

Question Paper

Portfolio Management and Mutual Funds – II (252): July 2005

Section D: Case Study (50 Marks)

- This section consists of questions with serial number 1 - 5.
- Answer all questions.
- Marks are indicated against each question.
- Do not spend more than 80 - 90 minutes on Section D.

Case Study

Read the case carefully and answer the following questions:

1. Based on the case study, identify and describe an appropriate set of investment objectives and investment constraints for Mr. Oberoi. Also write an investment policy statement based on these objectives and constraints.

(7 marks) [< Answer >](#)

2. a. Based on the information given in the case, bring out the scheme specific risk factors for the PRUDENTIAL SIGMA INDEX FUND with suitable explanation.
b. Explain the contradicting features of investment pattern and procedures of investment decisions of PRUDENTIAL SIGMA INDEX FUND against the backdrop of the objectives of the scheme.

(7 + 8 = 15 marks) [< Answer >](#)

3. Based on the market index (MX2) data for last 12 months and the data furnished in Annexure I for an Index Fund created by Mr. Tapan Ghosh, portfolio manager, you are required to find out whether the portfolio manager has outperformed the market index.

(Assume the net cash flows are invested at the end of the month in which they arise and the transaction cost to be 0.25%).

(8 marks) [< Answer >](#)

4. From the data available in the case on PRUDENTIAL SIGMA Balanced Growth Fund in Annexure II determine allocation effect and selection effect due to difference in actual allocation vis-à-vis policy allocation and verify whether the total differential return is equal to sum of allocation and selection effects.

(8 marks) [< Answer >](#)

5. Based on the returns furnished for the four balanced funds in Annexure III, you are required to calculate

- a. Fama's measure of total selectivity and net-selectivity and explain your answer diagrammatically.
- b. Rank the funds on the basis of Sharpe & Treynor's ratios and explain the conflict in ranking, if any, based on these measures.

(6 + 6 = 12 marks) [< Answer >](#)

Mr. Suresh Oberoi (40 years), is a vice president of finance department in a multinational company. His wife is gainfully employed. The financial standing of Mr. Oberoi is good and he does not have any immediate financial responsibilities. He is doing exceedingly well in his present venture and is all set to have a very highflying career. His other amenities of life have already been accounted for like a decent house and a decent bank balance.

Of late he is perturbed by the disturbing movements of the interest rates in the market. Moreover, being a finance person he is all too aware of the risks inherent in the market. The money market and mutual fund market are also not posting good results. The stock markets have witnessed a series of scams and the people have lost faith in the

system. Moreover, with the decrease in the government dictated interest rate in instruments like PPF and others the scene does not look rosy for small investors at the moment. The interest rates offered by the banks are at an all time low, and if one accounts for the CPI and not WPI as is done in India, the inflation rate is much higher than the one reported in the media and by the Government.

Mr. Oberoi, a finance man himself, decides to take professional advice from Mr. Tapan Ghosh, a portfolio manager. After discussing with Mr. Oberoi and assessing investment objectives as well as his risk taking ability, Mr. Tapan Ghosh provides the following investment alternatives to him:

1. PRUDENTIAL SIGMA INDEX FUND, which is going to be launched soon (details are given in the case write up)
2. Index Fund based on Market Index (MX2) created by Mr. Tapan Ghosh himself (Data available in **Annexure I**).
3. PRUDENTIAL SIGMA BALANCED GROWTH FUND (Details available in **Annexure II**).

From the data available in **Annexure I**, Mr. Oberoi is interested in analyzing the performance of the Index fund created by Mr. Tapan Ghosh in comparison to the market index over last one year.

Further, Mr. Oberoi has collected performance data on four balanced growth funds, which have similar investment objectives to that of PRUDENTIAL SIGMA balanced growth fund (available in **Annexure III**) and is interested in assessing the performance of these balanced growth funds before arriving at his final investment decision.

PRUDENTIAL SIGMA INDEX FUND

Introduction

The sponsors of the Fund are PRUDENTIAL plc of the United Kingdom (UK) and SIGMA Limited (SIGMA). PRUDENTIAL is one of the largest life insurance companies in the UK and one of the leading life insurance companies in the world. It operates in over 15 countries and markets medium to long-term savings products, including life insurance, pensions and unit trusts. SIGMA is a premier financial institution and its principal business is to provide medium and long-term project financing / leasing and other types of financial services to industry and individuals in India. The total financial assistance extended by SIGMA since inception as of March 31, 2005 is Rs.1, 46,167 crore.

PRUDENTIAL is one of the largest institutional Investors in the UK and has assets under management worldwide in excess of US\$ 231.70 billion (over Rs. 10,89,000 crore approx.). It also has banking deposits of US\$ 10.67 billion (approximately Rs. 50,160 crore). It invests globally and manages the long-term savings of individuals with diverse risk profiles and needs. SIGMA Asset Management Company Limited, the Investment Manager to the SIGMA Mutual Fund, manages assets over Rs.6200 crore as of July 31, 2004 through 12 schemes. It is one of the largest asset management companies in the private sector in the country. PRUDENTIAL SIGMA INDEX FUND is an open-ended index linked growth scheme seeking to track the returns of the market index 1 (MX1) and market index 2 (MX2) through investment in a basket of stocks.

Being an open-ended scheme, units may be purchased or redeemed on every business day at NAV based prices subject to applicable load provisions. For the present, the Trustee does not intend to charge any entry/exit load.

The AMC will calculate and disclose the first Net Asset Value not later than 30 days from the closure of Initial Offer Period. Subsequently, the NAV will be calculated and disclosed at the close of every business day. The initial issue expenses under the scheme are limited to 1.50% of the initial corpus mobilized under each of the plans of the scheme. Investors who hold units in any of the open-ended schemes of the fund may switch all or part of their holdings in the scheme during the initial offer period and on an ongoing basis. Further, under the Flexible Lifetime Investment Program, investors may choose to alter the allocation of their investment among the schemes in order to meet their changing circumstances during their lifetime. It may be noted that switch-out from the scheme is presently allowed.

The scheme does not propose to declare dividends. The following tax benefits are available under the prevailing tax laws and subject to change thereto:

1. Under the provisions of section 10 (33) of the Income-tax Act, 1961, income received by all categories of unitholders will be exempt from income tax in their hands. In view of this position, no tax needs to be deducted at source from such distribution by the Fund.
2. There will be no tax deduction at source (TDS) on redemptions (irrespective of the amount redeemed) for unitholders resident in India.
3. Investments in the scheme/the plans thereunder will be exempt from Wealth Tax. Units of SIGMA INDEX FUND may be given as a gift and no gift tax will be payable either by the donor or the donee, as the Gift Tax Act has been abolished.
4. Investors who redeem units held for more than 12 months will get benefit of long-term capital gains tax and resident and other eligible investors will get the benefit of indexation. Further, units are included in the proviso to the sub section (1) to Section 112 of the Income-tax Act and hence unitholders can opt for being taxed at 10% (plus applicable surcharge) without the cost inflation index benefit or 20% (plus applicable surcharge) with the cost inflation index benefit, whichever is beneficial.

Risk Factors - General

- Mutual Funds and securities investments are subject to market risks and there is no assurance or guarantee that the objectives of the scheme will be achieved.
- As with any securities investment, the NAV of the Units issued under the scheme can go up or down depending on the factors and forces affecting the capital markets.
- Past performance of the Sponsors, AMC/Fund does not indicate the future performance of the scheme of the Fund.
- The Sponsors are not responsible or liable for any loss resulting from the operation of the scheme beyond the contribution of an amount of Rs. 22.2 lacs collectively made by them towards setting up the Fund and such other accretions and additions to the corpus set up by the Sponsors.
- SIGMA INDEX FUND is the name of the scheme and does not in any manner indicate either the quality of the scheme or its future prospects and returns.
- The NAVs of SIGMA INDEX FUND may be affected by changes in the general market conditions, factors and forces affecting capital market in particular, level of interest rates, various market related factors and trading volumes, settlement periods and transfer procedures.
- Trading volumes in the securities in which it invests inherently restricts the liquidity of the scheme's investments.
- The risks in lending portfolio securities, as with other extensions of credit, consist of the failure of another party, in this case the approved intermediary, to comply with the terms of agreement entered into between the lenders of securities i.e. the scheme and the approved intermediary.
- Changes in Government policy in general and changes in tax benefits applicable to mutual funds may impact the returns to investors in the scheme.

Summary

Name of the scheme	SIGMA INDEX FUND
Structure	Open-ended Index fund.
Initial Offer Price	Rs.10 per unit for cash at par
Feature/Investment Objectives	An open-ended index linked growth scheme seeking to track the returns of the MX1 and MX2 through investments in a basket of stocks drawn from the constituents of the above indices.
Application Amount	Minimum Rs. 5,000 per application and additional amounts in multiples of Rs.1, 000 thereafter.
Initial Issue Expenses	The Initial Issue Expenses under the scheme are limited to 1.50% of the initial corpus mobilized under each of the plans of the scheme.

INVESTMENT OBJECTIVES & POLICIES

Investment Objective

The scheme has two plans. The MX1 Plan and the MX2 Plan.

1. The MX1 Plan:

The objective of the plan is to invest in companies whose securities are included in market index1 and subject to tracking errors, to endeavor to achieve the returns of the above index as closely as possible. This would be done by investing in almost all the stocks comprising the market index1 in approximately the same weightage that they represent in the index. The plan will not seek to outperform the market index or to under perform it. The objective is that the performance of the NAV of the plan should closely track the performance of the index over the same period.

2. The MX2 Plan:

The objective of the plan is to invest in companies whose securities are included in market index2 and subject to tracking errors, to endeavor to achieve the returns of the above index as closely as possible. This would be done by investing in almost all the stocks comprising the market index2 in approximately the same weightage that they represent in index. The plan will not seek to outperform the market index or to under perform it. The objective is that the performance of the NAV of the plan should closely track the performance of the market index over the same period.

Investment Pattern

1. The MX1 Plan:

The corpus of the plan will be invested predominantly in stocks constituting the market index2 and in exchange traded derivatives on the index and subject to tracking errors and endeavoring to attain results commensurate with the market index. This would be done by investing in almost all the stocks comprising the index in approximately in the same weightage that they represent in the index. A very small portion of the fund will be kept liquid and will be invested in:

- i. Liquid money market instruments permitted by SEBI/RBI, having maturities of up to one year and more, in call money market or in alternative investment for the call money market as may be provided by the RBI to meet the liquidity requirements.
- ii. Certificate of Deposits (CDs)
- iii. Commercial Papers (CPs)
- iv. Any other domestic fixed income securities

2. The MX2 Plan:

The corpus of the Plan will be invested predominantly in stocks constituting the market index2 and in exchange traded derivatives on the market index and subject to tracking errors and endeavoring to attain results commensurate with the market index. This would be done by investing in almost all the stocks comprising the market index in approximately the same weightage that they represent in the market index. A very small portion of the fund will be kept liquid and will be invested in:

- i. Liquid money market instruments permitted by SEBI/RBI, having maturities of up to one year and more, in call money market or in alternative investment for the call money market as may be provided by the RBI to meet the liquidity requirements.
- ii. Certificate of Deposits (CDs)
- iii. Commercial Papers (CPs)
- iv. Any other domestic fixed income securities

The securities mentioned above could be listed, privately placed, secured, unsecured, rated or unrated and of any maturity. The securities may be acquired through Initial Public Offerings (IPOs), secondary market operations, private placement, rights offers or negotiated deals.

The plans may also enter into repurchase and reverse repurchase obligations in all securities held by it as per the

guidelines and regulations applicable to such transactions. Further the plans intend to participate in securities lending as permitted under the Regulations.

The equity and equity related securities include debt securities convertible into shares and rights or warrants to purchase shares. It is the intention of this scheme to trade in derivatives on the indices or the stocks comprising the index, as permitted by the Regulations.

The portion of the plans' portfolios invested in each type of security listed above may vary in accordance with economic conditions, interest rates, liquidity and other relevant considerations, including the risks associated with each investment. The plans will, in order to reduce the risks associated with any one security, utilize a variety of investments.

Under normal circumstances, the indicative asset allocation under the plans will be as follows:

The MX1 Plan:

No.	Type of Security	Approximate allocation (% of corpus) under normal circumstances	Max Allocation	Min Allocation	Risk Profile
1.	Equity Stocks drawn from the components of the MX1 and the exchange-traded derivatives on the MX1	99.75%	100%	90%	High
2.	Money market instruments	0.25%	10%	0%	Medium to high

The MX2 Plan:

Sr. No.	Type of Security	Approximate allocation (% of corpus) under normal circumstances	Maximum Allocation	Minimum Allocation	Risk Profile
1	Equity Stocks drawn from the components of MX2 and the exchange-traded derivatives on the market index	99.75%	100%	90%	High
2	Money market instruments	0.25%	10%	0%	Medium to high

The securities, which provide higher returns typically, display higher volatility. Accordingly, the investment portfolios of the plans would reflect moderate to high volatility in its equity and equity related investments and low to moderate volatility in its debt and money market investments.

Change in Investment Pattern

As an index linked scheme, the policy is passive management. However, the investment pattern is indicative and may change for short duration. In the event the MX1 / MX2, as the case may be, is dissolved or is withdrawn by IISL/ The Stock Exchange, Mumbai, respectively or is not published due to any reason whatsoever, the Trustee reserves the right to modify the scheme so as track a different and suitable index or to suspend tracking the Nifty / Market Index and appropriate intimation will be sent to the Unit holders of the scheme. In such a case, the investment pattern will be modified suitably to match the composition of the securities that are included in the new index to be tracked and the scheme will be subject to tracking errors during the intervening period.

Subject to the Regulations, the asset allocation pattern indicated above may change from time to time, keeping in view market conditions, market opportunities, applicable regulations and political and economic factors. It must be clearly understood that the percentages stated above are only indicative and not absolute and that they can vary substantially within the maximum and minimum allocation limits, depending upon the perception of the Investment Manager, the intention being at all times to seek to protect the interests of the unit holders. Such changes in the investment pattern will be for short term as well as defensive considerations.

Tracking Error

The performance of the scheme may not be commensurate with the performance of the MX1/ MX2 on any given day or over any given period. Such variations are commonly referred to as the tracking error.

Trading in Derivatives

The plans may use derivatives instruments like Stock Index Futures, stock options, stock futures, option contracts, warrants, convertible securities, swap agreements or such other derivative instruments as may be introduced from time to time for the purpose of hedging and portfolio balancing and as may be permitted under the Regulations and guidelines, and such investments shall be in accordance with the investment objectives of the scheme.

The scheme shall under normal circumstances have exposure up to 99.75% of the corpus of the scheme in the Equity Stocks drawn from the components of the MX1 / MX2 and the exchange-traded derivatives of the MX1 / MX2.

In case of investments in Index futures the risk/ reward would be the same as investments portfolio of shares representing an Index. However there is a cost attached to buying an Index future. There could be an element of settlement risk. This settlement risk in case of derivatives is minimized since the Exchange acts as the Clearing Corporation and the Counterparty as is the practice in the developed markets. However, there is the risk attached to the liquidity and the depth of the index futures market, as it is relatively new market.

Fixed Income securities:

The AMC aims to identify securities that offer superior levels of yield at lower levels of risks. With the aim of controlling risks, rigorous in depth credit evaluation of the securities proposed to be invested in will be carried out by the investment team of the AMC. The credit evaluation includes a study of the operating environment of the issuer, the past track record as well as the future prospects of the issuer, the short as well as longer term financial health of the issuer. Rated debt instruments in which the plans invest will be of investment grade as rated by a credit rating agency. The AMC will be guided by the ratings of Rating Agencies such as CRISIL, CARE, ICRA and Duff and Phelps Credit Rating India Limited or any other agency approved by SEBI for this purpose. In case a debt instrument is not rated, specific approval of the Boards of AMC and Trustee will be obtained for such an investment.

In addition, the investment team of the AMC will study the macro economic conditions, including the political, economic environment and factors affecting liquidity and interest rates. The AMC would use this analysis to predict the likely direction of interest rates and position the portfolio appropriately to take advantage of the same.

Equities

The corpus of the scheme will be invested predominantly in stocks constituting the MX1 and MX2 and in exchange traded derivatives on the MX1 and MX2 Indices. A very small portion of the fund will be kept liquid.

The plans may also use various derivatives and hedging products from time to time, as would be available and permitted by SEBI, in an attempt to protect the value of the portfolio and enhance Unitholders' interest.

The plans may invest in other index funds managed by the AMC or in the index schemes of any other Mutual Funds, provided it is in conformity to the investment objectives of the scheme and in terms of the prevailing Regulations. As per the Regulations, no investment management fees will be charged for such investments.

Portfolio Turnover

As this scheme will follow a passive investment strategy, the endeavor will be to minimize portfolio turnover subject to the exigencies and needs of the scheme. Generally, turnover will be confined to rebalancing of portfolio on account of new subscriptions, redemptions and change in the composition of MX1/ MX2, as the case may be.

PROCEDURE FOLLOWED FOR INVESTMENT DECISIONS

The portfolio manager of each scheme is responsible for making buy/sell decisions in respect of the securities in the respective scheme portfolios, subject to final approval by the Chief Investment Officer. The investment decisions are made and approved on daily basis keeping in view the market conditions and all relevant aspects.

The AMC has an Internal Investment Committee comprising of the Managing Director, the Chief Investment Officer, Portfolio Managers and the Research Analyst who meet at periodic intervals. The Investment

Committee, at its meetings, reviews the performance of the schemes and general market outlook and formulates broad investment strategy.

The Chief Executive Officer who chairs the Investment Committee Meetings guides the deliberations at Investment Committee. He, on an ongoing basis, reviews the portfolios of the schemes and gives directions to the Chief Investment Officer, where considered necessary. It is the ultimate responsibility of the Chief Investment Officer to ensure that the investments are made as per the internal/Regulatory guidelines, scheme investment objectives and in the best interest of the unitholders of the respective schemes.

The AMC has a team comprising of six Portfolio Managers and one Research Analyst. All of these are involved in preparation of research reports.

The Managing Director makes a presentation to the Board of AMC at each of its meetings indicating the performance of the schemes. The performance of the schemes is reviewed by the Board with reference to the appropriate benchmarks as also the performance of the schemes of the competition.

The Managing Director brings to the notice of the Board specific factors, if any, which are impacting the performance of any individual scheme. The Board after considering all relevant factors may, if necessary, give directions to AMC. Similarly, the performance of the schemes is submitted to the Trustees. The Managing Director explains to the Trustees the details on schemes' performance vis-à-vis the benchmark returns.

Investment Restrictions for the scheme

Pursuant to the Regulations and amendments thereto, the following investment restrictions are presently applicable to the scheme and the plans there under:

1. The initial issue expenses in respect of any scheme will not exceed 6% of the Funds raised under that scheme.
2. A mutual fund scheme shall not invest more than 15% of its NAV in debt instruments issued by a single issuer, which are rated not below investment grade by a credit rating agency authorized to carry out such activity under the SEBI Act. Such investment limit may be extended to 20% of the NAV of the scheme with the prior approval of the Board of Trustees and the Board of asset Management Company. Provided that, such limit shall not be applicable for investments in government securities and money market instruments. Provided further that investment within such limit can be made in mortgage backed securitised debt, which are rated not below investment grade by a credit rating agency, registered with SEBI.
3. A mutual fund scheme shall not invest more than 10% of its NAV in unrated debt instruments issued by a single issuer and the total investment in such instruments shall not exceed 25% of the NAV of the scheme. All such investments shall be made with the prior approval of the Board of Trustees and the Board of asset Management Company.
4. The Fund under all its schemes shall not own more than 10% of any company's paid up capital carrying voting rights.
5. Transfer of investments from one scheme to another scheme in the same Mutual Fund is permitted provided:
 - a. Such transfers are done at the prevailing market price for quoted instruments on spot basis (spot basis shall have the same meaning as specified by a Stock Exchange for spot transactions); and
 - b. The securities so transferred shall be in conformity with the investment objective of the scheme to which such transfer has been made.
6. The scheme may invest in other schemes under the same AMC or any other Mutual Fund without charging any fees, provided the aggregate inter-scheme investment made by all the schemes under the same management or in schemes under management of any other asset management company shall not exceed 5% of the Net Asset Value of the Fund.
7. The Fund shall get the purchased securities transferred in the name of the Fund on account of the concerned scheme, wherever investments are intended to be of a long-term nature.
8. The Fund may buy and sell securities on the basis of deliveries and shall in all cases of purchases, take delivery of relative securities and in all cases of sale, deliver the securities and will not make any short sales

or engage in carry forward transaction or badla finance. Provided that, mutual funds shall enter into derivative transactions in a recognized stock exchange for the purpose of hedging and portfolio balancing, in accordance with the guidelines issued by SEBI.

9. All the scheme's investments will be in transferable securities (whether in capital markets or money markets) or bank deposits or in money at call as in privately placed debentures as securitized debt.
10. No loans for any purpose can be advanced by the scheme.
11. The Fund may lend securities in accordance with stock lending scheme of SEBI.
12. No mutual fund scheme shall make any investments in ;
 - a. Any unlisted security of an associate or group company of the sponsor; or
 - b. Any security issued by way of private placement by an associate or group company of the Sponsor; or
 - c. The listed securities of group companies of the Sponsor, which is in excess of 25% of the net assets of the scheme of the Mutual Fund.
13. The Fund shall not borrow except to meet temporary liquidity needs of the Fund for the purpose of repurchase/ redemption of units or payment of interest. Such borrowings shall not exceed more than 20% of the net assets of the individual scheme and the duration of the borrowing shall not exceed a period of 6 months.
14. Investments by index funds shall be in accordance with the weightage of the scrips in the specific index.
15. Pending deployment of funds of a scheme in securities in terms of investment objectives of the scheme, the AMC can invest the funds of the scheme in short term deposits of scheduled commercial banks or in call deposits.
16. The scheme may also use various hedging and derivative products from time to time, as are available and permitted by SEBI, in an attempt to protect and enhance the interests of the Unitholders at all times.

LOAD STRUCTURE OF THE SCHEME

The purchase price of the Units, on an ongoing basis, will be based on the Applicable NAV. For the present, the Trustee does not intend to charge any entry/exit load.

Subject to the Regulations, the Trustee reserves the right to modify/alter the load structure and may decide to introduce a differential load structure on the Units subscribed/redeemed on any Business Day. Such changes will be applicable for prospective investments. The Trustee shall arrange to display a notice in the Customer Service Centers of the AMC at least 10 days before the change of the then prevalent load structure. Changes in the load structure may be stamped in the acknowledgement slip issued by the Fund after the changes in load structure. The load collected from the Unitholders under each Plan will be credited to a separate account in the respective plans accounts and will be offset against distribution and marketing expenses. Surplus of load, if any, charged over planned marketing and distribution expenses to be defrayed will be credited to the respective plans whenever felt appropriate by the AMC.

FEES AND EXPENSES OF THE SCHEME

As per the provisions of the Regulations, the following fees and expenses will be charged to the scheme:

i. Initial Issue Expenses

The total Initial Issue Expenses chargeable to the scheme as per the current Regulations are subject to a maximum of 6% of the amount collected during the Initial Offer Period. However, the Initial Issue Expenses to be incurred under the scheme will be limited to 1.50% of the initial corpus mobilized under each of the plans of the scheme.

ii. Estimated Recurring Expenses

Description	(% per annum of average net assets)
Investment Management Fee	0.70

Additional Fees	-
Trustee Fee	0.05
Custodian Fee	0.10
Marketing & Selling, Costs of Investor Communications, Costs for A/c Statements, Dividend etc, Cost of Statutory Advertisements	0.15
Registrar & Transfer Agent	0.10
Audit Costs	0.05
Cost of Funds Transfer	0.05
Other Expenses	0.05
Total Recurring Expenses	1.25

These estimates are based on a corpus size of Rs.1 crore under the scheme and would change to the extent assets are lower or higher. If the corpus size is in excess of Rs.1 crore, the above mentioned recurring expenses in the scheme would change. The above expenses are subject to inter-se change and may increase/decrease as per actual and/or any change in the Regulations.

Annexure - I

One-year data for a similar index fund based on MX2 created by Mr. Tapan Ghosh, portfolio manager is given as under:

Month ending	Net cash flow (Rs. in crore)	Market Index (MX2) value
March 2004	—	3990.65
April 2004	10	4326.72
May 2004	25	4247.04
June 2004	35	3604.38
July 2004	45	3519.16
August 2004	15	3631.91
September 2004	45	3546.78
October 2004	35	3329.28
November 2004	15	3244.95
December 2004	10	2811.60
January 2005	15	2989.35
February 2005	25	3287.56
March 2005	15	3184.44

The market value of the above index fund

As on	Rs. in crore
April 01, 2004	374.63
March 31, 2005	554.73

Annexure - II

SIGMA BALANCED GROWTH FUND

Objective

Aims to invest in equity and debt oriented securities so as to give investor balanced returns

Net Asset Value (Rs./Unit) as on March 31, 2005 = 8.39

Fund Information

Type of scheme	Open Ended
Nature of scheme	Equity & Debt
Inception Date	Oct 7, 1999
Face Value (Rs./Unit)	10
Fund Size (Rs. in crore)	206.19
Increase/Decrease since Oct 31, 2001 (Rs. in crore)	10.94
Minimum Investment (Rs.)	5000
Purchase Redemptions	Daily
NAV Calculation	Daily
Fund Manager	Murlikrishnan Rangachari
Entry Load	1.75 percent
Exit Load	0 percent

Scheme Performance (%) as on March 31, 2005

14 days	1 month	3 months	1 year	3 years*	Inception*
-5.09	-3.45	8.82	-6.26	NA	-7.59

*Returns are annualized.

Top 10 Holdings as on March 31, 2005

Company	Nature	Value (Cr.)	%
Grasim Industries Ltd	EQ	8.74	4.24
Ranbaxy Laboratories Ltd	EQ	8.64	4.19
ITC Ltd	EQ	8.6	4.17
Hindustan Lever Ltd	EQ	8.06	3.91
Infosys Technologies Ltd	EQ	6.43	3.12
Reliance Industries Ltd	Debt	5.44	2.64
Infrastructure Leasing & Financial Services LTD	Debt	5.44	2.64
Indian Railway Finance Corporation Ltd	Debt	5.42	2.63
EID Parry (India) Ltd	Debt	5.2	2.52
Reliance Petroleum Ltd	Debt	5.18	2.51

Top Industry Allocation as on March 31, 2005

Miscellaneous	13.38%
Hospital & Medical Equipments	11.06%
Computers - Software & Education	6.93%
Finance	5.24%
Metals	3.47%
Cement	2.89%

Chemicals	2.81%
Auto & Auto ancillaries	2.70%
Oil & Gas, Petroleum & Refinery	2.13%
Consumer Durables	1.94%

Asset Allocation as on March 31, 2005

	Equity	Debt	Money Market
Actual (%)	58.72	32.7	8.58
Policy (%)	65.0	25.0	10.0

Assets Return

Bench-mark index	Market Index	I-Sec Bond index (Total return index)	J P Morgan T-bill Index
Index return (%)	16.35	18.23%	5.7
Portfolio return (%)	8.82	25.70%	6.3

Annexure - III

The returns earned by four balanced growth funds that have similar investment objectives to that of SIGMA Balanced Growth Fund are given below:

Fund	One year return (%)	Risk (%)	Beta
PNB Balanced Growth Fund	12.00	25.00	0.98
Alliance 95 Balanced Growth Fund	18.00	30.00	1.23
Birla Balanced Growth Fund	13.00	28.00	0.89
HDFC Balanced Growth Fund	21.00	27.00	1.10
Templeton Balanced Growth Fund*	15.00	22.00	1.00

The risk free rate of return may be taken as 7%, which is the annualized yield on the 180 days T-Bills.

- * Templeton Balanced Growth Fund is market fund which indicates the index of balanced growth fund both in terms of return and the risk profile.

END OF SECTION D

Section E : Caselets (50 Marks)

- This section consists of questions with serial number 6 - 11.
- Answer **all** questions.
- Marks are indicated against each question.
- Do not spend more than 80 - 90 minutes on Section E.

Caselet 1

Read the caselet carefully and answer the following questions:

6. Differentiate between a dollar budget and a risk budget in context of asset allocation strategy.

(7 marks) < [Answer](#) >

7. Discuss the characteristics of risk management and asset allocation in pension funds.

(8 marks) < [Answer](#) >

Asset allocation has been recognized as a very important part of the process of building a portfolio. In fact, one study has found that your decision as to how you will divide up your portfolio into several classes is more important than the process of choosing the actual stocks, bonds, and funds that you will own.

Investment portfolios comprise of individual investment vehicles. A personal portfolio might be made up of equity and fixed income securities. An institutional portfolio might be made up of investments run by individual managers, with each such investment made up of equity and/or fixed income securities. Traditionally, each of the components of a portfolio is an asset, the future value of which cannot fall below zero. In this environment the total monetary value of the portfolio is typically considered an overall budget, to be allocated among investments. In a formal portfolio model, the decision variables are the proportions of total portfolio value allocated to the available investments. For example, in a dollar budget portfolio optimization problem, the "budget constraint" is usually written as:

$$\sum_i X_i = 1$$

where X_i is the proportion of total value allocated to investment i . And effort is taken to minimize the portfolio risk.

In developing your asset allocation strategy, you should remember that, generally, the younger you are, the more risk you can afford to take. As you get older and closer to retirement, you'll probably be less interested in the growth of your portfolio and more interested in capital preservation -- protecting the value of your portfolio from any declines. Preserving your portfolio as you reach your desired retirement age becomes more important since a large decline in the value of your holdings can affect your retirement lifestyle, or even make it impossible to retire according to your plans.

The approach as per equation above does not work as well for portfolios that include investments that combine equal amounts of long and short positions. For example, a trading desk may choose to take a long position of \$100 million in one set of securities and a short position of \$100 million in another. The net investment is zero. But this would also be true of a strategy involving long positions of \$200 million and short positions of \$200 million. For this type of portfolio, some other budgeting approach may be more desirable. One solution is to include a required margin, to be invested in a riskless security, and state gains and losses as percentages of that margin. This may suffice for a fund, which uses few such investments, but is less than satisfactory for funds and institutions that utilize large short and long positions.

In recent years hedge funds and financial institutions with multiple trading desks have developed and applied a different approach to this problem. Instead of (or in addition to) a dollar budget, they employ a *risk budget*.

Recently, managers of defined benefit pension funds have taken an interest in employing the techniques of risk budgeting and monitoring. To some extent this has been motivated by a desire to better analyze positions in derivatives, hedge funds and other potentially zero-investment vehicles. But even a fund with traditional investment vehicles can achieve a greater understanding of its portfolio by analyzing the risk attributes of each of the components.

Caselet 2

Read the caselet carefully and answer the following questions:

8. The caselet states that PEG ratios are considered less useful in assessing cyclical stocks and those in industries such as banking, oil or real estate. Do you agree? Justify.

(7 marks) < [Answer](#) >

9. According to the caselet if the PEG ratio is less than one, it is a sign of possibly under valued stocks. Do you agree? Discuss.

(9 marks) < [Answer](#) >

The PEG ratio is developed by Peter Lynch and popularized by the Motley Fool, who also named it the “Fool Ratio.” Peter Lynch, the former star manager of Fidelity’s Magellan Fund puts it aptly in his book *‘One up on Wall Street’* that “In a fully and fairly valued situation, a growth stock’s price-to-earnings ratio should equal the percentage of the growth rate of its company’s earnings per share”. Therefore the PE ratio of a company will be equal to its profit growth rate. And the PEG ratio of a stock should be equal to one, as PEs come into line with the growth rate in net profits.

If the PEG ratio is greater than one, it indicates that the stock is possibly overvalued or that the market expects future EPS growth to be greater than what is currently prevailing. Growth stocks typically have a PEG ratio greater than one because investors are willing to pay more for a stock that is expected to grow rapidly (also known as “growth at any price”). It can also be interpreted that the earnings forecasts have been lowered while the stock price remains relatively stable for other reasons. Traditional wisdom held that a stock should sell for a P/E equal to its growth rate (i.e., a PEG of 1.0). However that thinking has changed when technology companies started selling for higher PEGs than the industrials.

If the PEG ratio is less than one, it is a sign of a possibly undervalued stock or that the market does not expect the company to achieve the earnings growth that is reflected in the market estimates. Value stocks usually have a PEG ratio less than one because the stock’s earnings expectations have risen and the market has not yet recognized the growth potential. On the other hand, it could also indicate that earnings expectations have fallen faster than the new forecasts. Overpriced stocks have higher PE’s than their respective growth rates. PEG is considered particularly helpful in valuing small and mid-cap growth stocks, which typically pay no dividend. For valuing larger stocks, the company’s dividend yield should be added to its projected five-year earnings growth rate because larger and more established firms are valued by investors for their current payout as well as for their future prospects of price appreciation. PEG ratios are considered less useful in assessing cyclical stocks and those in industries such as banking, oil or real estate.

During the tech boom, the PE and PEG ratio were used to justify the high valuations. Though, the expectations were belied, this ratio can still add glitter to one’s portfolio if used judiciously.

Caselet 3

Read the caselet carefully and answer the following questions:

10. The caselet says that investors will benefit from investing in passive funds rather than chasing for active funds in a bear market. Equity Index funds are most suitable example of passive funds. Briefly describe the techniques of constructing an Equity Index fund.

(9 marks) < [Answer](#) >

11. According to the caselet, presently the fund-management business is busy devising products to sell in a bear market and Stable-Value and Principal-Protection funds are all the rage. How Stable Value Funds differ from Principal Protected Funds. Enumerate the advantages and disadvantages attached with these types of funds.

(10 marks) < [Answer](#) >

For most of the past century, stocks and bonds were only for the rich. Then came mutual funds. These allowed ordinary people to pool their resources with those of other small investors, which gave them access to professional fund managers and allowed them to diversify among different stocks. Mutual funds grew explosively during the 1990s, with total assets in America expanding from \$1 trillion in 1990 to \$7 trillion in 2000. In Britain, investment in unit trusts, the local equivalent of mutual funds, increased from £46 billion in 1990 to £261 billion in 2000.

Choosing a mutual fund is one of the most important financial decisions that an individual can make. Over a

period of time, the difference between getting a 3% or a 5% annual return from a mutual fund becomes enormous. Sadly, most of what the fund-management industry calls retail investors are quite bad at finding suitable homes for their money.

Most fund managers try to convince investors that they will outperform the market by boasting about how well they have done in the past. This seems reasonable enough: in most areas of endeavour, human beings are judged on their track record. But fund managers themselves know quite well that in their industry past performance is no guide to the future. The head of one of the world's biggest mutual-fund companies argues privately that past performance is not only a false guide but if anything a contrary sign. However, few managers would say as much in public, because it would undermine the way in which the industry sells its products.

Numerous empirical studies have confirmed that strong performance by a fund manager seldom lasts. For fund managers too, much of their performance comes down to luck, not skill, and the luck rarely lasts. A fund manager can use a short period of strong returns to suck in lots of new assets to manage, but that can make it even more difficult for him to outperform his peers.

It can be argued that during the bull market fund managers did nothing more sinister than meet investors' demands. Simon Davies, chief executive of London-based Threadneedle, caused a stir recently by seeming to suggest that investors should blame their losses on themselves and their greed, not on the fund-management business. He has since softened his tone, but most asset-management bosses would agree with the original interpretation. Because fund management is a fixed-cost business, says Mr. Davies, volume is the holy grail, and there is a huge temptation to offer the latest hot product.

Will the fund-management business keep offering people what they think they want, even when it knows that it is bad for them, or will it behave more responsibly in future? Certainly, fund managers are unlikely to tell their customers one basic truth that they would be better off if they put more money into passive funds and stopped chasing big active returns. In the ten years to 1999, index funds returned an annual average of 14.7% to their investors and the S&P 500 gave 12.4%, according to Morningstar, a fund-tracking company based in Chicago, whereas actively managed funds returned 10.9%. Those numbers do not take into account the negative effects of switching. Between 1984 and 2002, according to DALBAR's numbers, passive investors got about 13% a year, compared with 2.7% for those who put their money with active fund managers. Not all money can be passive, of course, because if it were, no one would be making intelligent decisions about which companies deserve capital. But at present there is plenty of room for more.

For the moment, the fund-management business is busy devising products to sell in a bear market. So-called stable-value and principal-protection funds are all the rage. These offer investors part of the return from the stockmarket, or from other asset classes, as well as guaranteeing to give back at least the nominal capital the punters have put in. According to Lipper, an American fund-tracking company, assets in stable-value funds have risen from \$264m to \$3.3 billion since the beginning of the bear market, and money in principal-protection funds has grown from \$724m to \$5.6 billion.

END OF SECTION E

END OF QUESTION PAPER

Suggested Answers

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Section D: Case Study

1. Investment objective:

Going by the write up on the case, Mr. Oberoi presently 40 years is quite well off with no immediate liquidity needs. Moreover, he also does not need to park his funds to safer avenues only as he is in the middle of his career. Though safety is one of the corner stones of investments but in this case it should not be the only guiding factor as Mr. Oberoi still has sizeable working life left with no immediate liquidity constraints. Hence, the investment objective for Mr. Oberoi will be to park funds in avenues that would generate above average return to fend off the inflation and the risk free rate of return (taken together).

Investment constraints:

Liquidity:

There are no immediate liquidity requirements.

Time Horizon:

The time horizon of investment for Mr. Oberoi is long, as he wants to meet the monetary requirements of his son's education, especially when the latter goes for higher studies.

Tax Considerations:

The tax considerations are of paramount importance in this case as it is quite evident that Mr. Oberoi is quite well off and he falls in a higher tax bracket. Hence, investment avenues should be such that the only long-term capital gains are realized after liquidation of holdings.

Risk Consideration:

The risk taking ability of Mr. Oberoi seems to be high as there are no immediate liquidity requirements, he is middle aged with no liability in the foreseeable future. Further, Mr. Oberoi is an ambitious executive with highflying career. This augurs well with our hypothesis of considering his risk taking ability as high.

Investment Policy statement:

They should maximize growth of total return with above average risk and minimal liquidity needs, all in the context of a long time horizon. Diversification should stress its positive role as a growth of capital enhancement technique. No income needs or other constraints require special attention.

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2. a. Scheme Specific Risk Factors

- Performance of the market indices MX1 and MX2 will have a direct bearing on the performance of the Scheme. In the event either or both the indices is/are dissolved or is/are withdrawn, the intention of investors to invest in such a scheme may not be fulfilled.
- Tracking errors are inherent in any indexed fund and such errors may cause the

scheme to generate returns which are not in line with the performance of MX1/MX2 or one or more securities included in MX1/MX2.

In case of investments in derivative instruments like index futures, the risk/ reward would be the same as investments in portfolio of shares representing an index. However, there may be a cost attached to buying an index future. Further, there could be an element of settlement risk, which could be different from the risk in settling physical shares and there is a risk attached to the liquidity and the depth of the index futures market, as it is relatively new market in our company.

- b. The mutual funds scheme shall not invest more than 15% of its NAV in debt instruments issued by a single issuer and 20% for the entire scheme. Being an index fund that it is, which replicate the index, investment in debt instruments seems out of place. If the investments in debt instruments are made to temporarily ward off from the market then money market instruments are better as they are more liquid and safe.

The mutual fund should not invest more than 10% of its NAV in unrated debt instruments. The reasoning in foregoing paragraph holds good with on added point that unrated debt instruments are more risky.

The mutual fund may invest in other schemes under the same AMC or any other mutual fund without charging the fees. If this is carried out then the entire investment motive will be lost. Investment in different schemes of the same AMC will result in cross subsidizing the risk of the fund and at the same time the risk metrics of the fund may change.

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3.

Month ending	Inflow (Rs. in crore)	Value of Index	Index + 0.25%	Number of units bought
March 2004	—	3990.65	4000.63	—
April 2004	10	4326.72	4337.54	23054.54
May 2004	25	4247.04	4257.66	58717.70
June 2004	35	3604.38	3613.39	96861.95
July 2004	45	3519.16	3527.96	127552.47
August 2004	15	3631.91	3640.99	41197.59
September 2004	45	3546.78	3555.65	126559.14
October 2004	35	3329.28	3337.60	104865.77
November 2004	15	3244.95	3253.06	46110.43
December 2004	10	2811.60	2818.63	35478.23
January 2005	15	2989.35	2996.82	50053.06
February 2005	25	3287.56	3295.78	75854.58
March 2005	15	3184.44	3192.40	46986.59
Total number of units bought				833292.05

$$\begin{aligned}
 & \text{Number of units in the beginning of April 2004} = \frac{374.63 \times 10^7}{3990.65} = 9,38,769.37 \\
 & \text{Number of units held as on March 31, 2005} = 9,38,769.37 + 8,33,292.05 = 17,72,061.42 \\
 & \text{Theoretical value of Index fund as on March 31, 2005} = 1772061.42 \times 3184.44 = \text{Rs.} 564.30 \text{ cr.} \\
 & \text{Actual value of index fund as on March 31, 2005} = \text{Rs.} 554.73 \text{ crore} \\
 & \text{Different in capital appreciation} = 554.73 - 564.30 = \text{Rs.} (9.57) \text{ crore}
 \end{aligned}$$

i.e. Fund Manager has under performed the Market Index.

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4.

Assets	Bench Mark Index	Weights		Asset Returns		Policy Portfolio	Allocated Portfolio	Actual Portfolio	Selection Effect
		Policy	Actual	Index	Portfolio				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(9) – (8)
Stock	Market Index	65.0	58.72	16.35	8.82	$16.35 \times 0.65 = 10.63$	$16.35 \times 0.5872 = 9.60$	$8.82 \times 0.5872 = 5.18$	(4.42)
Bond	I – Sec Bond Index for TRI (i.e., Total Return Index)	25.0	32.70	18.23	25.70	$18.23 \times 0.25 = 4.56$	$18.23 \times 0.3270 = 5.96$	$25.70 \times 0.3270 = 8.40$	2.44
Money Market Investment	JP Morgan T – Bill Index	10.0	8.58	5.70	6.30	$5.70 \times 0.10 = 0.57$	$5.70 \times 0.0858 = 0.49$	$6.30 \times 0.0858 = 0.54$	0.05
						15.76	16.05	14.12	(1.93)

Calculation for the allocation effect

Allocation Effect	(Actual Weight – Policy Weight)	×	(Asset Return on Policy Portfolio – Total return on policy portfolio)	
1. Equity allocation effect	(0.5872 – 0.65)	×	(16.35 – 15.76)	= (0.037)
2. Fixed income allocation effect	(0.3270 – 0.25)	×	(18.23 – 15.76)	= 0.190
3. Money Market instrument allocation effect	(0.0858 – 0.10)	×	(5.70 – 15.76)	= 0.143
Total allocation effect				= 0.296

Implication: The allocation effect estimate the impact of the fund manager decision to allocate funds at proportions other than targetted levels. This happens due to value addition the fund manager would like to do due to tactical reasons. Positive value of 0.296% indicates the fund manager's tactical ability. The selection effect estimates the impact of the fund manager's decision to select stock, bond and cash equivalent. Negative value of (1.93%) indicates poor selection ability of the fund manager.

As the differenc between actual portfolio returns and policy portfolio return is $(14.12 - 15.76) = -1.64$.

This can be allocated due to selection and allocation effect.

Total differential return = Allocation effect + Selection effect = $-1.93 + 0.29 = -1.64$.

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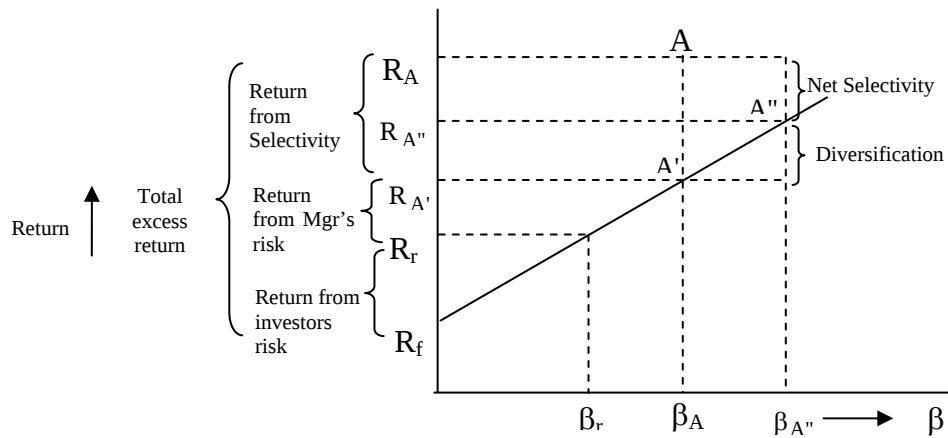
5. Required rate of return (SML) $R_r = R_f + \beta (R_m - R_f)$

Jensen's differential return = $R_i - R_r$ = Fama's total selectivity

Fund	R_i	Required Return (%)	Jensen's Alpha (%)
PNB Growth Fund	12	$7 + 0.98 (15 - 7) = 14.84$	- 2.84
Alliance 95 Growth Fund	18	$7 + 1.23 (15 - 7) = 16.84$	1.16
Birla Balanced Fund	13	$7 + 0.89 (15 - 7) = 14.12$	-1.12
HDFC Balanced Fund	21	$7 + 1.1 (15 - 7) = 15.8$	5.20

Fund	Total Selectivity	Required Return (using CML) $R'_A = R_f + (R_m - R_f) \times$	Net selectivity	Return required for the inadequate
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		$\frac{\sigma_a}{\sigma_m}$		diversification
PNB Growth Fund	-2.84	$7 + 8 \times \frac{25}{22} = 16.09$	-4.09	1.25
Alliance 95 Growth Fund	1.16	$7 + 8 \times \frac{30}{22} = 17.91$	0.09	1.07
Birla Balanced Fund	-1.12	$7 + 8 \times \frac{28}{22} = 17.18$	-4.18	3.06
HDFC Balanced Fund	5.20	$7 + 8 \times \frac{27}{22} = 16.82$	4.18	1.02



Fund	Return (R _i)	R _i - R _f	σ _i (%)	β _i	Sharpe's Ratio $\frac{R_i - R_f}{\sigma_i}$	Rank	Treynor's Ratio $\frac{R_i - R_f}{\beta}$	Rank
PNB Balanced Growth Fund	12	5	25	0.98	0.20	IV	5.10	IV
Alliance Balanced Growth Fund	18	11	30	1.23	0.37	II	8.94	II
Birla Balanced Growth Fund	13	6	28	0.89	0.214	III	6.74	III
HDFC Balanced Growth Fund	21	14	27	1.10	0.52	I	12.73	I

As can be observed in the above table, there is no conflict in ranking as per the two measures. In case there is a conflict, it is because Sharpe's ratio takes standard deviation as a measure of risk whereas Treynor's ratio takes beta or systematic risk as a measure of risk. In a well diversified portfolio total risk and systematic risk will be equal and there will be no ranking conflict.

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Section E: Caselets

Caselet 1

6. A dollar budget is a conventional budget in which the individual starts with an initial fixed corpus and allocates to different classes of assets so that for a required level of return the risk is minimum. The best example following this approach is optimal portfolio selection by Lagrangian multiplier. In it the objective function z reflects the total risk of portfolio and it is minimized whereas the constraint equation specifies a minimum return required.

Another model using this philosophy is Sharpe's optimization model which lays down a

detailed frame work in the prime basis of excess return to beta values $\left(\frac{R_i - R_f}{\beta_i} \right)$. However, the main draw back of dollar budget strategy is that the final portfolio risk though minimum for the level of return but it may still be beyond tolerance range of the risk applets of the investors.

Opposite to this approach risk budget attempts to achieve the allocation decision differently. Here one starts with a pre-specified level of risk what is acceptable and matching to the investor's risk profile and then try to find the maximum return possible. This becomes the basis for even revision of portfolio in future. Once the risk budget is in place, the portfolio components can be monitored to assure the risk proportions do not diverge from those stated in the risk budget by more than pre-specified amounts.

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7. Risk management systems for a firm are designed to control the risk of each trading desks and to monitor each to attempt to identify practices that may be "out of control" – adding more risk to the portfolio than was intended. The horizon over which risk is calculated is typically measured in days. But, this horizon for pension fund is in months because the components in a pension fund portfolio are typically accounts managed by other investment firms whose performance can be judged only at the end of the month.

Some time the pension funds attempt to establish a risk measurement and monitoring system using daily data. However, the volume of data required and handled by this system as well as the related cost is very high.

Another key attribute of a defined benefit pension fund is its obligation to pay benefits in the future. This gives rise to a liability, so that its investment practices should be viewed in terms of their impact on the difference between asset and liability values.

Asset Allocation in Pension Funds

Most large pension funds take two-stage approach when allocating funds among investments. The top stage involves a detailed study of fund's allocation among major asset classes. Such study might be performed every 2-3 years. Based on asset allocation analysis funds are allocated among the investment managers subject to the constraint that each asset exposure falls within the specified range.

In many cases, the fund asset allocation analysis uses a standard one-period mean/variance approach, often coupled with Monte Carlo simulation to make long-term projections of effects of each possible asset allocation. For most large funds asset allocation typically accounts for 90% of the total risk, which highlights the attention given to it.

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Caselet 2

8. The most important presumption of PEG ratio is that the PE ratio of a company will be equal to its profit growth rate. PEG ratio is generally construed to capture the growth component of valuation. But, PEG ratio may not be useful for assessing the cyclical stocks as the growth of these stocks will not be very smooth and

will be shown during a particular period. In the case banking oil and real estate industry the most important thing is assets and their valuation depends not on PEG ratio but their asset base. Therefore, PEG ratio cannot be used for valuing the cyclical stocks and other stocks from banking, Oil and Real estate.

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9. Lot of financial experts have challenge the rule of thumb that the stocks, which are having PEG of less than 1 are good picks. We should see whether the financial theories supports PEG ratio. Strictly speaking theories do not support this ratio. For example, If we consider Aventis pharma and Cipla and if an investor perceives that the Cipla stock is less risky than Aventis and satisfied with lower return from Cipla. This indicates that the investor would be willing to pay more for every Re.1 of Cipla EPS. In other words, lower the risk of the stocks, higher its PE ratio. However the flip side of this rule is that higher the risk, lower the PE ratio. Since Avnetis is expected to be more risky by the investor, its PE ratio will be lower than that of Cipla. Suppose the P/E ratio of Cipla is 10 and that of Aventis is 5 and the expected growth rates for Cipla and Aventis is 20% and 15% respectively, the PEG ratio for Cipla is just 0.33. Therefore an investor may choose Aventis based on the PEG ratio even though his perception for Cipla is better. Hence basing stock picks just on the PEG ratio may be wrong, as the ratio is biased towards stocks that have low PE ratio Thus, we can say that PEG ratio is not perfect.

PEG ratio is a logical extension of PE ratio that compares prices with the current stock prices. As lower PE ratio indicates that stock is undervalued and a higher PE ratio indicates that stock is overvalued or overpriced. Same logic is applicable to PEG ratio if PEG ratio is less than one than it indicates that the stock is possibly undervalued and market expects future growth of EPS will be low and earnings of the company will not be at the same level as prevailing in the given conditions.

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Caselet 3

10. There are several techniques used in building index funds based on Equity indices. This technique fall into three categories: full replication, sampling and optimization. Full replication is the most straightforward approach as its name implies, all of the securities in the benchmark are purchased in the index fund in their proportionate weightings. An Index fund based on Sensex or Nifty that is created by using full replication will hold position in all 30 or 50 stocks in amounts proportionate to their value relative to the market value of all stocks in the index. Proponents of this approach argue that only by holding all the securities in an index can one ensure close tracking of the actual index.

Funds can also be constructed using a sampling approach. A fund constructed in such a way usually hold positions in all of the larger securities in the benchmark, but samples the smaller companies such that the characteristics of the fund closely match those of the benchmark .A simple approach to constructing S&PCNX 500 index fund would be to buy the larger companies stock in their exact proportion while sampling the smaller stocks in such manner so that industry breakdown of the portfolio mirrors that of the index. If one believes that securities within given industries tend to move in a similar manner, then controlling for industry diversification should lead to good tracking. In practice, the criteria for sampling can be far more complex than this, and one can control for any number of factors such as industry breakdown, market capitalization, yield, growth orientation and the like. Proponents of sampling argue that if one can create a portfolio that captures the essential characteristics of a benchmark, without holding positions in each and every security, one can approximate the performance of the benchmark quite closely while keeping administrative and trading costs down.

The third approach to constructing an equity index fund is to use quadratic optimization model. Given data on

securities, such a model attempts to create a portfolio with the minimum possible residual risk vis- a- vis the selected benchmark (i.e. return variability not explained by the benchmark itself). The attraction of this approach is that a portfolio can be constructed with a fewer securities than one would use in full replication or even sampling, and with a very low prospective tracking error. A potential problem however, is that data used to derive this type of model are historic in nature and if the future does not replicate the past as is usually the case, the prospective tracking error on these funds can differ significantly from the actual tracking error.

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11. Stable value funds and principal protected funds differ greatly in how they achieve their objective of preserving principal. Stable value funds generally give investor access to their investment without the loss of principal and accumulated earnings or penalty. Stable value does not require a set holding period. Even though stable value funds give an investor access to their money, some funds may restrict transfers to competing funds such as a money market or bond fund by requiring that money transferred out of stable value be first invested in a stock fund before it can be invested in a bond or money market fund. Principal protected funds do not permit access without imposition of penalties until an investor fulfills the specific period of time required by the fund, usually 5 to 10 years according to the National Association of Security Dealers. Additionally, if an investor takes his/her money out of a principal-protected fund before the term of the fund is met, the investor loses the principal protection on his/her investment. Since stable value funds are primarily offered as part of company's traditional defined contribution plan, their costs tend to be lower.

Some key features of stable-value funds and principal-protection funds include:

Stable-Value Funds:

- • Guarantee the principal investment and maintain a stable net asset value (NAV).
- • Are similar to a money-market fund because the NAV never fluctuates, but they aim to deliver a slightly higher return.
- • Typically own short-to-intermediate-maturity bonds spread across different sectors.
- • Expensive fees can erode stable-value funds' potential advantage over most bond funds.
- • Redemption fees, found on most stable-value funds, can make it difficult to move cash easily when better opportunities call.
- • The private sector, not the government, guarantees the funds, so investors need to double-check who's insuring the fund.

Principal-Protection Funds:

- • Comprised of hybrid (stock and bond) portfolios with insurance that guarantees the principal after several years.
- • Usually an "offering period" when investors can register, and then a "guarantee period" when everyone's money is invested on the same day and is locked away, typically for five or seven years.
- • Weighted heavily toward bonds, sometimes entirely, creating limited upside.
- • Expenses can be extremely high (climbing above 2 percent), especially relative to super-cheap government bond funds.

- • The insurance company providing the guarantee can usurp asset-allocation duties if it thinks management is taking on too much risk.
- • In its efforts to manage risk, funds can drop investment performance out of the equation.
- • The prospectus can be annoyingly opaque.

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