

Question Paper

Portfolio Management and Mutual Funds – II : January 2002

Part D : Case Study (50 Points)

- This part consists of questions with serial number 1 - 6.
- Answer all questions.
- Points are indicated against each question.
- Do not spend more than 80 - 90 minutes on Part 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. Kapoor. Also write an investment policy statement based on these objectives and constraints.

(7 points)
2. Based on the information given in the case, bring out the scheme specific risk factors for the Prudential ICICI Index Fund with suitable explanation.

(7 points)
3. Explain the contradicting features of investment pattern and procedures of investment decisions of Prudential ICICI Index Fund against the back drop of the objectives of the scheme.

(8 points)
4. Based on the BSE Sensex data for last 12 months and the data furnished in Appendix I for an Index Fund created by Mr. Roy, Portfolio Manager, you are required to find out whether the portfolio manager has outperformed the Sensex.
(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 points)
5. From the data available in the case on Prudential ICICI Balanced Growth Fund in Appendix II determine Allocation Effect and Selection Effect due to difference in actual allocation vis-à-vis policy objectives and verify whether the total differential return is equal to sum of allocation and selection effects.

(8 points)
6. Based on the returns furnished for the four balanced funds in Appendix III, you are required to calculate
 - a. Fama's measure of selectivity and net-selectivity and explain your answer diagrammatically.
 - b. Rank the funds on the basis of Sharpe's & Treynor's ratios and explain the conflict in ranking, if any, based on these measures.

(6 + 6 = 12 points)

The above case is prepared only for the purpose of examination and not to illustrate either effective or ineffective performance of the fund. The case contains real information adapted and combined with other information to generate discussion or analysis on the desired topics.

Mr. Shekhar Kapoor (40 years), is a vice president of a finance department of a Multinational company. He is middle aged and his wife is gainfully employed. The financial standing of Mr.Kapoor 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 high flying 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. The downward spiral of the interest rates in the market has meant that his savings are not growing at the rate at which he wants them to grow. Moreover, being a finance person he is all too much aware of the risks inherent in the market. The money market mutual fund market is also not posting good results, what with the excess liquidity being created in the market by the recent RBI Credit policy wherein there is an across the board reduction in the CRR and SLR requirements. The stock markets have witnessed a series of scams and the people have lost faith in the system. More over, with the decrease in the govt. 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 the 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. Kapoor, a finance man himself, decides to take professional advice from the Kamal Roy, a portfolio manager. After discussing with Mr. Kapoor and assessing investment objectives as well his risk taking ability Mr. Kamal Roy provides following investment alternatives to him:

1. Prudential ICICI INDEX FUND which is going to be launched soon (details appear in the case write up)
2. Index Fund based on Sensex created by Mr. Kamal Roy himself (Data available in **Appendix I** for comparison with Sensex).
3. Prudential ICICI BALANCED GROWTH FUND (Details available in **Appendix-II**).

From the data available in **Appendix – I**, Mr. Kapoor is interested in analyzing the performance of the Index fund created by Mr. Kamal Roy in comparison of Sensex over last one year.

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

PRUDENTIAL ICICI INDEX FUND

Introduction

The Sponsors of the Fund are Prudential plc. of the United Kingdom (UK) and ICICI Limited (ICICI). Prudential is one of the largest life insurance company 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. ICICI 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 ICICI since inception as of March 31, 2001 is Rs.1, 46,167 crores.

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 crores approx.). It also has banking deposits of US\$ 10.67 billion (approximately Rs. 50,160 crores). It invests globally and manages the long-term savings of individuals with diverse risk profiles and needs. Prudential ICICI Asset Management Company Limited, the Investment Manager to the Prudential ICICI Mutual Fund, manages assets over Rs.6200 crores as of July 31, 2001 through 12 schemes. It is one of the largest asset management companies in the private sector in the country. Prudential ICICI Index Fund is an open-ended index linked growth scheme seeking to track the returns of the S&P CNX Nifty and BSE Sensex through investment in a basket of stocks drawn from the constituents of the Nifty and Sensex.

Being 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 Fund will, under normal circumstances, endeavor to dispatch redemption cheques within 5 Business Days. It may be noted that this provision is based on the proposed settlement cycle of the Principal Stock Exchange(s), which is on T+3 days.

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 there under will be exempt from Wealth Tax. Units of Prudential ICICI 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.
- Prudential ICICI 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 Prudential ICICI 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 lender 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	Prudential ICICI 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 S&P CNX Nifty and BSE Sensex 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 Nifty Plan and the Sensex Plan.

1. The Nifty Plan:

The objective of the Plan is to invest in companies whose securities are included in Nifty 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 S&P CNX Nifty in approximately the same weightage that they represent in S&P CNX Nifty. The Plan will not seek to outperform the S&P CNX Nifty or to under perform it. The objective is that the performance of the NAV of the Plan should closely track the performance of the S&P CNX Nifty over the same period.

2. The Sensex Plan:

The objective of the Plan is to invest in companies whose securities are included in Sensex 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 BSE Sensex in approximately the same weightage that they represent in BSE Sensex. The Plan will not seek to outperform the BSE Sensex or to under perform it. The objective is that the performance of the NAV of the Plan should closely track the performance of the Sensex over the same period.

INVESTMENT PATTERN

1. The Nifty Plan:

The corpus of the Plan will be invested predominantly in stocks constituting the S&P CNX Nifty and in exchange traded derivatives on the S&P CNX and subject to tracking errors and endeavoring to attain results commensurate with S&P CNX Nifty Index. This would be done by investing in almost all the stocks comprising the S&P CNX Nifty in approximately in the same weightage that they represent in the S&P CNX Nifty 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 Paper (CPs)
- iv) Any other domestic fixed income securities

2. The Sensex Plan:

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

- 1) 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.
- 2) Certificate of Deposits (CDs)
- 3) Commercial Paper (CPs)
- 4) 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 Nifty 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 S&P CNX Nifty and the exchange-traded derivatives on the S&P CNX Nifty	99.75%	100%	90%	High
2.	Money market instruments	0.25%	10%	0%	Medium to high

The Sensex 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 BSE Sensex and the exchange-traded derivatives Stocks drawn from the components of BSE Sensex and the exchange-traded derivatives on the Sensex	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 S&P CNX Nifty / Sensex, 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 / Sensex and appropriate intimation will be sent to the Unitholders 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 unitholders. 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 Nifty/ Sensex 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 upto 99.75% of the corpus of the Scheme in the Equity Stocks drawn from the components of the S&P CNX Nifty / BSE Sensex and the exchange-traded derivatives of the S&P CNX Nifty / BSE Sensex.

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 S&P CNX Nifty and BSE Sensex and in exchange traded derivatives on the S&P CNX Nifty and BSE Sensex 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 S&P CNX Nifty/Sensex, 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 mobilised 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.

Appendix - I

One year data for a similar index fund based on Sensex created by Mr. Kamal Roy, portfolio manager is given as under:

Month ending	Net cash flow (in crores)	Sensex value
December 2000	—	3990.65
January 2001	10	4326.72
February 2001	25	4247.04
March 2001	35	3604.38
April 2001	45	3519.16
May 2001	15	3631.91
June 2001	45	3546.78
July 2001	35	3329.28
August 2001	15	3244.95
September 2001	10	2811.60
October 2001	15	2989.35
November 2001	25	3287.56
December 2001	15	3184.44

The market value of the above index fund

As on	Rs. in crore
January 01, 2001	374.63
December 31, 2001	554.73

Appendix - II**PRUDENTIAL ICICI 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 December 27, 2001 = 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 crores)	206.19 on Nov 29, 2001
Increase/Decrease since Oct 31, 2001 (Rs. in crores)	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 December 27, 2001

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 Nov 29, 2001

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 Nov 29, 2001

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 Nov 29, 2001

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

Assets Return

Bench-mark index	Sensex	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

Appendix - III

The returns earned by four balanced growth funds which have similar investment objectives to that of ICICI 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 PART D

Part E : Caselets (50 Points)

- This part consists of questions with serial number 7 - 13.
- Answer **all** questions.
- Points are indicated against each question.
- Do not spend more than 80 - 90 minutes on Part E.

Caselet 1

Read the following caselet carefully and answer the following questions:

7. In your opinion what would have prompted UTI to change the complexion of US-64 from income to growth scheme?

(7 points)
8. Enumerate the possible reasons for the present state of US-64?

(6 points)
9. Do you agree that breaking US-64 into debt and equity schemes will help? Explain.

(7 points)

Unlike the usual practice for mutual funds, UTI never declared the NAV of US-64 – only the purchase and sale prices for the units were announced. Analysts remarked that the practice of not declaring US-64's NAV in the initial years was justified as the scheme was formulated to attract the small investors into capital markets. The declaration of NAV at that time would not have been advisable, as heavy stock market fluctuations resulting in low NAV figures would have discouraged the investors. This seemed to have led to a mistaken feeling that the UTI and US-64 were somehow immune to the volatility of the Sensex.

Following the heavy redemption wave, it soon became public knowledge that there were serious flaws in the management of funds.

In the late 1980s, the equity component of US-64 never went beyond 30% and was mainly in public sector unit (PSU) stocks. More PSU stocks were bought under the 1992-97 disinvestment program of the union government. Around Rs.6000-7000 crore was invested in scrips such as MTNL, ONGC, IOC, HPCL & SAIL.

A former UTI executive said, "Every chairman of the UTI wanted to prove himself by collecting increasingly larger amounts of money to US-64, and declaring high dividends." This seemed to have resulted in US-64 forgetting its identity as an income scheme, supposed to provide fixed, regular returns by primarily investing in debt instruments. Even a typical balanced fund (equal debt and equity) usually did not put more than 30% of its corpus into equity. A Business Today report claimed that eager to capitalize on the 1994 stock market boom, US-64 had recklessly increased its equity holdings. By the late 1990s the fund's portfolio comprised around 70% equity.

While the equity investments increased by 40%, UTI seemed have ignored the risk factor involved with it. Most of the above investments fared very badly on the bourses causing huge losses to US-64. The management failed to offload the equities when the market started declining.

While the book value of US-64's equity portfolio went up from Rs.7,943 crore (June 1994) to Rs.13,627 (June 1998), the market value had actually declined in the same period from Rs.18,334 crore to Rs.10,029 crore. Analysts remarked that UTI had been pumping money into scrips whose market value kept falling. Raising further question about the fund management practices was the fact that there were hardly any 'growth scrips' from the IT and pharma sectors in the equity portfolio.

In spite of all this, UTI was able to declare dividends as it was paying them out of its yearly income, its reserves and by selling the stocks that had appreciated. This kept the problem under wraps till the reserves turned negative and UTI could no longer afford to keep the sale and purchase prices artificially inflated.

Following the public outrage against the whole issue, UTI in collaboration with the government of India began the task of controlling the damage to US-64's image.

The present chairman has taken many steps. However, the fund NAV stands at Rs.5.8 for every unit of face value Rs.10.

Caselet 2

Read the following caselet carefully and answer the following questions:

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

(7 points)

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

(8 points)

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 3

Read the following caselet carefully and answer the following questions:

12. Considering the state of efficiency of Indian stock market how useful do you think is technical analysis for an investor?

(8 points)

13. Analysts are skeptical about the recent good performance of gilt funds being repeated. Do you agree? Justify.

(7 points)

The markets are consolidating at the higher levels. They have reached the ongoing rally which is now more than two months old. Despite profit booking coming in at higher levels, the BSE Sensex closed this week at 3287.56 points. At this level it was a percentage point higher than the previous close. The volumes, which have become quite healthy after the introduction of stock futures are now above Rs 4,000 crore on a combined basis (daily) on the two main bourses. The new economy stocks saw some profits being taken off the table but this was compensated by buying in some segments of the old economy like auto and cement. The week's trading was truncated by a holiday on Friday.

With global markets in a rallying mode for sometime now, analysts are now brave enough to talk about the possibility of a long-term trend reversal of the bear market. The Indian markets started their downturn more than 18 months ago and after touching a bottom of 2,500 points the Sensex is making higher bottoms. But the question is whether we have started a new bull market in October 2001. If the answer is positive then one should not find the market falling again to the levels of September-end. On the other hand, if this is just a bear market rally based on the relief that the war is over, then one big fall should be there in the next 2 or 3 weeks. And that fall should be at least some 800 points and create a new low. For this purpose, analysts normally look at Sensex charts. The 200 day moving average (DMA) is a crucial indicator for the long-term turned and is often the preferred indicator to predict long-term trend reversals. Without going into the statistics of it, the reasoning is that if the markets are quoting on an average more than they were 9 months ago, they must be trend reversing. The 200 DMA of the Sensex is now at 3,450, about 150 points above the present level of the Sensex. If in this rally the Sensex manages to go above that with good volumes, then the outlook for year 2002 may change dramatically. This is an important confirmation to look for if you believe in statistical techniques of stock picking.

While the equity markets have been bearish for most of this year, the party has been going on full swing in the debt funds. They have seen a lot of investor participation as the smart money left stocks and chased bonds. This can be seen from the phenomenal accretion to the corpus of debt funds even as equity funds faced a run. The income funds, which invest mainly in corporate bonds have no doubt done well; but it is the gilt and liquid funds, which invest in government securities, which have been giving dream returns. These have been in many cases in excess of 20 per cent in the past one year and uniformly above 15 per cent.

The reason for the fantastic performance of Gilt funds has been the steady fall in interest rates. One may find this a trifle contradictory but bears a simple explanation. The interest rates have fallen so much that the yield on the bench mark 10-year government securities has fallen below the 8 per cent mark last week. This means that the existing portfolios of Gilt funds have been shooting up. For instance, if a fund had a portfolio of 10 per cent coupons and the interest rates went down from 10 to 9, the value of the portfolio will go up 10 per cent from 100 to 110. This is what has been happening continuously. However, analysts are doubting whether this will continue.

END OF PART E

END OF QUESTION PAPER

Suggested Answers

Portfolio Management and Mutual Funds – II : January 2002

Part D : Case Study

1. Investment objective:

Going by the write up on the case, Mr. Kapoor 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. Kapoor still has sizeable working life left with no immediate liquidity constraints. Hence, the investment objective for Mr. Kapoor 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. Kapoor is long, as he wants to meet the monetary requirements of his son's education, specially 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. Kapoor 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. Kapoor seems to be high as there are no immediate liquidity requirements, he is middle aged with no liability in the foreseeable future. Further, Mr. Kapoor is an ambitious executive with high flying 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.

2. Scheme Specific Risk Factors

- Performance of the S&P CNX Nifty and BSE Sensex indices will have a direct bearing on the performance of the Scheme. In the event either or both the S&P CNX Nifty and BSE Sensex 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 the Nifty/Sensex or one or more securities covered by / included in the Nifty/Sensex.

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.

3. 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.

4.

Month ending	Inflow (Rs. in crore)	Value of Index	Index + 0.25%	Number of units bought
December 2000	—	3990.65	4000.63	—
January 2001	10	4326.72	4337.54	23054.54
February 2001	25	4247.04	4257.66	58717.70
March 2001	35	3604.38	3613.39	96861.95
April 2001	45	3519.16	3527.96	127552.47
May 2001	15	3631.91	3640.99	41197.59
June 2001	45	3546.78	3555.65	126559.14
July 2001	35	3329.28	3337.60	104865.77
August 2001	15	3244.95	3253.06	46110.43
September 2001	10	2811.60	2818.63	35478.23
October 2001	15	2989.35	2996.82	50053.06
November 2001	25	3287.56	3295.78	75854.58
December 2001	15	3184.44	3192.40	46986.59
Total number of units bought				833292.05

$$\text{Number of units in the beginning of January} = \frac{374.63 \times 10^7}{3990.65} = 9,38,769.37$$

$$\text{Number of units held as on December 31, 2001} = 9,38,769.37 + 8,33,292.05 = 17,72,061.42$$

$$\text{Theoretical value of Index fund as on December 31, 2001} = 1772061.42 \times 3184.44 = \text{Rs.}564.30 \text{ cr.}$$

$$\text{Actual value of index fund as on December 31, 2001} = \text{Rs.}554.73 \text{ crore}$$

$$\text{Different in capital appreciation} = 554.73 - 564.30 = \text{Rs.}(9.57) \text{ crore}$$

i.e. Fund Manager has underperformed the Sensex.

5.

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	Sensex	65.0	58.72	16.35	8.82	16.35×0.65 = 10.63	16.35×0.5872 = 9.60	8.82×0.5872 = 5.18	(4.42)
Bond	I – Sec Bond Index for TRI (i.e., Total Return Index)	25.0	32.70	18.23	25.70	18.23×0.25 = 4.56	18.23×0.3270 = 5.96	25.70×0.3270 = 8.40	2.44
Money Market Investment	JP Morgan T – Bill Index	10.0	8.58	5.70	6.30	5.70×0.10 = 0.57	5.70×0.0858 = 0.49	6.30×0.0858 = 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 in 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 difference 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.

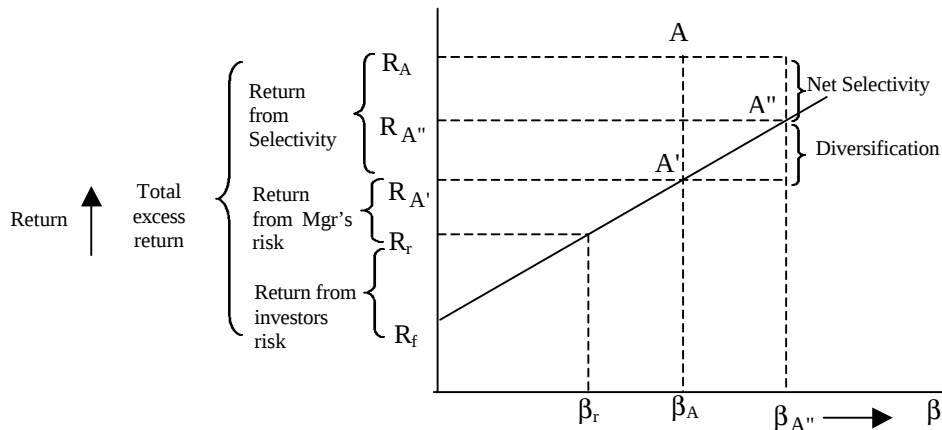
Total differential return = Allocation effect + Selection effect = $-1.93 + 0.29 = -1.64$.

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

Jensen's differential return = $R_i - R_r = \text{Fama}$; 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) $R'_A = R_f + (R_m - R_f) \times \frac{\sigma_a}{\sigma_m}$	Net selectivity	Return required for the inadequate diversification
PNB Growth Fund	-2.84	$7 + 8 \times \frac{25}{22} = 16.09$	-4.091	1.251
Alliance 95 Growth Fund	1.16	$7 + 8 \times \frac{30}{22} = 17.91$	0.09	1.07
Birla Balanced Fund	5.88	$7 + 8 \times \frac{28}{22} = 17.18$	-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 $\frac{R_i - R_f}{\hat{\alpha}}$	Rank
PNB Balanced Growth Fund	12	5	25	0.98	0.20	IV	5.10	III
Alliance Balanced Growth Fund	18	11	30	1.23	0.37	II	8.94	II
Birla Balanced Growth Fund	13	6	28	0.21	0.464	III	6.74	IV
HDFC Balanced Growth Fund	21	14	27	1.10	0.52	I	12.73	I

We see the ranks of Birla balanced fund and PNB balanced funds are reserved under the two measures. 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 total diversified portfolio total risk and systematic risk will be equal and there will be no ranking conflict in present scenario Birla Balanced Growth Fund is having lower systematic risk (β) and higher total risk (σ) compared to PNB Balanced Growth Fund which has resulted in conflict in the ranking of the two.

Part E: Caselets

Caselet 1

7. It is true that UTI was started with the US-64 scheme and its purpose was to mobilize the savings from household sector and the scheme was positioned as income scheme. The component of equity was below 30% until late 1980s and the investment in debt instrument was primarily in Government and PSU stocks to ensure safety and liquidity.

In beginning of 1990s liberalization and deregulation started. The interest rates which were hovering all time high in early 1990's started declining by the mid-nineties and presently has come down to a single digit. The investors whose return on US-64 units were all time high in the early and mid 1990s expected the same level of return to be maintained. With the falling interest rate scenario it was difficult on the part of UTI to maintain such high return.

Further, during this time the shares were quoting record low after 1992 scam and in line with the general perception UTI was tempted to ride on equity bandwagon to make a capital again. The presumption was that this would also help UTI to meet the investor's expectations.

Further, government also chose to divest the PSU shares to FIs to avoid public uproar. Viewing their monopolistic market it made sense to acquire shares of ONGC, MTNL, GAIL, IOC, HPCL & SAIL.

8. The possible reasons for the present state of US-64 are as under:
- i. The spirit of megalomania i.e. becoming bigger and bigger drove each successive UTI chairman for high mobilization through US-64. In fact, in June, 2001 alone UTI was operating at corpus of Rs.64,000 crore where entire mutual fund industry other than UTI was close to Rs.50,000 crore.
 - ii. Prudent investment decisions were not made. Though the research cell was started in the tenure of Dr. S.A. Dave but the research reports were by-passed for most of the investment decisions.
 - iii. To please political leaders some of the investment was unnecessarily taken in public and private sectors which later turned non-performing.
 - iv. Though heavy investment was made in equity market but it did not perform. Infact, after the crash of Nasdaq and melting of tech stocks NAV of UTI suffered heavily.
 - v. UTI had a very high exposure to K-10 stock and after last years' scam and arrest of Ketan Parekh the asset value of fund suffered heavily.
 - vi. With changed governmental policy the monopolistic position of PSUs (particularly of SAIL & MTNL) have been broken and substantial fall has taken place in the market price of their shares.
9. For turning around US-64 a number of permutations and combinations are being talked about. One of them has been – whether breaking of fund in equity and debt will help. Theoretically the fund can be broken up in equity and debt funds and the units of the two can be allocated to individual investors in the same proportion of holding what is at present. And individually the funds will have more focused investment objective.

However, this step is not going to help for the simple reason that US-64 is an open-ended scheme and very heavy investment was made in equity portfolio. Considering the present state of depressed scenario in equity market any such step will experience redemption pressure which in turn depress the NAV further. Separate debt fund being carved out from US-64 is not feasible as any debt fund created out of US-64 will have liquidity and safety but the level of return may not come to the expectation level of investor. Further, even in debt scheme a small proportion of fund is normally allocated to equity and regarding the quality of stock that should be included in debt there may be not be any consensus.

Caselet 2

10. 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 framework in the prime basis of excess return to beta values $\left(\frac{R_i - R_f}{\beta_i} \right)$. However, the main drawback 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 appetites of the investors.

Opposite to this approach risk budget attempts to achieve the allocation decision differently. Here one starts with a prespecified 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 prespecified amounts.

11. 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 these 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.

Caselet 3

12. The indicators like 200 day moving average are mentioned as crucial indicator for predicting the long term trend reversal. It clearly implies that technical analysis is helpful. Technical analysis is based on historical data. However, with the recent development of securities market i.e. screen based trading, introduction of depository and dematerialization of shares, introduction of derivatives trading, compulsory rolling settlement in 30 scrips of Sensex and 172 scrips of Group A, shares, corporatization of brokeship and dominance of Institutional investors, MFs, FIIs have led to the market in weak form. The studies carried out by Obaidullah (1990) and Chaudhury (1991) also supports the weak form of EMH in India. This significant support for 'weak form' is a direct rejection of past prices to predict future price. However, this does not mean that technical analysis can be ignored, considering the usefulness in conjunction with fundamental analysis. Moreover, looking at the performance of Sensex and Gilt funds, it is more than evident that timing as a factor cannot be overlooked.

13. Debt and equity markets are normally negatively correlated. Presently the interest rates are likely to remain low but Gilt portfolios will appreciate only if interest rates fall further. Further falling below 8 per cent is unlikely. So investors will definitely not get the 20 per cent that Gilt funds gave them in past. In fact, they will have to settle for a steady 10% to 11% in the coming 12 months. The predicament of the pure income funds is a bit tough too. People invest mainly in corporate bonds and right now interest rates on those are pretty low. But in this case the returns have been more modest and hence sustainable. However, getting new proposal may be a bit tough.

Investors are in a predicament. They see the changing fortunes of the equity markets and are inclined to move money into them. One should be cautious and gradual in one's approach and not plunge headlong one way or the other. But all over the world savvy investors have of late moved liquidity into stocks away from Gilts and that may be wise in India too.