

Question Paper

Portfolio Management and Mutual Funds - II (MSF2D4) : July 2008

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*

1. As mentioned in the Case Study, investment in Multi Manager Fund helps in diversifying both security's risk and manager's risk. In light of this, explain the various advantages of Multi Manager Fund. [<Answer>](#)
(8 marks)
2. Using Appendix,
 - a. Compute the risk (standard deviation) associated with the returns of the portfolio suggested by Mr.Jalan. (8 marks)
 - b. Compute the coefficient of variation of returns of OEFOF, OEF and the portfolio. (3 marks)
 - c. Analyze whether the investment in the portfolio is better than the investment in individual funds, using the solutions arrived at in (b) above. (2 marks)
3. Analyze the performance of OEFOF, OEF and the portfolio, using
 - a. Sharpe Ratio. (3 marks)
 - b. Treynor Ratio. (8 marks)
 - c. Jensen's Alpha. (4 marks)
4. If the risk tolerance of Mr. Aggarwal is considered as 60%, determine his expected utilities from the investment in OEFOF, OEF and the portfolio and also interpret the results. [<Answer>](#)
(6 marks)
5. In the Case Study, it is mentioned that OEFOF is a close ended fund and OEF is an open ended fund in nature. Mr. Jalan advised Mr. Aggarwal to keep proportionately more funds in OEFOF and less in OEF; as OEFOF being close ended, is estimated to generate better returns than OEF. With respect to this, analyze the reasons behind the expectations of the better performance of a close ended fund. [<Answer>](#)
(8 marks)

Mr. Aggarwal, aged 39 years is a middle level executive working in a private organization and has a wife, a son and a daughter. His son is 12 years old studying class VII and daughter is 10 years old and is in class V. Mr. Aggarwal has high priority goals of his children's education, marriage and savings for his retirement. Being a middle level executive, as his goals are of high priority in nature, he is planning to keep his savings in relatively safe investments. For seeking an advice in this regard, he approached Mr.Jalan, a CFA, working as an Investment Advisor in MJ Consultancy. After analyzing the financial goals and constraints of Mr.Aggarwal, Mr. Jalan suggested different avenues for investment. Mr.Jalan proposed for the investment in Multi Manager Funds launched by Optimix. He also stated that investment in mutual fund schemes usually helps in diversifying the risk associated with securities. But, investment in Multi Manager Fund helps in diversifying both security's risk and manager's risk as well. Thus, Multi Manager Fund tries to diversify manager's risk by combining different investment approaches used by different managers. Hence, he suggested for the investment in Optimix Equity Multi Manager Fund of Fund Scheme (OEFOF) and Optimix Multi Manager Equity Fund (OEF). Mr. Jalan advised him to keep proportionately more funds in OEFOF and less in OEF, as OEFOF being close ended in nature is estimated to generate better returns than OEF.

Optimix Equity Multi Manager FoF Scheme (OEFOF)

Objective: To generate long term capital appreciation primarily from a portfolio of equity funds accessed through the diversified investment styles of underlying schemes selected in accordance with the OptiMix Multi Manager investment process.

Nature of scheme	Close Ended Equity FoF Scheme
Option/plan	Growth option, Dividend option
Entry load	2.5% for applications below Rs.5 cr and Nil for applications of Rs.5 cr & above
Exit load	Nil
Minimum application amount	Rs.5,000/- and in multiples of Re.1/- thereafter
Lock in period	3 Year
Benchmark index	S&P CNX Nifty

Asset allocation	65%–100% : Equity Funds 0%–35% : Debt Funds, Liquid Funds, Money Market Funds 0%– 10% : Money Market Securities
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Optimix Multi Manager Equity Fund (OEF)

Objective: To provide long term capital appreciation by investing predominantly in equity and equity-related securities accessed on the basis of advice from a panel of third party investment advisors selected in accordance with the OptiMix Multi Manager investment process.

Nature of scheme	Open Ended Equity Scheme
Option/plan	Growth option, Dividend option
Entry load	2.5% for applications below Rs.5 cr and Nil for applications of Rs.5 cr & above
Exit load	Nil
Minimum application amount	Rs.5,000/- and in multiples of Re.1/- thereafter
Lock in period	Nil
Benchmark index	S&P CNX Nifty
Asset Allocation	90%–100% : Equity Funds 0%– 10% : Money Market Securities

APPENDIX

Date	NAV of OEFOF (Rs.)	NAV of OEF (Rs.)	S&P CNX Nifty
30-Apr-07	10.0779	10.0000	4087.90
31-May-07	10.7035	10.6300	4295.80
29-Jun-07	10.8810	10.7800	4318.30
31-Jul-07	11.2289	11.2500	4528.85
31-Aug-07	11.0384	11.0900	4464.00
28-Sep-07	12.1409	12.3200	5021.35
31-Oct-07	13.6631	14.3200	5900.65
30-Nov-07	13.8584	14.3800	5762.75
31-Dec-07	15.3058	15.6700	6138.60
31-Jan-08	12.5832	12.5300	5137.45
29-Feb-08	12.3580	12.1600	5223.50
31-Mar-08	10.8777	10.4900	4734.50
30-Apr-08	11.7883	11.3400	5165.90

Presently, 91 days T-Bills are trading at Rs.98.28 each.

Mr.Jalan suggested Mr.Agarwal to construct a portfolio by investing 60% of funds in OEFOF and 40% in OEF.

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. As stated in the caselet, Quant funds are funds that select the stocks in their portfolio on the basis of Quantitative Analysis. The fund managers managing these kinds of funds generally design a mathematical method based on which the stocks are selected in their portfolio. In this context, explain Quantitative Analysis and also analyse how Quantitative Analysis will be used in stock selection process.

[<Answer>](#)

(7 marks)

7. According to the caselet, Quantitative Analysis reduces the risk that may otherwise be introduced by active managers who decide to make a bet on a particular sector or stock. In light of this, explain the pros and cons of quantitative models.

[<Answer>](#)

(8 marks)

The word sounds like 'quaint', but it isn't. It's quant, short for quantitative. Although quants first emerged in the 1970s - born out of the ivory towers of academia - quantitative investing has really hit a growth spurt over the last few years, particularly in 2005. Quant funds are an idea that has been around in the US and is now showing up in India. Quantitative techniques emerged in the early 1970's and gave birth to the index fund in 1971, when Wells Fargo introduced a mutual fund that tracked 1,500 stocks on the New York Stock Exchange. As computer processing power grew and more physicists and mathematicians left academia for Wall Street, money managers offered more robust services, and institutional investors began to embrace quantitative management for the advantages it offered. They became popular in the 1990s as computing methods evolved. According to an estimate, currently over \$800 billion in assets under management are invested in quant funds globally. There are around 200 fund houses in the quantitative space with 120 in the US alone. A quant fund is halfway between two kinds of equity funds, actively managed equity funds and index funds. In case of actively managed funds, a fund manager is required to manage it and in an index fund, a fund manager is not required because the portfolio of the fund is a replica of the benchmark on which the fund is based. Quant funds are halfway between the two because they are managed by a mathematical model which has been developed by a fund manager. The concept of a Quant Fund didn't work when, in 1998, Long-Term Capital Management, a US hedge fund that bet on the predictions of its quantitative algorithm, suffered spectacular losses when its models failed to predict that the Russian government would default on its debt obligations. And that led to the biggest criticism of quantitative models: their reliance on historical data and their inability to take into account new events.

Quant Funds are funds that select the stocks in their portfolio on the basis of quantitative analysis. The fund managers managing these kinds of funds generally design a mathematical method based on which the stocks are taken in their portfolio. The model is developed on the basis of mathematical and statistical parameters. In this volatile market, the quant fund strategy can be useful as it doesn't choose the fund on the basis of any emotional or sentimental issue, is fast in decision making and is cost effective. Obviously, the decisions are correct only when the model is built properly and reflects the real world.

These funds are built on sophisticated trading models that take human emotion out of the buying and selling decision. The computer program scours company data looking for stocks that meet the model's requirements and either buys the stock or sells the stocks of companies that fall below the requirements. Funds are selected on quantitative parameters like volatility, FAMA Model, risk adjusted returns, and rolling return coupled with a qualitative analysis of fund performance and investment styles through regular interactions/due diligence processes with fund managers.

But perhaps the most important attribute of quant funds is their superior risk control. Most models keep sector and equity picks within the benchmark attributes they are built around. This process reduces the risk that may otherwise be introduced by active managers who decide to make a bet on a particular sector or stock. And that leads to what may be the most attractive aspect of a quantitative fund. "With quant funds there is no emotion in the investment process," said Jeff Mortimer, head of equity portfolio management at Charles Schwab.

The first 'Quant Fund' launched in India has received a fair amount of response, prompting several others to follow suit. Lotus India Mutual Fund's 'Lotus India Agile Fund' which was launched in November last year as India's first quant fund, currently manages Rs.230 crore on behalf of around 40,000 investors. "The Agile Fund is our largest equity fund today. Though the NAV has come down due to the correction in the market, the investor's interest in the fund is intact," said Mr. Rajesh Vijay Shastri, Head of Business Development and Strategic Initiative, Lotus India Mutual Fund. Benchmark Mutual Fund has now filed an offer document with market regulator SEBI for a quant fund while a leading fund house, it is reliably learnt, is planning to convert its index fund into a quant fund. Now, Reliance Mutual is also jumping on to the quant bandwagon by announcing the conversion of an index fund into a quant fund named 'Reliance Quant Plus Fund'.

Looking at the performance record of Lotus AGILE fund since its inception, it has negative returns (the NAV is Rs 8.50 on 26th March, 2008). The fund has 11 large cap stocks in its portfolio with about 6 to 10 per cent of holding in each. 97 per cent of its holdings are in large cap stocks. 70 per cent of the portfolio is invested in three sectors which are the Energy Sector, Metal & Metal products and financial sector.

Reliance Mutual says that they have an in-house model which they are developing by looking at various parameters such as valuations, earning sentiments, price, momentum and share holders' value. They would also keep the portfolio's sector weight in line with the Nifty's sector weight. However, in exceptional case this may be 20 per cent higher or lower. It should be interesting to watch how well Indian quants do.

END OF CASELET 1

Caselet 2

Read the caselet carefully and answer the following questions:

8. According to the caselet, fixed maturity plans are close-ended funds with a fixed tenure and invest in a portfolio of debt products whose maturity coincides with the maturity of the product. With respect to this, explain the advantages of fixed maturity plans.

[<Answer>](#)

(7 marks)

9. As mentioned in the caselet, an equity-linked FMP gives the upside of equity while also protecting capital on the downside movement of the market through a debt structure. However, Crisil has accorded a rating AAAfr to ICICI Prudential FMP Series 33 stating that the suffix 'r' at the end of the rating indicates that payments on the rated instrument have all the risks other than credit risk. In light of this, analyze the various risks apart from credit risk associated with the investment in ICICI Prudential FMP Series 33.

(10 marks)

Turbulent markets are always a matter of panic for retail investors. Indeed, prolonged turbulence in market coupled with short term bearish outlook has led to severe bloodbath on Indian bourses in recent times. Many over enthusiastic investors who had bet their money on pure equities have received a severe hammering in the current turmoil. A number of stocks, which were trading close to their all-time highs a few months ago, have now tumbled to their 52-week lows in the current collapse. According to the data compiled by leading business daily, The Economic Times, around 164 stocks have touched their respective one-year lows in February-March, after having scaled their yearly or all-time highs in December-January. This has compelled the Asset Management Companies to concentrate more on remodeling their product portfolios and introducing more Capital Protection Schemes (CPSs).

Fixed Maturity Plans (FMPs) are variants of capital protection schemes are close ended funds with a fixed tenure and invest in a portfolio of debt products whose maturity coincides with the maturity of the product and are already in existence for the last couple of years. The primary objective of an FMP is to generate income while protecting the capital by investing in a portfolio of debt and money market securities. The tenure can be of different maturities, ranging from one month to five years.

Another variant to capital protection schemes i.e., equity-linked FMP are also gaining popularity among the investor community as they promise capital protection with comparatively less risks. A typical CPS invests a small portion of the overall portfolio in equities and the rest is allocated to debt and money market instruments. By allocating a part to equities, the gain is guaranteed, if there is a boom in the stock market and downside loss is also protected through investments in relatively safe debt markets. In their latest moves, fund houses such as ICICI and Deutsche have launched fixed maturity plans which are linked to a particular index.

India's innovation driven fund house ICICI Prudential AMC has also come up with a novel product which is first of its kind in India: Equity-linked Fixed Maturity Plan (FMP). The scheme is indeed original in the sense that no fixed maturity plan in India has so far gambled risk-averse investors' money in equities. In that sense, this scheme by India's second largest fund house is indeed a trend-setter. This ICICI Prudential FMP Series 33 is a close ended debt fund which seeks to invest up to 80% in Equity-Linked Debentures (ELDs). And the rest would be allocated to debt securities with fixed and floating interest rates, with ratings generally AA- or above. ELDs are usually floated by many issuing banks like Citibank, Deutsche Bank, Merrill Lynch, Kotak Bank, etc. Being floating rate debt instrument, ELD's coupon is based on the returns of the underlying equity index. And since the ELDs are basically debentures with varying coupon, the principal is protected. The fund is also permitted to use complex derivative strategies for hedging. It is also permitted to invest in unlisted securities. Thereby, equity linked FMP provides the gain of equity as well as protects capital from downside movement of the market through a debt structure.

Typically, traditional equity mutual funds offer market-linked returns when the equity market goes up and negative returns when the market falls. Nonetheless, it is claimed by the fund house that the composition of this equity-linked FMP has been calibrated in such a manner that when equity market moves northwards, the fund fetches equity-linked returns and when the equity market falls, the structure of the debenture steps in and shields investors from losing their initial corpus.

India's leading rating agency Crisil has accorded a rating AAAfr to this fund. The rating ascribed by Crisil symbolizes that the fund's portfolio will provide very strong protection against losses that crop up due to credit/default risk. However, the suffix 'r' at the end of the rating indicates that payments on the rated instrument have all the risks other than credit risk. However, the fund house avers that this equity-linked FMP would bring in an investment solution to the risk-averse investors by offering risk-managed returns. They also insist that this product would have ideally safeguarded the investors from wealth erosion in the recent crash. The confidence of the ICICI Prudential's management has been echoed in the words of Nimesh Shah, the Managing Director, who commented that, "This product is specially targeted towards investors who are risk-averse and do not invest in equity markets due to the fear of losing their money. This product offers the opportunity to such investors to benefit with Nifty index linked returns when markets go up while remaining worry free, if markets were to go down."

END OF CASELET 2

Caselet 3

Read the caselet carefully and answer the following questions:

10. As mentioned in the caselet, risk reduction through diversification is one of the appeals of fund managers. In this context, explain how risk reduction can be achieved through diversification.

[<Answer>](#)

(10 marks)

11. According to the caselet, in academics, Fama decomposed the Alpha in to two components. Explain how he attributed the two components of Alpha to the performance of fund manager.

[<Answer>](#)

(8 marks)

What exactly are fund managers selling? At heart, they are offering exclusivity. In the complex world of financial markets, the client wants the best brains to look after his money. Picking the right fund manager is like shopping at Saks Fifth Avenue or having your shoes made by Ma-nolo Blahnik. But unlike a posh retailer, a fund manager cannot guarantee to provide a superior service year after year. Indeed, he cannot even be sure of offering a positive real return. All too often, clients hand over their money to managers that have performed well in the past, hoping that this superior record was down to skill rather than luck and that it can be replicated in the future.

Historically, fund managers' appeal has been due to two things: risk reduction through diversification, and an ability to pick the right assets. Think back to the 19th century. Victorian investors faced specific risk because they usually held only a handful of securities in their portfolios. To avoid this risk, they often sought the help of their accountants or solicitors. Those professionals soon found themselves with a lucrative sideline in investment advice. Investment trusts (which still exist today) were set up because it was more efficient to bundle together clients' assets into pooled portfolios. Mutual funds were built on similar principles; by agglomerating the assets of a whole range of clients, it was possible vastly to reduce specific risk.

But since the development of index-tracking funds in the 1970s, the business of diversification has become commoditized. Clients can get access to a broad portfolio, such as the shares in the S&P 500 index, for fees of a fraction of a percentage point of the assets a year. Indeed, the widespread use of indices has dramatically changed the fund management business.

Originally, indices were devised (often by newspapers) as a means of assessing the stock market's mood. Then it occurred to investors that they could use the indices as a means of judging whether their fund manager was doing a good job. As they became more sophisticated, they realized that fund managers would be able to beat the index, in the long run, by taking more risks, and started to move to risk adjusted performance measures that combined returns with volatility. These led to the development of Alpha, a measure of a fund manager's skill, defined as the ability to produce superior risk adjusted returns.

But Alpha is quite hard to define. As Andrew Lo of the Massachusetts Institute of Technology points out, to primitive people, everyday technology like cars and televisions can seem like magic. Alpha is a bit like that: it is the part of investment returns that we do not understand.

Consultants argue that in the past clients devoted too much of their "risk budget" to equities, in the belief that they would beat bonds over time (the so called equity-risk premium). Instead, they should have concentrated more on Alpha because the returns earned from it are more likely to be uncorrelated than market returns, offering a better combination of risk and reward. In academics, Fama decomposed the Alpha in to two components. Betting on Alpha really puts the onus on the fund manager to do better than the market. That explains the increasingly widespread use of performance fees. The idea is that the manager should receive only a modest base fee to help cover his fixed costs, but should take a bigger share of the gains when he succeeds in delivering Alpha.

END OF CASELET 3

END OF SECTION E

END OF QUESTION PAPER

Suggested Answers

Portfolio Management and Mutual Funds - II (MSF2D4) : July 2008

Section D : Case Study

1. The various advantages of Multi Manager Funds are:

- Multi Manager Funds enables to access the best class of various fund managers through one single scheme.
- Schemes with different styles behave differently under different market conditions. Therefore the negative correlation between different management styles help to obtain better returns.
- Small investors generally can not approach to quality investment managers but through multi manager fund they can have access to them.
- Actively managed portfolio with dynamic asset allocation is possible and fund managers constantly monitor and provide consolidated reporting.
- Multi Manager process enables the fund to generate alpha over and above the benchmark, because of diversified manager style.
- The multi manager portfolio adds value and manages risk through an active investment process that tactically blends multiple portfolio managers.
- It enables to take advantage of varied investment styles of the underlying managers and generate consistent performance that makes the most of secular, cyclical or fundamental divergences among managers.

2.(a)

Date	NAV of OEFOF (Rs.)	NAV of OEF (Rs.)	Return of OEFOF (X) (%)	Return of OEF (Y) (%)			$\bar{x}$	$\bar{y}$	
30-Apr-07	10.0779	10.00							
31-May-07	10.7035	10.63	6.21	6.30	4.49	4.74	20.16	22.47	21.28
29-Jun-07	10.8810	10.78	1.66	1.41	-0.06	-0.15	0.00	0.02	0.01
31-Jul-07	11.2289	11.25	3.20	4.36	1.48	2.80	2.19	7.84	4.14
31-Aug-07	11.0384	11.09	-1.70	-1.42	-3.42	-2.98	11.70	8.88	10.19
28-Sep-07	12.1409	12.32	9.99	11.09	8.27	9.53	68.39	90.82	78.81
31-Oct-07	13.6631	14.32	12.54	16.23	10.82	14.67	117.07	215.21	158.73
30-Nov-07	13.8584	14.38	1.43	0.42	-0.29	-1.14	0.08	1.30	0.33
31-Dec-07	15.3058	15.67	10.44	8.97	8.72	7.41	76.04	54.91	64.62
31-Jan-08	12.5832	12.53	-17.79	-20.04	-19.51	-21.60	380.64	466.56	421.42
29-Feb-08	12.3580	12.16	-1.79	-2.95	-3.51	-4.51	12.32	20.34	15.83
31-Mar-08	10.8777	10.49	-11.98	-13.73	-13.70	-15.29	187.69	233.78	209.47
30-Apr-08	11.7883	11.34	8.37	8.10	6.65	6.54	44.22	42.77	43.49
Total			20.58	18.74			920.50	1164.90	1028.32
Average			1.72	1.56					

$$\text{Variance of X} = 83.68$$

$$\text{Variance of Y} = 105.90$$

$$\text{Standard deviation of X} = 9.15 \%$$

$$\text{Standard deviation of Y} = 10.29 \%$$

$$\text{Covariance of portfolio} = 93.48$$

$$W_x = 60\%$$

$$W_y = 40\%$$

$$\begin{aligned} \text{Variance of portfolio} &= W_x^2 \sigma_x^2 + W_y^2 \sigma_y^2 + 2W_x W_y \text{Cov}(X, Y) \\ &= (0.6)^2 (83.68) + (0.4)^2 (105.90) + 2(0.6)(0.4)(93.48) \\ &= 91.94 \end{aligned}$$

$$\begin{aligned} \text{Standard deviation of portfolio} &= \sqrt{91.94} \\ &= 9.59 \% \end{aligned}$$

(b) Coefficient of variation =

Where,

$$= \frac{\text{Standard deviation of security}}{\text{Return of security}}$$

$$= \frac{\text{Standard deviation of security}}{\text{Return of security}}$$

$$\text{Return of portfolio} = 1.66 \%$$

$$\text{CV of OEFOF} = 5.32$$

$$\text{CV of OEF} = 6.60$$

$$\text{CV of Portfolio} = 5.78$$

(c) Coefficient of variation indicates the risk borne by the investor for every unit of return he enjoys. In the present case, Coefficient of variation is highest at 6.6 in case of OEF, lowest at 5.32 for OEFOF and medium at 5.87 in case of portfolio. This is because, risk is less and return is more in case of OEFOF when compared with the remaining two alternatives. From this, it can be

interpreted that investment in OEFoF better than investment in portfolio.

3.

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Date	Nifty	Return of Nifty (M) (%)						
30-Apr-07	4087.90							
31-May-07	4295.80	5.09	4.49	4.74	2.73	7.45	12.26	12.94
29-Jun-07	4318.30	0.52	-0.06	-0.15	-1.84	3.39	0.11	0.28
31-Jul-07	4528.85	4.88	1.48	2.80	2.52	6.35	3.73	7.06
31-Aug-07	4464.00	-1.43	-3.42	-2.98	-3.79	14.36	12.96	11.29
28-Sep-07	5021.35	12.49	8.27	9.53	10.13	102.62	83.78	96.54
31-Oct-07	5900.65	17.51	10.82	14.67	15.15	229.52	163.92	222.25
30-Nov-07	5762.75	-2.34	-0.29	-1.14	-4.70	22.09	1.36	5.36
31-Dec-07	6138.60	6.52	8.72	7.41	4.16	17.31	36.28	30.83
31-Jan-08	5137.45	-16.31	-19.51	-21.60	-18.67	348.57	364.25	403.27
29-Feb-08	5223.50	1.67	-3.51	-4.51	-0.69	0.48	2.42	3.11
31-Mar-08	4734.50	-9.36	-13.70	-15.29	-11.72	137.36	160.56	179.20
30-Apr-08	5165.90	9.11	6.65	6.54	6.75	45.56	44.89	44.15
Total		28.35				935.06	886.52	1016.28
Average		2.36						

Return on X = 1.72 %

Return on Y = 1.56 %

Return on market = 2.36 %

Return of portfolio = 1.66 %

Rf = 7.02% (app.)

Risk free rate per month = 0.585 %

Cov (x,m) = 80.59

Cov (y,m) = 92.39

Var m = 85.01

Beta x = 0.95

Beta y = 1.09

Beta p = 1.01

	Sharpe's ratio	Treynor's ratio	Jensen's alpha
OEFOF	= 0.124	= 1.1947	= -0.55
OEF	= 0.095	= 0.8945	= -0.96
Portfolio	= 0.112	= 1.064	= -0.72

By looking at the three measures, it can be said that OEFOF is the best performer. The excess return generated by OEFOF per unit of total risk as measured by Sharpe Ratio and per unit of systematic factor as measured by Treynor is more in case of OEFOF. Similarly, as measured by Jensen's alpha, the underperformance of OEFOF is comparatively less than that of other schemes.

4. Where,

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U_M = the expected utility of asset mix M for investor K

$\bar{r}_M$ = the expected return for mix M

σ_M^2 = the variance for mix M

X = investor K's risk tolerance.

γ = 0.33

ρ = -0.21

δ = 0.13

The expected utility of OEFOF is highest for the Mr. Aggarwal. Expected utility is more, when return from an asset is more or risk penalty is less or both. Risk penalty is decided based on risk associated with asset mix and risk tolerance of the investor. The more the risk associated with the returns of asset the more the risk penalty and vice versa. Similarly, the more the risk tolerance level of the investor, the less the penalty. Risk associated with returns of OEFOF is less resulting in less risk penalty and return from OEFOF is more. Hence, utility from the same is more.

5. It is believed that investment into the equities markets should be with an investment horizon of 3-5 years. Investments over a longer-term horizon reduce the volatility of returns achievable. In a close ended fund, the fund manager does away with liquidity management, which is an obstacle to successful equity fund management. Liquidity management calls for cash flow management based on inflows and redemptions of investors on a daily basis. This may create a situation where a stock is sold or purchased at a price which is sub-optimal. Without the influences of liquidity, a fund manager is able to make investment decisions which allow longer-term value generation without worrying about liquidating the stocks held in portfolio. Longer-term value realization allows the investor to participate in longer-term performance of a company which is far easier to predict than short-term triggers which may impact a stock price adversely. Thus close ended nature of the fund helps generate better return in comparison to open ended funds.

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Section E: Caselets

Caselet 1

6. Quantitative analysis is a business or financial analysis technique that seeks to understand behavior of the stock by using complex mathematical and statistical modeling, measurement and research. By assigning a numerical value to variables, quantitative analysts try to replicate reality mathematically. Quantitative analysis can be done for a number of reasons such as measurement, performance evaluation or valuation of a financial instrument. It can also be used to predict real world events such as changes in a share price.

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In broad terms, quantitative analysis is simply a way of measuring things. While selecting the stocks, they assign certain criteria from simple financial ratios such as earnings per share, to something as complicated as discounted cash flow, or option pricing. The portfolio of stocks is reviewed and reset periodically using the quantitative analysis model. The fund invests in a stock universe selected by pre programmed guidelines. For example, there may be a guideline that the stock should have been listed for at least one year, the market cap of the stock should be higher than certain benchmark etc. The stock which fulfills the guidelines will be selected for investment. Thus, these funds are managed based on quantitative analysis by software models.

7. Pros:

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- The quantitative models help in taking an enormous amount of data that the traditional fundamental investor won't be able to digest and form opinions on without the assistance of the models.
- There is no scope for involvement of irrational emotions of the portfolio manager or the analyst in investment decisions, as they operate based on predetermined rules and principles.
- Since they are predetermined guidelines to the system, they are much disciplined.
- These models help in avoiding the human errors.

Cons:

- Since, they work based on pre determined rules, updating of new information especially at the times of volatility will be difficult.
- It is suitable only for those investors who are long term oriented not for short term investors.
- There is a need to incorporate sufficient filters and guidelines for screening the stocks which may be complex task.

Caselet 2

8. **Capital protection:** FMPs have less risk of capital loss than equity funds due to their investment in debt and money market instruments.

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Low interest rate sensitivity: As the securities are held till maturity, FMPs are not affected by interest rate volatility. The actual returns are more or less close to the indicative returns declared at the scheme's launch.

Lower cost: FMPs involve minimum expenditure on fund management, as there is no requirement for a time-to-time review by fund managers to buy/sell the instruments constituting the fund. Since these instruments are held till maturity, there is a cost saving in respect of buying and selling of instruments.

Tax benefits: FMPs score over fixed deposits because of their tax efficiencies both in the short-term as well in the long-term.

9. The scheme is not completely risk-free. The introduction of equity means that there are some risks to be taken care of. The normal expectation of the investors is that when they invest in an FMP, certain returns will definitely be earned, if they hold the scheme till maturity. This particular scheme, being an FMP, also tries to eliminate risk by a mode of structuring the portfolio. Generally, this kind of funds invests a bulk of the corpus (around 80%) in debt instruments and the balance (around 20%) in equities. The portfolio is smartly orchestrated so that the amount of money invested in the debt component becomes equivalent to the initial investment on maturity. Thus, the debt part of equity-linked FMP preserves the initial investments made by investors, while the equity portion is utilized to generate capital appreciation.

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However, ICICI Prudential; it seeks to invest up to 80% in ELDs and the rest in various kinds of debt. Though the fund promises protection of initial corpus, there is no formal assurance of capital guarantee like that of Portfolio Management Services (PMS) of high net worth clients which do charge additional fee for the guarantee offered.

Moreover, the scheme may also use relatively complex derivative instruments such as interest rate swaps and forward rate agreements for hedging and portfolio balancing purposes, as permitted under the fund's guidelines. The tie-up with derivatives will definitely expose the scheme to certain risks peculiar to such instruments. Besides, the scheme is also empowered to invest in securities which are not listed on a stock exchange i.e., unlisted securities which by nature are subject to wider price variation, less liquidity and more risk than those which are traded in the open market.

However, portfolio structuring strategies and the execution of the same depend upon the discretion of the fund managers. But the identification and execution of the strategies to be pursued by the fund manager are also fraught with uncertainty, and the

decision of the fund manager may not always be profitable. It cannot be assured that the fund manager will be able to identify and execute such strategies with mathematical precision.

Finally, various kinds of securities in which the scheme would invest generally come with different levels and kinds of risk. Accordingly, the scheme's risk may rise or fall, depending upon the pattern of investment. For instance, corporate bonds involve a higher amount of risk than government securities. Again, even among the corporate bonds, bonds with AAA rating are comparatively less risky than bonds with AA rating. So the efficacy and the success of the scheme, at large, depend upon the prudence of the fund managers.

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10. Diversification is the strategy of combining distinct asset classes in a portfolio in order to reduce overall portfolio risk. In other words, diversification is the process of selecting the asset mix so as to reduce the uncertainty in the return of a portfolio. Diversification helps reduce risk because different investments may rise and fall independent of each other. The combinations of these assets will nullify the impact of fluctuation, thereby, reducing risk. Most financial assets are not held in isolation, rather they are held as parts of portfolios. Banks, pension funds, insurance companies, mutual funds, and other financial institutions are required to hold diversified portfolios. Even individual investors – at least those whose security holdings constitute a significant part of their total wealth – generally hold stock portfolios, not the stock of a single firm. The reason behind this is the lowering of risk, which means risk of getting zero or negative return on some assets. If a person holds a single asset, he or she is highly dependent on the issuer firm, its success, and dividend policy, as well as on the overall current market situation. On other side, holding a well diversified portfolio protects a person from both market fluctuations and internal problems of issuer. A diversified portfolio helps keep investment returns stable. The portfolio risk depends not only on the variance of the individual securities in the portfolio but also on the correlation coefficient between each pair of securities. The lesser the correlation between the assets, the more the achievement of diversification. Hence, diversification can be done in different ways in such a way that the correlation among the different asset classes is less. Diversification of a portfolio can be achieved across different types of asset classes (stocks, bonds and real estate) or/and across different types of regions.

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11. Fama decomposed the Alpha, which he termed as total selectivity in two parts as compensation for net selectivity and compensation for the extra risk possessed by the portfolio. The net selectivity which reflects how well the chosen portfolio performed relative to naively selected portfolio of equal risk. In other words, net selectivity show the extent of excess returns that is generated by the fund due to portfolio manager's superior stock selection skills which resulted in additional unsystematic risk. The second part of Alpha indicates the return produced by the portfolio due to inadequate diversification, i.e., compensation for the extra risk possessed by the portfolios. Thus, selectivity is made up of two components; net selectivity and diversification. Diversification is included because part of the manager's skill involves knowing how much to diversify. We can determine how much of the risk premium comes from ability to select stocks (net selectivity) by subtracting diversification from selectivity.

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* 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.