie Maes.

# **Equity Funds**

Holders of shares issued by equity mutual funds take on much more risk than those who invest in debt mutual

funds. Equity funds by definition, invest a major portion of their corpus in shares issued by companies. Such shares may be acquired either through the primary market by participating in an initial public offering, or through the secondary market. The value of an equity share fluctuates in practice due to three types of influences—factors specific to the firm itself; factors characteristic of the industry in which the firm operates; and economy wide factors. Unlike debt instruments, there is no contractual guarantee in terms of dividend distribution, or in terms of the safety of the capital invested. However, while debt securities will at best repay the original principal invested, there is no limit to the possible capital appreciation when one invests in equities.

Growth funds target companies with a high perceived potential for growth. Their investments are in well established companies with a high potential for capital appreciation. The focus is on the perceived returns from capital gains, and not on steady income from dividends. The term *aggressive growth funds* is also used for certain funds with a growth oriented strategy. However, the choice of investments made by such funds tends to be in sunrise sectors like information technology, biotechnology, or pharmaceuticals.

Sector funds invest only in a chosen sector or industry like software, pharmaceuticals, or FMCG sectors. As compared to well diversified funds, these funds carry a higher level of industry specific risk, if not company specific risk.

Specialty funds like sector funds have a narrow focus. Such funds tend to invest only in companies that conform to certain pre-defined criteria. For instance, there are funds that will not invest in tobacco or liquor companies. Others selectively target specific regions of the world like Latin America or the ASEAN countries. Having defined their

### Types of Mutual Funds and Exchange Traded Funds\_\_\_\_\_ 43

investment criteria, some funds may choose to hold a diversified portfolio while others may tend to concentrate their investments in a few chosen securities. Obviously the returns from the latter will be more volatile.

International or offshore funds invest in equities of one or more foreign countries. While international diversification does in principle offer additional opportunities for reducing risk, it also exposes such funds to foreign exchange risk, a factor that is irrelevant for funds which invest solely in domestic securities. The term foreign exchange risk refers to the risk that the home currency may appreciate by the time the anticipated rewards are received.

For instance, assume that an investment is made in a security costing  $\pounds$  100, in anticipation of a 10% capital appreciation. Assume that the prevailing exchange rate is \$ 2 per pound. Thus the anticipated capital gain in US currency is \$ 20. However, what if the dollar appreciates, and the exchange rate at the time of sale of the security is \$ 1.875 per pound. If so, the gain in dollars will be only \$ 6.25, which translates to a return of:

$$\frac{6.25}{200} = 3.125\%$$

A well diversified offshore fund will invest in more than one country, while a fund with a narrower focus will restrict itself to just a single country.

Small cap equity funds invest in companies with a lower market capitalization as compared to large blue chip firms. The prices of such firms tend to be more volatile, since their shares are much less liquid. Market capitalization is defined as the number of shares outstanding multiplied by the share price. The definition of what constitutes a small cap firm is of course subjective.

Equity index funds track the performance of a specific stock market index, like the Dow Jones Industrial Average or the Standard and Poor's 500 Index. Such a fund will invest only in those stocks which constitute the target index, and in exactly the same proportions as such stocks are present in the index. They can therefore be considered to be mimicking funds. If the index which is being traded represents a large well diversified portfolio of assets, then the corresponding fund will have relatively low risk. Such funds have lower operating expenses due to the reduced role of the portfolio fund manager. This is because the stocks in the portfolio rarely change. In the case of portfolios that mimic value-weighted indices, no rebalancing is required unless there is a change in the composition of the index. More frequent re-balancing is of course required for funds that track price-weighted or equally weighted indices.

Equity income funds invest in companies that give high dividend yields. Their target is high current income, with steady though not spectacular capital appreciation. Utility stocks are very popular with such funds. The prices of these stocks do not fluctuate much, but they do provide stable dividends.

Arbitrage funds invest simultaneously in the cash market as well as in derivative products such as stock index futures. Arbitrage strategies that use index futures are known as *program trading* strategies. The objective is to detect perceived violations of the stock-futures price relationships required by theory, in order to make arbitrage profits.

In the case of a *quant fund*, the decision for entering into a stock position and/or to exit from a pre-existing position, is made by a computer based algorithm. The effective fund manager in this case is the system. The objective of the managers of such funds is to build computer-based models in order to determine the kind of

### Types of Mutual Funds and Exchange Traded Funds\_\_\_\_\_ 45

investment decision required. The rationale is that computers are devoid of emotions, and are far quicker in reacting to fresh information as compared to human traders. Nevertheless a certain human element is inescapable. For after all, the models are developed as well as coded by human minds. As mutual fund analyst Fred Gehm says, "There are two types of quantitative analysis and therefore, two types of quants. One type works primarily with mathematical models and the other primarily with statistical models." According to Gehm, the two approaches require different skill sets, as well as different psychologies. Mathematical modelers would typically develop pricing models for products like complex derivatives. Statistical analysts, on the other hand, would typically develop models for selecting assets which are expensive or inexpensive compared to their fair or model-based value.

Another option for a mutual fund investor is to invest in a '*fund of funds*'. These funds take the process of diversification one step further. That is, they invest in a portfolio of mutual funds.

### **Hybrid Funds**

#### **Balanced Funds**

They hold a portfolio consisting of debt instruments and equity shares. They hold more or less equal proportions in debt and equities. These funds have the objective of steady income, accompanied by moderate capital appreciation. Typically they have a three-pronged focus:

- Conservation of principal
- Earning of income
- Long-term growth of both principal as well as income

They are primarily intended for conservative and longterm investors.

### **Flexible Portfolio Funds**

By definition, an equity fund will be primarily invested in equities, whereas a debt fund will have its investments concentrated in fixed income securities. These funds therefore have a fixed or pre-determined asset allocation, in the sense that relative proportions invested in the various categories of securities is pre-set and will in general not vary. However, there are in practice funds which follow a variable allocation policy, and will flit in and out of various asset classes like equities, debt, money market securities, and even non-financial assets. Their choice of an asset class would depend on their outlook on the market at a given point in time. For instance if the fund manager anticipates a bull market he will invest a larger proportion of the fund's corpus in equities. However, if he were to be of the opinion that a bear market is likely, he will invest more in debt and money market securities. Such funds are referred to as *flexible portfolio* funds.

### **Asset-Allocation Funds**

These funds, like flexible portfolio funds target a high total return by investing in a mix of equity, debt and money market securities. However, unlike the former, these funds maintain a constant weighting for the various asset classes.

# **Commodity Funds**

These funds specialize in investing in commodity markets. These investments may be made by directly buying physical commodities, or by the acquisition of shares of

#### Types of Mutual Funds and Exchange Traded Funds\_\_\_\_\_ 47

commodity firms, or by using commodity futures contracts. Specialized funds in this category will focus their attention on a specific commodity or a group of related commodities, like precious metals, while diversified commodity funds will spread their investments over many different commodities. Common examples of such funds include gold funds, silver funds, and platinum funds.

# **Real Estate Funds**

These funds either invest in real estate directly, or else fund real estate developers. Funds which invest in housing finance companies, and mortgage-backed securities, would also fall in this category.

# **Exchange Traded Funds (ETFs)**

Mutual funds, as has been discussed earlier, have two obvious shortcomings. Firstly, the shares of an open-end fund are priced at, and can be transacted only at, the NAV as calculated at the end of the day. Thus transactions at intra day prices are ruled out. Secondly, investors have little control over their tax liabilities. As we discussed before, a withdrawal by a group of shareholders can lead to a sale of assets, which can trigger off capital gains taxes for investors who choose to continue to remain invested in the fund.

In response to these perceived shortcomings, exchangetraded funds (ETFs) were introduced in the 1990s. These are open-ended in structure but are traded on stock exchanges just like conventional stocks. They are in a way similar to closed-end funds in the sense that their quoted prices are usually at a small premium to or discount from their NAV. However, in practice these deviations

are limited in the case of ETFs, because of the potential for arbitrage, as we shall shortly demonstrate. Most ETFs are based on popular stock indices.

Index based ETFs may track their target in one of two ways. Some funds invest 100% of their assets proportionately in the securities underlying the index being tracked. This is known as a *replication strategy*. Others use what is known as *representative sampling*. For instance a fund may invest 80% of its corpus in the underlying securities, and the balance in other assets. A replication strategy is more difficult to implement when the underlying index is very broad based.

Unlike an open-end mutual fund, which entails the acquisition of shares directly from the fund by retail as well as institutional investors, an ETF involves three parties, namely the fund itself, entities known as authorized participants (APs) and retail investors. The process of acquisition of shares from the fund is initiated by the authorized participants. They acquire large blocks of ETF shares known as *creation units* from the fund, by offering the underlying basket of securities.<sup>4</sup> Each creation unit represents 25,000 to 200,000 ETF shares in practice. The authorized participants then sell individual ETF shares to investors in the secondary market, and many of them act as market makers by regularly posting two-way quotes. Thus retail investors do not usually interact directly with the fund. Their transactions are either with other such investors or with the authorized participants. The redemption of creation units works as follows. An authorized participant will assemble the required number of ETF shares to form one or more creation units. These units will then be offered to the fund in exchange for the underlying basket of securities and typically some cash.

<sup>&</sup>lt;sup>4</sup> In practice, a small amount of cash may also be involved as we will shortly discuss.

#### Types of Mutual Funds and Exchange Traded Funds\_\_\_\_\_ 49

The composition of the underlying index may change periodically. For instance, a stock may be substituted. In such cases the fund sponsor will inform the authorized participants that changes need to be made to the basket of securities that they have deposited with the fund.

In order to obtain a creation unit, an authorized participant can usually offer some cash to the fund, in addition to the underlying securities. The fund may require or allow the AP to substitute cash for some or all of the securities in the underlying basket. One reason for this could be that the security or securities is/are difficult to obtain or are not widely held. The value of the portfolio held by the fund may also include a cash component on account of dividends and interest from the securities that it is holding.

While ETFs calculate their NAV only once at the close of trading, third parties calculate and disseminate every 15 seconds, a statistic known as the Interday Indicative Value (IIV). IIV is essentially a real-time estimate of the fund's NAV.

Unlike open-end mutual fund shares which are priced only once a day, the shares of ETFs constantly fluctuate in value during the day, just like other securities that are traded on the secondary market. However, unlike the shares of closed-end funds, the market price of these shares cannot deviate substantially from the fund's NAV. For, if the price were to diverge significantly from its NAV then arbitrageurs will step in. If the shares are overpriced, then arbitrageurs will short sell ETF shares and buy creation units from the sponsor to fulfill their delivery obligations. On the other hand, if the shares are underpriced, they will buy ETF shares, assemble them into creation units, and sell them to the sponsor. We give a detailed illustration of this below.

### Illustration of Arbitrage

Consider a price weighted index consisting of the following companies. Assume that the divisor is 0.20.

Table 2.1				
Components of an ETF and Their Prices				
Stock	Price			
Exxon	75			
IBM	125			
3 <b>M</b>	80			
Chevron	70			
Boeing	50			

The index value is therefore:

$$\frac{400}{0.20} = 2,000$$

Assume that the ratio of the index to the price of an ETF share has been pegged at 25:1. Thus the value of an ETF share at current prices, or the NAV, should be \$ 80. We will assume that each creation unit represents 50,000 shares of the ETF.

Let us first assume that the price of an ETF share is \$ 82.50. If so an arbitrageur will short sell 50,000 ETF shares, which will yield:

 $50,000 \times 82.50 = $4,125,000$ 

He will simultaneously acquire 50,000 ETF shares from the fund at the NAV, which will cost:

 $50,000 \times 80 =$ \$4,000,000

Thus there is an arbitrage profit of \$ 125,000.

#### Types of Mutual Funds and Exchange Traded Funds\_\_\_\_\_\_51

On the other hand, consider a case where the ETF shares are trading at \$ 78.00. If so, the arbitrageur will buy 50,000 ETF shares in order to assemble a creation unit. The cost will be:

$$50,000 \times 78 = $3,900,000$$

The creation units will be redeemed with the ETF in exchange for the underlying basket of securities, which can be sold. Since the ratio is 25:1, 50,000 ETF shares correspond to:

$$\frac{50,000}{25}$$
 = 2,000 times the index value

Since the divisor is 0.20, in order to create a portfolio with a dollar value equal to that of the index, we need five shares of each stock. Consequently, to redeem ETF shares equivalent to 2,000 times the level of the index, we need 10,000 shares of each component security. Thus the ETF will offer 10,000 shares of each stock to the arbitrageur, which can be sold in the market for:

 $10,000 \times (75 + 125 + 80 + 70 + 50) =$ \$4,000,000

Thus there is an arbitrage profit of \$ 100,000.

The exchange traded feature of an ETF offers many advantages to the investors. Traders have the flexibility to place conditional orders like limit orders and stop loss orders. They also have the freedom to engage in short sales, and undertake trades on the margin. Most ETFs also have the capability for call and put options to be written against them. These facilities are obviously not available in the case of open-end funds. ETF shares are typically purchased in round lots of 100, and attract the usual brokerage commissions.

ETFs also offer a benefit to investors as compared to open-end funds, from the standpoint of taxation. As illustrated earlier, sale of assets due to a large scale

redemption of shares, can lead to capital gains or losses for investors who continue to stay invested. In the case of ETFs, however, the fund can redeem a block of shares by offering the underlying securities in return to the authorized participant. This does not constitute a taxable event for the remaining shareholders. Therefore, investors in ETFs are usually subject to capital gains taxes only when they sell their shares in the secondary market at a price which is higher than the original purchase price. In practice, however, a limited amount of realized capital gains does get passed on to the investors, and is consequently taxable. This is because, there will be some amount of trading undertaken by the fund, albeit very infrequently. In addition, any cash dividends distributed by ETFs are taxable at the hands of the investor.

Table 2.2 **Popular ETFs** ETF Inception Index Tracked S&P 500 SPDR S&P500 Jan-93 May-00 S&P 500 iShares S&P500 **DJIA** Diamonds DJIA Jan-98 NASDAQ-100 (Qubes) NASDAQ 100 Mar-99

Some of the currently most popular ETFs are the following.

Source: www.yannipartners.com

SPDRs pronounced as Spiders, is an acronym for Standard and Poor's Depository Receipts. This was the first ETF, which was introduced on the AMEX in 1993. Although the S&P 500 index is maintained by Standard & Poor's, Spiders are managed by State Street. iShares are

#### Types of Mutual Funds and Exchange Traded Funds\_\_\_\_\_\_53

also based on the S&P 500 index, and are provided by Barclays Global Investors. Diamonds are based on the Dow Jones index, while Qubes are based on the Nasdaq-100 index.

ETFs pay dividends at periodic intervals. Shareholders may opt to take the payouts in the form of cash, or else opt for a re-investment option.

The 10 largest ETFs in the US, by net assets as of August 2009 are:

Table 2.3				
Top 10 ETFs in the US				
Fund	Net Assets in Millions of USD			
SPDR Trust Series I	82,140			
Vanguard Total Stock Market	72,340			
Power Shares QQQ Trust Series I	15,820			
Vanguard Emerging Markets	8,570			
DIAMONDS Trust Series i	8,130			
MidCap SPDR Trust Series i	7,560			
iShares Lehman 1-3 Year T-Bond Fun	d 6,770			
iShares MSCI Japan Index Fund	6,010			
iShares MSCI Brazil Index Fund	5,510			
iShares Dow Jones Select Dividend	4,780			
Index Fund				

Source: www.nasdaq.com

ETFs have become very popular in India. The funds that are available on the NSE are:

The McGraw Hill Companies

54	54 Mutual Funds and Retirement Planning		
	Table 2.4		
	ETFs on the National Stock Exchange		
	Index Based ETFs		
	Nifty BeES		
	Junior Nifty BeES		
	QNIFTY		
S&P (	CNX Nifty UTI Notional Depository Receipts Scheme (SUNDER)		
	Banking Stocks Based ETFs		
	Bank BeES		
	PSUBNKBEES		
	KOTAKPSUBK		
	RELBANK		
	Gold ETFs		
	GOLDBEES		
	KOTAKGOL		
	GOLDSHARE		
	RELGOLD		
	QUANTUMGOLD		
Liquid Funds			
Liquid	Benchmark Exchange Traded Scheme (Liquid BeES)		

Let us look at the major funds in more detail. SUNDER commenced trading on 16 July 2003. The share has a

### Types of Mutual Funds and Exchange Traded Funds\_\_\_\_\_ 55

face value of Rs 100, and the value of the share is pegged at 1/10th the value of the NIFTY index. The creation unit size is 10,000 plus multiples of 2,000 units for APs, and 500,000 units plus multiples of 20,000 units for other investors.

NIFTY BeES was the first ETF to be introduced in India, and commenced trading on 8 January 2002. The face value of a share is Rs 10, and each share is pegged at 1/10th the value of the NIFTY index.

Liquid BeES was the first money market mutual fund to be launched in the world. The fund declares a daily dividend which has to be compulsorily re-invested in the fund. The face value of a share is Rs 100. Direct transactions with the fund, entail a minimum subscription of Rs 2,500,000 and a minimum redemption of 2,500 units.

### Gold ETFs

These funds invest in gold and gold related securities. They have proved to be very popular in India, which is not surprising, considering the premium that Indians have traditionally placed on the yellow metal. When a gold ETF is launched, the APs will give money to the AMC, which will buy gold at the prevailing market price. The actual metal will then be deposited with a custodian.

### **Actively Managed ETFs**

Traditionally ETFs have been based on popular stock indices like the S&P 500 and the Dow Jones index, or on precious metals such as gold. The underlying portfolio which mirrors a market index, changes infrequently if at all. Thus, like index-based mutual funds, traditional ETFs do not require significant effort by way of management.

A new class of ETFs has now emerged which aim to not just track an index, but to outperform the benchmark. Like equity mutual funds, these funds have to be actively managed by the fund manager, although they are structured like a conventional ETF.

Such funds pose some challenges in practice. ETFs, unlike mutual funds, are required to reveal their holdings on a daily basis.<sup>5</sup> So, in the case of actively managed ETFs, in principle, real time disclosure of the portfolio composition is required. One problem that this can lead to is a phenomenon called *front running*. What is frontrunning? Front running is an illegal practice, whereby a market intermediary with advance knowledge of a customer's order places an order on his or her behalf to profit from the impending price rise or decline. For instance, if a broker receives a large buy order from a client, he can first place a buy order for himself. If as anticipated, the customer's order pushes up the market, the broker can exit with a profit. On the other hand, if a large sell order from a customer is pending, the broker can short sell the security. If the anticipated decline were to materialize after executing the client's order, the short position can be covered. One solution that has been suggested in order to prevent this practice, is to have funds trade less frequently, perhaps once a day or once a week. It has also been suggested that portfolio holdings be released after the close of markets on the day of the trade. This could substantially curb front-running, since a large portion of the trade is likely to be complete before the information is disclosed to the public.

Yet another problem with an actively managed fund is that arbitrage cannot occur until the composition of the fund's portfolio is revealed. Consequently in practice, like

<sup>&</sup>lt;sup>5</sup>Mutual funds only do so periodically.

### Types of Mutual Funds and Exchange Traded Funds \_\_\_\_\_ 57

in the case of a closed-end fund, shares of such funds could trade during the day at a substantial premium or discount to the fund's NAV.

### Segregated (Separately Managed) Accounts

Many high-net-worth (HNW) investors dislike mutual funds because of their inability to control their tax liabilities, their inability to influence investment choices, and the absence of '*special service*'. Money managers offer the facility of separately managed investment accounts for such investors. These are obviously more expensive from the standpoint of the investor as compared to a mutual fund. But they mitigate the problems discussed above. For the money managers, the fee income from such accounts is higher, but so are the service costs. <u>3</u> C H A P T E R

# Services Offered by Mutual Funds and Investment Strategies

UTUAL FUNDS PROVIDE A VARIETY of services to shareholders. All mutual funds do not provide the same menu of shareholder services. However, a complete bouquet of investor services should include at least the following options.

**Automatic Reinvestment Plan** 

Most mutual funds offer the option to shareholders of automatically reinvesting all income and capital gains that are distributed to them. This option allows for shareholders to accumulate shares of the fund in an easy and systematic fashion. Automatic re-investment is always a voluntary option, that is, the investor must specifically opt for it. Shareholders may if they desire, take the

### \_\_\_\_ Services Offered by Mutual Funds and Investment Strategies \_\_\_\_\_ 59

distributions in the form of cash, but the benefits of compounding will be lost. Whether the distributions are reinvested or taken in the form of cash, they are subject to taxes. In most cases, however, reinvested dividends and capital gains, are not subject to loads.

### **Reinvestment and the Power of Compounding**

Assume that an investor buys a share of a mutual fund during its IPO. The cost of acquisition is \$ 10. Assume that the NAV of the fund at the end of the next five years is as follows.

Table 3.1			
Year-end NAVs			
Year	NAV		
1	11.00		
2	12.50		
3	11.50		
4	14.00		
5	15.00		

Assume that the fund distributes a dividend of \$ 2.50 per annum. If the dividends are not re-invested, the annual rate of return for the investor over the five year period is:

$$\frac{(15-10) + 5 \times 2.50}{5 \times 10} \equiv 35\%$$

Now assume that the dividends are re-invested in the fund. At the end of each year an additional number of shares, equal to the annual dividend divided by the yearend NAV will be acquired. The number of shares owned

by the investor at the end of each year if he were to follow this strategy is given below.

Table 3.2			
Year-end # of Shares			
Year	# of Shares		
1	1.2273		
2	1.4728		
3	1.7930		
4	2.1132		
5	2.4654		

The value of the investment at the end of five years will be  $2.4654 \times 15 =$ \$ 36.98. The rate of return per annum, is given by:

$$\frac{(36.98 - 10)}{5 \times 10} = \frac{26.98}{50} \equiv 53.96\%$$

The average annual geometric return, assuming that the dividends are re-invested in the fund is given by:

 $36.98 = 10 \times (1+i)^5 \Rightarrow i \equiv 29.90\%$ 

# Systematic Investment Plan

This kind of a plan requires the investor to commit to purchasing shares worth a pre-determined dollar amount on a regular basis for a specified period of time. In the case of such plans, the investor gets to decide on the dollar amount, the frequency, and the length of time the plan is to continue. In the US, these are referred to as *contractual accumulation plans*. \_ Services Offered by Mutual Funds and Investment Strategies \_\_\_\_ 61 Voluntary Accumulation Plan

In these plans, the shareholder voluntarily purchases additional shares at periodic intervals. Each purchase must meet the fund's minimum investment requirement. With a voluntary plan, the investor can change the amount that he invests each time, the frequency with which he makes investments, and the duration of the plan.

# **Cheque Writing**

Many mutual funds, and all money market funds, offer the facility of free cheque writing. This option is not available for tax-deferred retirement accounts. There is no restriction on how many cheques one may write each month, as long as the account balance is not reduced below the minimum required to maintain the account. Each cheque should be for an amount greater than or equal to the minimum specified by the fund.

# Switching within a Family of Funds

Most investment companies permit shareholders to switch from one fund to another within the family. Usually all that is required is a telephone call from the investor to the fund's toll-free number. In most cases this feature is offered at no cost. Telephone switching is a strategy whereby the investor attempts to capitalize on the cyclical swings in the stock market. If the market trend is bullish, he may opt to keep his entire investment in a stock fund. However, if the outlook were to become bearish, he may opt to switch to a money market fund. There are many sources

that provide advice on when to switch. These include various newsletters such as  $^{1}$ :

- Donoghue's Moneyletter
- Fabian Telephone Switch Newsletter
- InvesTech Market Letter
- Professional Timing Service
- Time Your Switch

# **Voluntary Withdrawal Plans**

These plans require the shareholder to initiate the request for redemptions whenever they desire to withdraw funds. Shareholders may also establish a plan whereby the shares of the fund will be redeemed periodically, so that a fixed dollar amount is credited to the shareholder's bank account every period. This can be construed as a *systematic withdrawal plan*.

# **Investment Techniques**

### **Dollar Cost Averaging**

In this investment technique one must invest the same amount of dollars at regular intervals in the same security or group of securities over a long period of time, without regard to the price level of the security. The key to dollar cost averaging is the mathematical certainty that if the price of a security continuously rises and falls, the average cost will be less than the average price. This is because your dollars will buy more shares when the NAV is low, and less when the NAV is high. The major disadvantage of this strategy is that it fails to tell you when to buy, sell,

<sup>&</sup>lt;sup>1</sup>See Jacobs (2001).

\_ Services Offered by Mutual Funds and Investment Strategies \_\_\_\_\_ 63

or switch. Thus the valuable benefit of the switching option is completely lost.

Consider the following year-end NAVs for a mutual fund over a five year period.

Table 3.3			
Year-end NAVs			
Year	NAV		
1	11.25		
2	12.50		
3	10.75		
4	12.00		
5	13.50		

Assume that the NAV at the start of the period is \$ 10, and that an individual invests \$ 1,000 in the fund per annum, for a period of five years. The number of shares held by him at the end of every year and their value is as depicted in the table below.

Table 3.4					
Illustration of Dollar Cost Averaging					
Time	NAV	# of Shares	Value of Shares	Average Cost	
0	10.00	100.0000	\$ 1,000.0000	10.0000	
1	11.25	188.8889	\$2,125.0000	10.5882	
2	12.50	268.8889	\$ 3,361.1113	11.1570	
3	10.75	361.9122	\$ 3,890.5562	11.0524	
4	12.00	445.2455	\$ 5,342.9460	11.2298	
5	13.50	519.3196	\$ 7,010.8146	11.5536	
The average cost of the shares at the end of each period is given in the last column of the above table. It fluctuates from 10.00 to 11.5536, although the NAV itself fluctuates from 10.00 to 13.50.

The average NAV of the share over this period is:

$$\frac{(10+11.25+12.50+10.75+12.00+13.50)}{6} = \$ \ 11.6667$$

#### Value Averaging

It is a more sophisticated yet relatively easy means of increasing the value of your investment over time. For example let us assume that you have invested \$ 10,000 in a mutual fund to start with (at an NAV of \$ 10) and that you want your investment to increase in value by \$ 2,000 every year. In a value averaging strategy you will consider the portfolio value at the end of each year. If the increase in the balance is exactly \$ 2,000 do not do anything. If the increase is less than \$ 2,000, invest an amount that is adequate to increase the account balance by \$ 2,000, as compared to the previous year. If the increase in the account balance exceeds \$ 2,000, withdraw the excess balance in the account. Consider the following table.

Table 3.5					
Illustration of a Value Averaging Strategy					
Time	NAV	# of Shares	Account Balance Required	Add. Invt. in Dollars	Add. Invt. in Shares
0	10.00	1,000.0000	\$ 10,000		
1	11.25	1066.6667	\$ 12,000	\$750.0000	66.6667
2	12.50	1,120.0000	\$ 14,000	\$ 666.6663	353.3333 (Contd.)

-	_ Service	es offered by Mi	uluai runus a	nu mvestment stra	llegies 05
Table 3.5 (Contd.)					
Time	NAV	# of Share	es Accour Balanc Require	nt Add. ce Invt. ed in Dollars	Add. Invt. in Shares
3	10.75	1,488.3721	\$ 16,000	\$3,960.0000	368.3721
4	12.00	1,500.0000	\$ 18,000	\$ 139.5348	11.6279
5	13.50	1,481.4815	\$ 20,000	\$ (250.0000)	(18.5185)

Services Offered by Mutual Funds and Investment Strategies \_\_\_\_ 65

Let us analyze the first two entries in the above table. At the outset the investor invests \$ 10,000. Since the NAV is \$ 10, he acquires 1,000 shares. The value of these shares at the end of the first year is  $11.25 \times 1,000 = $11,250$ . The required balance in the account is \$ 12,000. So the number

of shares required is  $\frac{12,000}{11.25} = 1,066.6667$ . Since he already has 1,000 shares, he needs to acquire 66.6667 shares. The additional investment in dollars is  $11.25 \times 66.6667 =$ \$ 750. Readers should be able to extend the logic to the remaining entries.

### **The Combined Method**

One can always combine the features of dollar cost averaging and value averaging. For example let us assume that the investor starts with an investment of \$ 5,000 in a money market mutual fund and \$ 5,000 in a stock fund, which would mean that he has invested \$ 10,000 for the year. So at the outset he will commence with an investment

of 500 shares in the stock fund. That is,  $\frac{5,000}{10} = 500$ . The

investor's strategy is to invest \$ 10,000 every year in both funds combined, and his requirement is that the stock fund must increase in value by \$ 2,000 every year.

At the end of the first year, the stock fund will have a value of  $500 \times 11.25 = $5,625$ . Since the expectation was that the fund would increase in value by \$2,000, there is a deficit of \$1,375. Thus at the end of the first year, he must invest \$6,375 in the stock fund. Of this, \$5,000 would be the scheduled investment for the year, and \$1,375 would be to cover the deficit. Since he had planned to invest a total of \$10,000 for the year, the balance \$3,625 must be invested in the money market fund. The total number of stock fund shares held at the end of the year will be:

$$500 + \frac{6,375}{11.25} = 500 + 566.6667 = 1,066.6667$$

At the end of the second year the value of the stock fund will be  $1,066.6667 \times 12.50 = $13,333.3338$ . Since the expectation was that the fund would increase in value to \$14,000, there is a deficit of \$666.6662. Thus at the end of the year, an amount of \$5,666.6662 must be invested in the stock fund. Of this, \$5,000 would represent the investment for the year, and the balance would be to cover the deficit. Obviously, \$4,333.3338 must be invested in the money market fund. The total number of stock fund shares held at the end of the year will be:

$$1,066.6667 + \frac{5,666.6667}{12.50} = 1,066.6667 + 453.3333 = 1,520$$

The value of the stock fund at the end of the third year will be  $1,520 \times 10.75 = $16,340$ . The expectation was that the fund would increase in value to \$21,000. Thus there is a deficit of \$4,660. Thus at the end of the year, an amount of \$9,660 must be invested in the stock fund. Of this, \$5,000 would be the investment for the year, and the balance would be to cover the deficit. \$340 must be

\_ Services Offered by Mutual Funds and Investment Strategies \_\_\_\_ 67

invested in the money market fund at this point in time. The total number of stock fund shares held at the end of the year will be:

$$1,520 + \frac{9,660}{10.75} = 2,418.6047$$

The value of the stock fund at the end of the fourth year will be 2,418.6047  $\times$  12 = \$ 29,023.2564. The required balance in the fund will be \$ 28,000. Thus there is an excess of \$ 1,023.2564. Consequently shares of the stock fund equivalent to this amount must be sold, and this amount plus the investment of \$ 10,000 for the year must be invested in the money market fund. Thus the investment in the money market fund must be \$ 1,1023.2564. The total number of stock fund shares held at the end of the year will be:

$$2,418.6047 - \frac{1,023.2564}{12} = 2,333.3333$$

At the end of the fifth year, the value of the stock fund will be  $2,333.3333 \times 13.50 = $31,500$ . The required balance in the fund will be \$35,000. Thus there will be a deficit of \$3,500. Hence at the end of the year, an amount of \$8,500 must be invested in the stock fund. Of this, \$5,000 would be the investment for the year, and the balance \$3,500 would be to cover the deficit. \$1,500 must be invested in the money market fund at this time.

# **Total Return from a Mutual Fund**

Mutual funds report a statistic called the *total return*. The underlying assumption is that any payouts by way of dividends or capital gains distributions, are re-invested in order to acquire additional shares of the fund. The first

step while computing a total return for an *N*period horizon, is to define the re-investment factor for a period.

The re-investment factor for period *i*, is defined as:

$$R_i = \frac{d_i \times R_{i-1}}{P_i} + 1$$

where

 $R_i \equiv$  reinvestment factor for period *i*.  $R_0$  is obviously 1.0.  $d_i \equiv$  payout for period *i*.

 $P_i \equiv$  NAV at the end of period *i*.

The re-investment factor for each year using the NAVs given in Table 3.6, and assuming a payout of \$ 2.50 per year, is given in the table below.

Table 3.6			
Table of Re-investment Factors			
Year	Re-investment Factor		
1	1.2273		
2	1.2455		
3	1.2708		
4	1.2269		
5	1.2045		

The total return is defined as:

$$\mathrm{TR} = \frac{\mathrm{NAV}_N \times R_N - \mathrm{NAV}_0}{\mathrm{NAV}_0}$$

where  $\text{NAV}_t \equiv$  net asset value at time *t*. Thus in our example the total return is:

$$\frac{15 \times 1.2045 - 10}{10} \equiv 80.675\%$$

<u>Services Offered by Mutual Funds and Investment Strategies</u> 69 Calculating an Investor's Return in Practice

Investors typically do not make a one-time investment at the start of a financial year, and liquidate their holdings at the end. Often they periodically make fresh investments, as well as redeem shares. As far as distributions are concerned, some payouts may be re-invested while others may be taken in the form of cash.

In order to calculate an investor's return, we need to project the cash flow for each month of the year and compute the internal rate of return or the IRR. Assume that an investor buys 1,000 shares at time 0 at an NAV of \$ 10. Assume that at the end of the second month he invests an additional \$ 3,720 in the fund, and that at the end of the fourth month, he redeems shares worth \$ 2,550. We will assume that the dividends received at the end of quarters one and three, are withdrawn in the form of cash, while the payment received at the end of the second quarter is re-invested in the fund. Assume that the NAV of the fund, at the end of each month, and the dividends declared every month, are as depicted in the table below.

Table 3.7			
Monthly NAVs			
Month	NAV	Dividend	
0	10.00	0.00	
1	11.25	0.00	
2	12.40	0.00	
3	11.15	1.00	
4	12.75	0.00	

(Contd.)

The McGraw Hill Companies

70 _	Mutual Funds and Retirement Planning			
Table 3.7 (Contd.)				
	Month	NAV	Dividend	
	5	13.00	0.00	
	6	12.50	1.25	
	7	15.50	0.00	
	8	16.00	0.00	
	9	15.00	2.00	
	10	13.50	0.00	
	11	14.75	0.00	
	12	12.25	0.00	

The cash flows for each month are shown in the table below. Outflows are shown with a negative sign. Payouts which are re-invested in the fund do not lead to a flow of cash, but will lead to the accumulation of additional shares.

Table 3.8			
Monthly Cash Flows			
Month	Cash Flow		
0	-10,000		
1	0		
2	-3,720		
3	1,300		
4	2,550		
5	0		
6	0		
7	0		

(Contd.)

Tabla	2 9 (Cantel )		
lable 3.8 (Contd.)			
Month	Cash Flow		
8	0		
9	2,420		
10	0		
11	0		
12	14,822.50		

<u>Services Offered by Mutual Funds and Investment Strategies</u> 71

Let us understand the entries in the above table. The initial investment of 1,000 shares entails an outflow of \$ 10,000. At the end of month two, an additional \$ 3,720 is invested. Since the prevailing NAV is \$ 12.40, this will amount to an acquisition of 300 shares. The total number of shares is now 1,300. A dividend of \$ 1.00 is declared at the end of the third month. This will lead to an inflow of \$ 1,300. At the end of the fourth month there is a redemption of \$ 2,550. Since the prevailing NAV is 12.75, this is equivalent to 200 shares. Thus the number of shares held, stands reduced to 1,100. A dividend of \$ 1.25 is declared after six months. Since this is re-invested, the number of shares held, will increase by:

$$\frac{1,100 \times 1.25}{12.50} = 110 \text{ shares}$$

Thus the total number of shares at this point is 1,210. At the end of the ninth month, a dividend of \$ 2 per share is declared. This will lead to an inflow of \$ 2,420. Finally at the end of 12 months, the value of 1,210 shares at an NAV of 12.25 is \$ 14,822.50.

The IRR is 4.7033%. It is a monthly rate. If we annualize it, we get:

 $(1.047033)^{12} - 1 = 0.735904 \equiv 73.5904\%$ 

### A Further Touch of Realism

In the above illustration we assumed that all cash flows occurred at the end of the corresponding period, which is the standard assumption in an IRR calculation. In other words, the length of each period is identical. However, in real life, an investor may invest or withdraw at any time during the month. We can build in this facet by using the XIRR function in EXCEL. Let us assume, that we are in the year 2008, and that the third cash flow of \$ 3,720 occurs on 10 February and not the end of February, and that the fifth cash flow of \$ 2,550 occurs on 21 April and not at the end of the month. All the other cash flows are assumed to occur at the end of the respective months. The answer comes to be 72.3475%.

C H A P T ER

# **Retirement Plans**

# **Pension Plans**

HAT IS A PENSION? A pension is a form of income that is given to a person, usually after retirement. In many cases, the payment to the pensioner takes the form of a guaranteed annuity, or cash flows at periodic intervals typically every month. In some cases, a pension scheme may permit an employee to draw upon a cash balance at retirement, rather than receive payments on a regular basis. Thus a pension is a form of deferred employee compensation which is usually beneficial for both employers and employees for tax reasons. The employer's contribution may be tax deductible within limits, as may be the employee's contribution. Besides, the earnings in a pension plan usually accumulate on a tax-free basis. Consequently, the only time that a pensioner has to pay tax, is when he receives a distribution from the fund. Since retired persons will usually be in a lower tax bracket, the income from such plans will be taxed at a lower rate. Most pensions also contain an insurance aspect.

First, they will usually pay benefits to a beneficiary, typically the spouse, if the pensioner were to die. In some cases, the beneficiary may be entitled to only a fraction of the amount that the pensioner would have received had he survived. Second, the promise of an assured income for life protects the pensioner against the risk of longevity.

Pension plans may be established or sponsored by various parties. Corporate pension plans, also known as private pension plans, are set up by organizations in the private sector on behalf of their employees. Similar plans, which are set up by federal, state, and local governments for their employees, are referred to as public pension plans. Trade unions in the US can set up pension plans on behalf of their members, and these are known as *Taft-Hartley* plans.<sup>1</sup> Finally, individual citizens can set up pension plans for themselves known as *Individual Retirement Accounts* or IRAs.

# **Types of Plans**

Pension plans can be divided into two broad categories: *defined benefit plans* and *defined contribution plans*. Until the 1980s defined benefit plans were the most popular and common types of pension plans in the US. Subsequently defined contribution plans have become more prevalent.

# **Defined Benefit Plans**

A traditional pension plan that defines a benefit for an employee upon his retirement is known as a defined benefit plan. In such plans, the sponsor agrees to make

<sup>&</sup>lt;sup>1</sup>See Fabozzi et al. (2002).

#### **Retirement Plans** \_

specified payments to qualifying employees beginning at retirement.<sup>2</sup> These payments are typically made on a monthly basis. The quantum of the payments is determined by a formula that usually takes into account the length of service of the employee, his salary, and his age at retirement. A simple defined benefit plain is a flat dollar plan, like for instance a plan that promises to pay \$ 250 per month for every year that an employee has worked with an organization. Thus, if an individual has put in 20 years of service, he will receive \$ 5,000 per month after retirement. Most defined benefit plans in the US are *final average plans* where the average salary over the past three to five years of an employee's career is used to determine the pension. In Britain, benefits are often indexed for inflation.

From the standpoint of the sponsor, the pension obligation is effectively a debt obligation. Therefore, sponsors of such plans are exposed to the risk that there may be insufficient funds in the plan to satisfy the regular contractual payments that must be made to retired employees. The employer needs to make a prediction of the future benefits to determine the amount of the contribution required currently. The calculation of the current contributions required to support the promised future payments is made by discounting the projected future cash flows. The entire investment risk in these plans is borne by the employer. Actuaries are asked to provide estimates of current pension expenses and the liability of the employer.

Such plans tend to be less portable than defined contribution plans, even if the plan allows a lump sum cash benefit at the time of termination of employment. This is because it is not easy to compute the transfer value.

<sup>&</sup>lt;sup>2</sup>In the case of death before retirement, some payments are made to a nominated beneficiary.

The plus point of such plans is that the annuity stream is guaranteed, as a consequence of which retirees need not bear the risk of low returns on their contributions. Nor need they worry about outliving their retirement income. The cost of such plans is very low for a young workforce. But it can be considerably higher for an older workforce due to the decreasing time for the growth of assets. For all these reasons, defined benefit plans are better suited to large employers with less mobile workforces, such as public sector companies.

The cost of such plans is not easily calculated. Despite the best of forecasting techniques the calculated cost is at best an estimate that is very much a function of a set of assumptions.

The funding status of the plan depends on the difference between the Plan Assets and the Projected Benefit Obligation.

If the assets exceed the obligation the plan is said to be over-funded, whereas if the assets are less than the obligation then the plan is said to be under-funded. If the plan is under-funded employees may lose earned benefits if the company were to go bankrupt.

A plan sponsor establishing such a plan, can use the payments made into the fund to purchase an annuity policy from a life insurance company. Defined benefit plans which are guaranteed by life insurance companies, are called insured benefit plans. These are not necessarily safer than un-insured plans, because they depend on the ability of the insurance company to make the contractual payments, which is something that cannot be guaranteed.

Pension plans are regulated by the Employee Retirement Income Security Act of 1974 (ERISA). ERISA established funding standards for defined benefit plans by requiring the sponsor to make the minimum contributions necessary

#### Retirement Plans \_\_\_\_\_

to satisfy the actuarially projected benefit payments. Prior to the enactment of ERISA, many corporate sponsors were following a 'pay-as-you-go' policy. In such unfunded schemes, no assets are set aside periodically, and at the time of an employee's retirement the sponsor pays for the necessary retirement benefits out of his current cash flows. ERISA put a stop to this practice by ensuring that all programs were funded. Regular funding is intended to ensure that contributions plus the earnings from investment are adequate to cover the retirement benefits. Secondly, ERISA established fiduciary standards for pension fund trustees, managers, and advisors. More specifically, all parties responsible for the management of a pension fund, are expected to act 'prudently' from the standpoint of taking investment decisions. ERISA also specified minimum vesting standards. And finally, ERISA created the Pension Benefit Guaranty Corporation (PBGC) to insure vested pension benefits. The insurance program is funded from the annual premiums that must be paid by the sponsors of pension plans.<sup>3</sup>

# **Defined Contribution Plans**

In the US, a defined contribution plan is one that provides an individual account for each participant. In the case of such plans, the sponsor is responsible only for making specified contributions into the plan on behalf of qualifying participants, and is not responsible for making a guaranteed payment to the employee after retirement. The amount that is contributed in the case of such plans, is typically either a percentage of the employee's salary and or a percentage of the employer's profits. In this case the payments made after retirement to qualifying

<sup>&</sup>lt;sup>3</sup>See Fabozzi et al. 2002.

participants, would depend on how the assets of the plan have grown over time. In other words, the retirement benefit payments are determined by the performance of the assets in which the contributions made into the plan have been invested. The plan sponsor usually gives the participants various options as to the investment vehicles in which the contributions should be invested. The contribution made to the account is invested in assets such as stocks, and the returns, both gains as well as losses, are credited to the account. On retirement, the balance in the account is used to provide the retirement benefits, often by purchasing an annuity from an insurance company. Such plans have become more widespread and are now the norm for private sector companies in most countries.

Examples of such plans in the US are Individual Retirement Accounts (IRAs) and 401(k) plans. In such plans the employee is largely responsible for selecting the investments to which the funds from his account will be allocated. Typically the funds are invested in a number of mutual funds.

Such plans are cheaper to administer than defined benefit plans. Besides, it is relatively easy to determine the liability, unlike in the case of defined benefit plans where the services of an actuary are required to forecast the cost. Consequently, such plans are largely portable.

## Vesting

Benefits become vested when employees reach a certain age and complete enough years of service, so that they meet the minimum requirements for receiving benefits upon retirement. What is the meaning of vesting? Full vesting means that you are fully entitled to the

#### **Retirement Plans**

contributions your employer has made to the plan. There are rules that specify as to how long an employee must participate in a pension plan, before the accrued benefits are irrevocably his. In practice a plan member will usually become entitled to the full benefits over a period of time, a process which is known as graded vesting. In such cases a schedule is specified. That is, the percentage of benefits to which an employee is entitled, increases with each additional year of service up to a point, after which the plan becomes fully vested. In the US, under the graded vesting system, an employee will become vested in 20% of the accrued benefits after an initial period of service. For each additional year of service he will become vested in an additional 20%. Obviously full vesting will take four years after the vesting process commences. The initial period of service is determined based on how the employer's contribution is calculated. If the employer's contribution is a fixed percentage of an employee's contribution, then the initial period is two years. In such cases full vesting will obviously take six years. However, if the employer's contribution is unrelated to that of the employee, then the initial period will be three years, and full vesting will take seven years.

Some pension plans may specify that full vesting will occur as soon as the waiting period is over, a process that is called *cliff vesting*. The waiting period for employees once again depends on how the employer fixes his contribution. If the employer's contribution is a fixed percentage of the employee's contribution, then the waiting period is three years. However, if the employer's contribution is unrelated to that of the employee, then the waiting period is five years.

If an employee were to leave the job before becoming fully vested, he will have to forfeit all or part of his or her employer-paid benefits. However, if he were to leave after

the benefits are fully vested, he will be entitled to all the contributions made until then. It must be noted that vesting of benefits applies only to contributions made by the employer. An employee is always entitled to the contributions made by him, irrespective of how long he chooses to stay with the firm. Once benefits become vested, their payment is not contingent upon a participant's continuation with the employer. The process of vesting therefore serves to discourage employees from quitting, till the benefits are fully vested.

Vesting in a defined contribution plan applies to the funds deposited and their investment earnings, and not to the promised benefits like in the case of a defined benefit plan.

## Funding

The funding status of a pension plan is very important in the context of defined benefit plans. In a funded plan, contributions from the employer, and in certain cases from the employee as well, are invested in a fund. However, the return on investments and the magnitude of future benefits are not known in advance. Consequently the current level of contribution may be inadequate to satisfy the projected benefits, a phenomenon known as *underfunding*. Thus, in practice, the contributions are periodically reviewed by an actuary. When an employer faces financial difficulties, it could lead to under-funding of such plans. In the US, companies with plans which are not fully funded are subject to special excise taxes. In addition, under-funded plans, even if they have met the minimum funding requirement for that year, have to pay a higher insurance premium to the Pension Benefit Guaranty Corporation. The minimum funding required for a plan

#### Retirement Plans \_\_\_\_\_

consists of two components. The first represents an amount that is required to fund benefits that are currently accruing. The second component, is an additional amount to amortize un-funded liabilities that have been carried over. However, the magnitude of the required contribution for a year may be reduced due to higher returns from investments which have performed better than expected. The required funding amount will also stand reduced if there are any forfeitures on account of employees who quit the organization before their benefits become fully vested.

A logical question that a reader may have is "Why can't an employer resort to over-funding during good years to mitigate the impact of under-funding during bad years?". The answer is that the tax laws in the US discourage such a practice. Any employer contribution in excess of what is required to ensure full-funding, is not eligible for tax benefits. Sometimes however, a plan may naturally become over-funded due to a booming securities market. In such conditions, the employer cannot withdraw the additional funds without paying a special excise tax.

# 401(k) and 403(b) Plans

401(k) plans are a type of employer sponsored defined contribution retirement plans in the US. The term 401(k)refers to a specific provision of the tax code of the US Internal Revenue Service. However, the term has become generic and other countries are using the term to describe similar plans, even though the applicable provisions under their income tax codes may be different. For instance, in October 2001, Japan adopted a legislation which allows the creation of Japan-version 401(k).<sup>4</sup>

<sup>&</sup>lt;sup>4</sup>See en.wikipedia.org.

A traditional 401(k) plan allows an employee to save for retirement while deferring income taxes on the amounts saved as well as the earnings on them. Taxes have to be paid only on withdrawal. Employees can have a portion of their wages paid directly into their 401(k) account. There are two options for deciding the investment choices. In a participant directed plan, which is more common in the US, the employee can select from a variety of investment options, which in practice usually means a choice of mutual funds. In many cases, an employee can purchase the stock of his own company. The relative allocation among different asset classes is not fixed, and a participant can change his option at any time. There also exist trustee directed 401(k) plans, where a trustee, who is appointed by the employer, takes decisions on how the assets of the plan will be invested.

The assets held in a 401(k) plan are generally protected from the creditors of the account holder. Such plans, are also protected in the event of the employer going bankrupt. ERISA requires that all 401(k) deposits be held in custodial accounts. It must be understood that loss protection provisions do not extend to losses in the value of the investments suffered because of market forces.

Some employers match employee contributions to some extent, thereby providing the employees with an incentive to save more money. Employers may choose to make contributions linked to their profits, or else may opt to contribute a fixed percentage of the wages of the employee. The contributions made by the employer may vest over an extended period of time, thereby providing an inducement to the employee to continue to remain in service with the employer.

If an employee changes his job, the assets in his 401(k) account can be rolled over to an IRA at a financial

#### Retirement Plans \_\_\_\_\_

institution. IRAs, which we will study shortly, are retirement plans set up by individuals themselves. If the new employer also has a 401(k) plan or another eligible retirement plan, then the assets can be rolled over into such a plan.

Most 401(k) contributions are made on a pre-tax basis. For instance, if the salary of an individual is \$ 40,000, and he opts to invest \$ 2,500 in a 401(k) plan, then for the purpose of computing income tax, only \$ 37,500 will be recognized as income. So if the individual is in a 30% tax bracket, his tax burden will decline by  $2,500 \times 0.3$  or \$ 750. Thus his effective contribution to the plan will only be \$ 1,750, although his benefits will be compounded on an amount of \$ 2,500. Taxes will, however, have to be paid at the time of withdrawal. The amount that is withdrawn is treated as ordinary income at that point of time.

Since the year 2006, employees are allowed to use the Roth 401(k) provisions to contribute on an after-tax basis. Roth accounts are named after Republican senator William Roth Jr. of Delaware. In the case of these accounts, while investments are made on a post-tax basis, qualified withdrawals are tax-free. To qualify for the tax-exempt status, withdrawals must be made not before five years have elapsed from the first contribution, and not before the year in which the account holder turns  $59\frac{1}{2}$ .

Most employers impose restrictions on withdrawals from a 401(k) plan while a person remains in service and is below  $59\frac{1}{2}$  years of age. Withdrawals, if at all permitted, will attract a federal tax penalty of 10% on the amount withdrawn. In addition, the amount withdrawn will be subject to tax at the applicable rate.

\_ 83

Many plans allow employees to avail of loans from their accounts. Such loans must be repaid with after-tax funds, at a pre-specified rate of interest. The interest that is paid on such loans, becomes a part of the 401(k) balance. The loan itself is not taxable as income, and nor is it subject to an early withdrawal penalty, provided it is paid back in accordance with the relevant provisions of the income tax code.

Minimum withdrawals from such accounts must begin from at least the year in which the employee turns  $70\frac{1}{2}$ years of age. This provision applies to normal 401(k) plans as well as Roth plans. This minimum is calculated based on a factor that is taken from the appropriate IRS table. It is based on the life expectancy of the account holder and possibly his/her spouse as beneficiary if applicable.

401(k) plans have proved very popular with employees for a number of reasons. Firstly, they allow for higher annual contributions than IRAs. For instance, in the year 2009 the maximum allowable contribution is \$ 16,500. This limit is linked to inflation, and will increase in increments of \$ 500. Second, such plans normally come with a matching contribution from the employer. Third, they come with a loan facility. The sum total of the employee's and employer's contributions cannot exceed a specified limit or 100% of the employee's compensation which ever is less. The limit for the year 2009 is \$ 49,000. The limit is enhanced every year and is indexed to compensate for the effects of inflation.

Employers too find such plans to be appealing compared to traditional defined benefit plans. An employer may or may not make a matching contribution or may choose to make a profit-based contribution. If he chooses not to contribute, the cost of managing such a plan is restricted to plan administration and support costs.

#### Retirement Plans \_\_\_\_\_

Such plans provide employers with tremendous flexibility. They can always choose to make contributions in years in which profits are high, and reduce or eliminate them in years in which profits are low.

Non-profit organizations offer 403(b) plans, which are similar to 401(k) plans and allow investments in either annuities or mutual funds.

# IRAs

IRA is an acronym for an individual retirement account. They are available to people below the age of  $70\frac{1}{2}$ . An individual under the age of 50 may invest a maximum of \$ 5,000 per year, as of the year 2009. The limit for individuals aged 50 or over is \$ 6,000. Earnings grow on a tax-deferred basis. Withdrawals made after the age of  $59\frac{1}{2}$  are free of penalties. An investor who withdraws prior to attaining the age of  $59\frac{1}{2}$  has to pay a 10% tax. Most mutual fund companies in the US offer IRAs. An account holder must withdraw at least a calculated minimum amount by April 1st of the year after he reaches the age of  $70\frac{1}{2}$ . This minimum is calculated based on a factor that is taken from the appropriate IRS table. It is based on the life expectancy of the account holder and possibly his/ her spouse as beneficiary if applicable. If the required minimum is not withdrawn, there will be a penalty equivalent to 50% of the amount that should have been withdrawn.

#### **Roth IRAs**

These allow investors to invest up to \$5,000 per year in the year 2009, if the investor is below the age of 50. The limit for older individuals is \$6,000. However, this limit

of \$ 5,000/ \$ 6,000 is applicable for contributions to both IRAs and Roth IRAs combined. Thus, if an individual contributes \$ 3,000 to an IRA in 2009, and he is below the age of 50, then he cannot contribute more than \$ 2,000 to a Roth IRA. The contributions to a Roth IRA are not tax-deductible. But withdrawals are not subject to taxes if the money is kept invested for at least five years, and the recipient waits till he attains the age of  $59\frac{1}{2}$ . Investors can invest beyond the age of  $70\frac{1}{2}$ , and unlike in the case of a conventional IRA, withdrawals need not necessarily begin at that age.

## SEP-IRAs

These are designed for the owners of small businesses. SEP is an acronym for *Simplified Employee Pension*.

## **Keogh Plans**

These plans are meant for qualified self-employed individuals and their workers.

## Variable Annuities

A variable annuity is a contract between an investor and an insurance company, under which the insurer agrees to make periodic payments. Such contracts have features of both a life insurance, as well as an investment product. In the US, such contracts may be issued only by a life insurance company. Since insurance companies are regulated by the states, contracts or options that may be available in a particular state(s), may not be available in others.

There are two types of variable annuities: *deferred annuities*, and *immediate annuities*. The deferred annuity has two phases, the accumulation or deferral phase, and

#### **Retirement Plans**

the annuity phase. The accumulation phase is the period during which contributions are made by the investor. The annuity phase refers to the period during which the insurance company makes income payments. An immediate annuity on the other hand has only an annuity phase. In such cases the investor makes a lump sum investment and the payments from the insurance company commence immediately. In practice there are three types of variable annuity contracts.

- 1. Single premium-immediate
- 2. Single premium-deferred
- 3. Periodic payment-deferred

A common use of a single premium annuity is as an investment vehicle for rolling over retirement savings upon retirement. For instance, an investor may take the accumulated balance in his 401(k) plan, and invest the sum in a variable annuity. The advantage is that he now has guaranteed income for life. On the contrary, if he were to keep the money in the 401(k) account and withdraw periodically, there is a risk that he may run out of money while he is alive.

In the case of a fixed annuity, the insurance company bears the investment risk. Thus, if the investments perform better than expected, the surplus is treated as a profit for the company, since the payment due to the annuitant is fixed. However, if the performance of the corpus invested is poor, then the company has to make good the deficit. In the case of a variable annuity however, the investment risk is borne entirely by the annuitant.

During the accumulation phase, the money paid as premiums by the investor is kept in a segregated account, and is invested in various securities. The earnings on the investments, such as interest, dividends, and capital gains,

accrue on a tax-deferred basis. Each time a fresh premium is paid, the investor is credited with a number of *accumulation units*. The value of an accumulation unit at any point in time, is the value of the investments divided by the number of accumulation units outstanding. For instance, assume that an investor makes a premium payment of \$ 10,000 at the outset. If the face value of the accumulation unit is \$ 10, he will be credited with 1,000 units. Now assume that by the time the next premium is due, the value of the investment portfolio has grown to \$ 12,500. The value of an accumulation unit will be \$ 12.50. Thus, if a second premium of \$ 10,000 were to be paid, the investor will be credited with an additional

 $\frac{10,000}{12.50} = 800$  units

In practice the entire premium paid will not be considered for the credit of additional units. Fees such as sales charges will be deducted from the amount paid, and only the net premium will be taken for computing the additional units. The value of an accumulation unit is typically determined once a day, at the close of business of the securities markets.

Market movements will manifest themselves as fluctuations in the value of an accumulation unit, in both directions.

The value will change according to changes in the market values, realized capital gains and losses, and investment income, and will also be adjusted daily for the applicable charges and fees. However, such price movements have no impact on the number of accumulation units held by an investor. The number of accumulation units will consequently rise with the payment of each premium.

#### **Retirement Plans** \_\_\_\_

The value of the annuitant's account is determined by multiplying the value of a unit by the number of units owned by him. The accumulation unit is thus similar to the share of an open-end mutual fund, and the value of such units is similar to the NAV of the shares of the fund. However, unlike a mutual fund, a variable annuity does not make any distributions of realized income or capital gains.

At the end of the accumulation period, the investor can take a lump sum distribution or annuitize the principal. If a lump sum is taken, the investor will realize ordinary income in excess of his cost.<sup>5</sup> For instance, assume that an investor invests \$ 1,000 per month for 10 years. His cost will be taken to be \$ 120,000. If the value of the annuity after 10 years is \$ 750,000, then he will realize an ordinary income of

#### 750,000 - 120,000 =\$ 630,000

However, instead of surrendering the annuity for a lump sum, the investor can take a life annuity. In this case he gives up his right to the principal of \$ 120,000 and agrees to receive a monthly payment, which will vary according to the performance of the investment. The payments received monthly will be partly taxable and partly a return of capital. The earnings component represents the portion that is taxable. The portion of the payment that represents a return of capital is not taxable.<sup>6</sup>

Variable annuities offer a range of investment options. The value of the investment would depend on the choices made by the investor. The typical investment options are mutual funds that invest in stocks, bonds, and money market instruments, or in some combination of these three.

<sup>&</sup>lt;sup>5</sup>See Boston Institute of Finance: Mutual Fund Advisor Course (2005).

<sup>&</sup>lt;sup>6</sup>See Boston Institute of Finance: Mutual Fund Advisor Course (2005).

Unlike fixed annuities, which offer a guaranteed rate of return, variable annuities are not vulnerable to purchasing power risk. For an investor who wants to receive income for life after retirement, and with inflation protection, such annuities represent an excellent investment.

There are three major differences between investing in a mutual fund and investments in a variable annuity.

- 1. Variable annuities provide life long income for the annuitant, or a designated beneficiary if the annuitant were to die. This feature protects the annuitant against the possibility that he may outlive his assets.
- 2. Variable annuities have a death benefit. This protects the beneficiary against any market losses during the accumulation period. For, if the annuitant dies before the payments commence, the beneficiary will receive the total contributions made by the annuitant less any withdrawals or the account balance, whichever is greater.
- 3. Variable annuities are tax-deferred. Thus, although the investments in a variable annuity are not taxdeductible, the income and investment gains are not taxed until the money is actually withdrawn. Money can also be transferred from one investment option to another without incurring a tax liability.

Thus, an annuity is nothing but a mutual fund, with a layer of insurance. There is no limit on how much an individual can invest. As in the case of IRAs, investors have to pay a 10% penalty if they make withdrawals before the age of  $59\frac{1}{2}$ .

An investor can opt for one of many annuity payment options. These include:

1. Annuity with Period Certain: In this case the annuitant receives payments for a designated number of years.

#### **Retirement Plans**

- 2. Life Annuity: Payments will be made only as long as the annuitant is alive. How is it that an insurance company is able to promise a payment for life? Insurance companies rely on a concept called *the law of large numbers*. The population of people who have invested in an annuity will have a distribution of life spans around the population average. Thus investors who die earlier than anticipated will give up income to support those who live longer.
- 3. Joint and Last Survivor: In this case, if the annuitant dies, payments will be continue to be made to the beneficiary, usually the spouse, till his or her death. The annuity that is paid to the spouse is called a reversionary annuity or survivorship annuity.
- 4. Life Annuity-Period Certain: Assume that a person chooses this option with a 15-year period. If he were to die after 10 years, the designated beneficiary can either opt to receive monthly payments for the remaining five years, or else choose to take a lump sum amount.

When an investor decides to annuitize a variable annuity, the accumulation units in his account are converted into a fixed number of annuity units. During the annuity phase, he will receive a monthly payment, which will be equal to the number of annuity units multiplied by the value of each unit. The number of annuity units remains fixed during the annuity phase. However, the value of an annuity unit would depend upon the investment performance of the account. The investment return in the account consists of dividend and interest income, realized capital gains and losses, and unrealized appreciation or depreciation.

Thus, the annuity unit is a measure that determines the amount of each payment to the annuitant during the

annuity period. It is the constantly changing value of each unit that results in a variable payout during the annuity phase.<sup>7</sup>

When the accumulation units are converted into annuity units, the total number of annuity units received would depend on the following factors.

- Value of the accumulation units
- Age and sex of the annuitant
- Type of settlement option selected

## Charges

Investors in variable annuities have to pay a number of charges. These charges reduce the value of the investor's account and consequently the return on his investment.

- Surrender charge: If the investor withdraws money within a certain period after a purchase payment, the insurance company will usually assess a surrender charge. Usually, the charge is a percentage of the amount withdrawn and declines gradually over a period of time, which is known as the *surrender period*. Often, contracts will allow the withdrawal of a part of the account value each year without incurring a surrender charge.
- For instance assume that you have a balance of \$ 50,000 in your account and your last payment a year ago was \$ 10,000. The terms of the contract permit withdrawal of 10% of the account balance every year without penalties. The terms also specify a surrender charge of 8% in the first year, which declines by 1% each year. So if you withdraw \$ 8,000 after a year, you could withdraw \$ 5,000 (10% of the account value)

<sup>&</sup>lt;sup>7</sup>See Boston Institute of Finance: Mutual Fund Advisor Course (2005).

#### Retirement Plans \_\_\_\_\_

free of surrender charges. However, you will have to pay a charge of 7% on the balance \$ 3,000, which will amount to \$ 210.

- Mortality and expense risk charge: This charge is equal to a certain percentage of the account value, typically in the range of 1.25% per year. This is intended to compensate the insurer for the risks it assumes under the annuity contract.
- Administrative fees: The insurer may deduct charges to cover administrative expenses. This may be charged as a flat fee or as a percentage of the account value.
- Underlying fund expenses: Investors in variable annuities also indirectly pay the fees and expenses imposed by the underlying mutual funds in which they have chosen to invest.



# Sources & References

- 1. Association of Mutual Funds in India Workbook (2000).
- 2. Boston Institute of Finance: *Mutual Fund Advisor Course*. John Wiley, 2005.
- 3. Fabozzi F.J., Modigliani F., Jones F.J., and Ferri M.G. *Foundations of Financial Markets and Institutions*, Pearson Education, 2002.
- 4. Fredman A.J. and R. Wiles, *How Mutual Funds Work* Prentice-Hall, 1998.
- 5. Jacobs B. All About Mutual Funds, McGraw-Hill, 2001.
- 7. Johnson P.W. Jr. What is a Mutual Fund?
- 8. Yanni-Bilkey Investment Consulting, *Exchange-Traded Funds: Understanding the Basics.*

# **Investment Company Institute Publications**

- 1. A Guide to Closed-End Funds
- 2. A Guide to Exchange-Traded Funds
- 3. A Guide to Mutual Funds

#### Appendix 1\_\_\_\_\_

- 4. A Guide to Understanding Mutual Funds
- 5. A Guide to Unit Investment Trusts
- 6. Frequently Asked Questions About Mutual Fund Fees

# Web-based Articles

- 1. *401(k)* en.wikipedia.org
- 2. Actively Managed ETFs Evolve investopedia.com
- 3. Annuity (financial contracts) en.wikipedia.org
- 4. Annuity (US financial products) en.wikipedia.org
- 5. Calculating Your Personal Rate of Return news.morningstar.com
- 6. Defined Benefit Pension Plan en.wikipedia.org
- 7. ETF Top 10 Lists seekingalpha.com
- 8. Exchange-traded fund en.wikipedia.org
- 9. Exchange-Traded Funds (ETFs) www.sec.gov
- 10. Exchange-Traded Funds www.icifactbook.org
- 11. Front-running en.wikipedia.org
- 12. *How 401(k) Plans Work* money.howstuffworks.com
- 13. How Mutual Funds and Investment Companies Operate www.icifactbook.org
- 14. Individual Retirement Account en.wikipedia.org
- 15. Investment management en.wikipedia.org
- 16. Mutual fund en.wikipedia.org
- 17. Overview of U.S. Registered Investment Companies www.icifactbook.org
- 18. Rate of Return en.wikipedia.org
- 19. The ETF-Index Pricing Relationship www.indexuniverse.eu

- 96 \_\_\_\_\_ Mutual Funds and Retirement Planning \_\_\_\_\_
- 20. The Real Returns thereal returns. blogspot.com
- 21. Pension en.wikipedia.org
- 22. Quant Fund www.investopedia.com
- 23. Variable Annuities: What You Should Know www.sec.gov
- 24. www.cbo.go
- 25. www.nseindia.com



# Test Your Concepts

- 1. If the shares of a closed-end fund are selling above its NAV, investors can definitely make arbitrage profits by:
  - (a) Selling the shares of the fund
  - (b) Short selling the shares of the fund
  - (c) Buying the shares of the fund
  - (d) None of the above
- 2. The shares of the following types of funds can be bought from/sold to the fund by investors at the NAV:
  - (a) An open-end equity fund
  - (b) A closed-end equity fund
  - (c) A closed-end debt fund
  - $(d) \ (a) \ and \ (b)$
- 3. A fund which never trades in its securities after assembling a portfolio is known as:
  - (a) An open-end fund
  - (b) A closed-end fund
  - (c) An exchange traded fund
  - (d) A unit trust

- 98 \_\_\_\_\_ Mutual Funds and Retirement Planning \_\_\_\_\_
  - 4. Funds which follow a variable asset allocation policy are known as:
    - (a) Balanced funds
    - (b) Growth funds
    - (c) Income funds
    - (d) None of the above
  - 5. A fund is trading at an NAV of \$ 100. A front-end load of 5% is applicable. If an investor invests \$ 10,500, he can acquire:
    - (a) 100 shares
    - (b) 105 shares
    - (c) 99.75 shares
    - (d) May be (a) or (c) (d)
  - 6. A fund is trading at an NAV of \$ 100. A back-end load of 5% is applicable. If an investor wants \$ 10,500, he will have to sell:
    - (a) 100 shares
    - (b) 105 shares
    - (c) 95 shares
    - (d) 110.53 shares
  - 7. Switching charges will:
    - (a) Reduce the NAV
    - (b) Increase the NAV
    - (c) May reduce or increase the NAV
    - (d) Have no impact on the NAV
  - 8. In the case of a load fund, dividends and capital gains which are being reinvested by the fund:
    - (a) Are not subject to taxes
    - (b) Are not subject to loads

#### Appendix 2\_\_\_\_\_

- (c) Are subject to neither taxes nor loads
- (d) Are subject to both taxes and loads
- 9. The sponsor bears the entire investment risk in the case of:
  - (a) Defined contribution pension plans
  - (b) Defined benefit pension plans
  - (c) Both defined contribution as well as defined benefit pension plans
  - (d) Neither defined contribution nor defined benefit pension plans
- 10. A contingent deferred sales charge is an example of:
  - (a) A front-end load
  - (b) An exit load
  - (c) A level load
  - (d) None of the above
- 11. The price of a share of a closed-end fund:
  - (a) Will always be equal to its NAV
  - (b) May be at a premium to its NAV
  - (c) May be at a discount to its NAV
  - (d) (b) and (c)
- 12. Which of these is an option for a closed-end fund to raise capital subsequent to its IPO:
  - (a) A rights issue
  - (b) Leveraging
  - (c) A secondary stock offering
  - (d) All of the above
- 13. Which of these types of funds typically has a NAV that stays constant at \$ 1:
  - (a) An equity fund
100 \_\_\_\_\_ Mutual Funds and Retirement Planning \_\_\_\_\_

- (b) A bond fund
- (c) A balanced fund
- (d) None of the above
- 14. Which of these funds is required to hold securities with a weighted average maturity of no more than 90 days:
  - (a) A bond fund
  - (b) A money market fund
  - (c) A balanced fund
  - (d) None of the above
- 15. In the case of an exchange traded fund, investors can:
  - (a) Place limit orders
  - (b) Do margin trading
  - (c) Do short selling
  - (d) All of the above
- 16. Which of these is insured by the FDIC:
  - (a) Money market funds
  - (b) Debt funds
  - (c) Balanced funds
  - (d) None of the above
- 17. Which of these is a defined benefit plan:
  - (a) A flat dollar plan
  - (b) A final average plan
  - (c) Both (a) and (b)
  - (d) Neither (a) nor (b)
- 18. A variable annuity may be:
  - (a) Single premium-immediate
  - (b) Single premium-deferred

## - Appendix 2\_\_\_\_\_101

- (c) Periodic payments-deferred
- (d) Any of the above
- 19. Contribution to such plans is not tax deductible:
  - (a) An IRA
  - (b) A Roth IRA
  - (c) A Roth 401(k) plan
  - (d) (b) and (c)
- 20. A systematic investment plan is designed to take advantage of:
  - (a) Dollar cost averaging
  - (b) Value averaging
  - (c) Both (a) and (b)
  - (d) Neither (a) nor (b)

## **Solutions to Test Your Concepts**

Q. No.	Answer	Q. No.	Answer
1	d	11	d
2	a	12	d
3	d	13	d
4	d	14	b
5	d	15	d
6	d	16	d
7	d	17	С
8	b	18	d
9	b	19	d
10	b	20	a