

Question Paper

Portfolio Management and Mutual Funds - II (252) : October 2006

Section D : Case Study (50 Marks)

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

Case Study

Read the case carefully and answer the following questions:

1. What is the rationale of Dhawal Mehta in constructing the portfolio of HDFC Core & Satellite Fund? [< Answer >](#)
(8 marks)
2. Show how the fund manager of HDFC Core & Satellite Fund rebalances the weights to be assigned to each category of Core and Satellite stocks in the portfolio for the next 8 quarters based on the expected change in the quarterly market return. [< Answer >](#)
(14 marks)
3. a. Using the information provided in Appendix-I, determine the quarterly expected returns on Core and Satellite category stocks for the next 8 quarters. [< Answer >](#)
b. Also critically interpret the accuracy of expected returns on both the categories of stocks obtained above.
(10 + 4 = 14 marks)
4. Using the solutions arrived at in Q. No. 2 and Q. No. 3(a) above, determine the value of investment of Mr. Sarma at the end of 8th quarter, if he invests Rs. 1,00,000 in HDFC Core & Satellite Fund at the beginning of 1st quarter. (Ignore entry load and exit load.) [< Answer >](#)
(6 marks)
5. The use of benchmark among managers all over the world is growing tremendously. Plan sponsors and consultants are engaged in developing a benchmark portfolio for their managers and clients. But, the viability of this benchmark is a question for discussion. Explain the characteristics of an ideal benchmark. And also explain why the managers all over the world begin to construct their own benchmark according to the objectives of the clients. [< Answer >](#)
(8 marks)

Mr. Sarma is a doctor working in a reputed private hospital. As he can undertake only moderate level of risk, he is thinking of different investment avenues involving moderate risk. He approached Mr. Sushil, a portfolio advisor, providing investment advisory services. Mr. Sushil has suggested him to invest in a mutual fund scheme being managed by HDFC Mutual Fund, i.e., HDFC Core & Satellite Fund.

HDFC Core & Satellite Fund:

The objective of the Scheme is to generate capital appreciation through equity investment in companies whose shares are quoting at prices below their true value.

Basic Scheme Information

Nature of Scheme	Open Ended Equity Growth Scheme
Inception Date	Sep 17, 2004
Option/Plan	Growth Option, Dividend Option
Entry Load (as a % of the Applicable NAV)	2.25% for purchase / Switch-in of units less than Rs. 5 crore Nil for purchase / Switch-in of units equal to or greater than Rs. 5 crore
Exit Load	Nil

(as a % of the Applicable NAV)	
Minimum Application Amount	Rs. 5000 and in multiples of Rs. 1000 thereof to open an account / folio
Lock-In-Period	Nil
Net Asset Value Periodicity	Every Business Day
Redemption Proceeds	Normally dispatched within 3 Days

Investment Strategy & Risk Control

The net assets of the Scheme will be invested primarily in equity and equity related instruments in a portfolio comprising of 'Core' group of companies and 'Satellite' group of companies. The 'Core' group will comprise of well established and predominantly large cap companies whereas the 'Satellite' group will comprise of predominantly small-mid cap companies that offer higher potential returns but at the same time carry higher risk. The 'Satellite' group will complement the 'Core' group.

Core group companies typically will be large cap companies. Large cap companies are generally those companies with market capitalization of more than Rs. 2,500 crore. The number of stocks in this category is expected to be in the range of 10-20 and the average exposure per company will thus be between 3%-8% of the portfolio. The 'Core' portion is expected to be between 60%-80% of the portfolio.

The companies that will comprise the 'Satellite' group of companies will be predominantly small-mid cap companies that offer higher potential returns compared to the companies in the 'Core' group but at the same time will also carry higher risk. Small-mid cap companies are generally those companies with market capitalization of less than Rs. 2,500 crore. The number of stocks in the category will be in the range of 10-20 and the average exposure per company will thus be between 1%-4% of the portfolio.

The fund pruned holdings in capital goods, software, bank and non-ferrous metals. Instead, it accumulated stocks in the petroleum, cement, and ferrous metal and pharmaceutical sectors. Exposure to consumer non-durable stocks increased by 40 per cent over the last three months.

The fund is managed by Dhawal Mehta.

Particulars	Value (in Rs.)	As on
Latest NAV	Rs.20.80	Jun-30-2006
Fund Asset Size	Rs.737.59 crore	May-31-2006
Last Dividend	No dividend yet	N.A.
Bonus	N.A.	N.A.

APPENDIX - I

The following is the information pertaining to the returns of market, Core and Satellite category stocks.

MONTHS	BSE SENSEX (%)	CORE CATEGORY STOCKS (%)	SATELLITE CATEGORY STOCKS (%)
July 2005	4.13	9.87	6.56
August 2005	3.13	6.56	2.89
September 2005	9.09	12.39	10.26
October 2005	-8.86	-5.67	-10.65
November 2005	11.86	4.15	20.43
December 2005	6.95	1.22	1.23
January 2006	5.80	1.02	-1.56
February 2006	2.45	-0.77	6.56
March 2006	10.66	5.17	8.96
April 2006	4.56	1.26	5.46
May 2006	-13.68	-4.16	-15.56
June 2006	1.86	1.23	9.56

The above trend between BSE SENSEX and two categories of stocks is expected to be valid even in future.

Historically the following trend is observed between the market returns and T-bill rates.

$$R_m (\text{p.a.}) = 55.32 - 5.81R_f$$

Owing to the increase in Fed rate, the annualized return on T-Bills is expected to increase by 25 basis points every quarter for

the next one year. Thereafter, owing to the uncertainty associated with the further rise in interest rates, it may decrease by 15 basis points every quarter for the subsequent year.

The fund manager rebalances the portfolio at the beginning of every quarter based on the expected change in the market return. Presently, the weights to core and satellite category stocks are 60% and 40% respectively. If quarterly market return is expected to increase by 0.2% or more from the previous quarter's return, he increases weight to satellite category stocks by 5% and reduces to core category stocks by the same percentage. If quarterly market return is expected to decrease by 0.35% or more from the previous quarter's return, he decreases weight to satellite category stocks by 5% and increases to core category stocks by the same percentage.

Presently 91 day T-Bills are trading at Rs. 98.55.

**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. What are the prerequisites for successful and active functioning of property derivatives market? [< Answer >](#)
(9 marks)
7. What could be the possible advantages of property derivatives to investors? [< Answer >](#)
(9 marks)

Over the last couple of decades, the pattern of investing in asset classes such as currency, bonds, equities and commodities has transformed with the emergence of derivative markets. But, only the property markets, which are the biggest asset class among all, have failed to follow suit. The US housing market, which has \$21.6 tn dominating the entire investment classes, has now found a way to hedge against the falling property prices. The US has started applying modern finance techniques to hedge the risks associated with its housing market. Andrew Baum, Principal and Chairman, Oxford Property Consultants says, "lack of acceptable index and domination of real estate industry have delayed introducing property derivatives". But all this is going to change shortly as the Chicago Mercantile Exchange (CME) is planning to introduce index-based futures and options linked to property in the month of May, a new way to bet on the booming housing market.

Certainly, the booming housing market has been the driving force behind the introduction of derivatives. Investors and households believe that the US housing markets are experiencing the bubble due to low mortgage rates. Over the past few years, the median single-family home value and ownership rates have been increasing sharply. According to the National Association of Realtors, the median value for existing single-family homes was \$206,600 in 2005, up from \$170,000 in 2003. Consequently, concerns are mounting that the present housing bubble burst will result in home owners' financial distress.

It is uncertain who the potential investors are going to be in new property derivatives; retail investors, property companies, institutional investors (insurance companies, pension funds, etc.), intermediaries (investment banks) and hedge funds with generally large positions in the real estate may be interested in the property derivatives. A famous commercial investor Robert Shiller says that mostly derivative markets are the tools that large and institutional investors can use to reduce risks. Mortgage bankers could also hedge against falling real estate markets that would increase defaults. The derivatives may add stability to the economy by allowing institutions to hedge their exposure to home price fluctuations and to diversify potential impact of sustained decline in home prices. As there is uncertainty associated with housing projects, indices are useful for betting a year ahead while the derivative products are more useful for commercial investors such as Shiller. However, CME hopes that main customers will be institutions, and also there is a surprise interest on the part of retail investors.

According to Shiller, there are many ways to hedge property risks including direct investment, locking in home equity and linking the prices of a home to the index. In direct investments, investors could buy futures in housing prices and profit from it if home prices continue to increase (if the investor goes long) or if they fall (if the investor goes short). If home prices fall sharply, the drop in the value of the property would be offset by an increase in the value of the futures contract. The homeowners intending to sell within a year or two can go short in the home price futures. If the price of their house drops, short position in futures can recoup loss on the investment. The seller could peg the price of the home to the index by making it a multiple of index for the city. When the index goes up and down, the home prices too change. So both buyers and sellers would have the confidence that selling price was fair at the time of purchase. Shiller says, "Real estate is already volatile and risky like the stock market. And risk is increasing the impression that real estate market only goes up, which is wrong. We need hedging for both sides."

The property derivatives market is in the nascent stage; even in the UK, property derivatives turnover is increasing, but volumes are still modest. With interest rates rising there are many in the US who think that the housing bubble might burst at any time: For these skeptics thankfully the property derivatives would come in handy.

Caselet 2

Read the caselet carefully and answer the following questions:

8. According to the caselet, many wealth managers consider investments in art as hedging activity for diversifying the risk. At the same time, as it is a very risky investment alternative, every investor needs to take care of certain issues, ignorance of which may shatter his expectations. Explain. [< Answer >](#)
(9 marks)
9. Do you think that investment in art is more risky and expensive than investment in equity? Explain. [< Answer >](#)
(8 marks)

In the past, people didn't consider the value of the things hanging on the wall at their homes. As people are becoming more sophisticated in their financial planning, and estate planning, they are beginning to view art as an investment. In 2005, the global turnover of Fine Art was \$4 bn, compared to \$3.6 bn in 2004. The artwork in the US gained 27% in 2005 more than they were in 1990.

Conventionally, art collection has remained the province of wealthy individuals in generating intangible rewards (more than financial rewards). But now, the art investment funds represent a new relationship between art and commerce allowing small investors to enter the art market. Though the investor does not get the painting in physical form, these funds do enable them to gain profits. Now, art has become an 'alternative asset class' like gold, wheat and other similar commodities.

Generally, art is of two types: Collectible art and investment art. Some people, who admire art, have a passion for them and they collect such pieces of art as and when they find them. While choosing such an art, the collector generally does not think of it as a source of investment. It's just his desire to possess it, feel it and later gift it to his heirs.

Investment art is about the art-pieces where skills override emotions. The investor takes into account various parameters, i.e., theme of the art, painting style, creditability of the artist, colors used, past works of the artist and so on, before investing in the art piece. The investors strategically consider the present investment amount, the future demand for the art-piece, possible return on investment, and risks involved. Based on these measures, they plan their alternative exit strategies.

The art market can also be subdivided based on time: Old Masters Art (1300-1860); Impressionists Art (1860-1910); Modern Art (1940-1970); Contemporary Art (1970-1985); and Very Contemporary Art (1985 onwards). The older the time period, the more scarce is its availability and hence it will be quoted at high prices. It is because these art pieces have strong aesthetic and cultural qualities imbibed in them. Contemporary art is considered to be very risky, as they are based on new generation artists who rise and fall quickly. In 1990, 28 artists under the age of 45 sold their artworks for over \$100,000 but the number of artists was reduced to mere seven in 1991, and gradually it rose to 49 in 2005.

Earlier, art was generally considered as a cultural phenomenon rather than as a financial investment. However in the 1970s, the increasing instances of inflation in the US and the less reliable stock markets led some of the investors to diversify their portfolio. They invested in coins, stamps, Chinese ceramics and artworks. In the 1970s, the British Rail Pension Fund invested 2.9% of its portfolio in art and reaped 11.3% interest by the late 1980s. The well-educated generation of baby boomers rose to the situation. An analyst observed, "However, it was the inflation panic of the late 1970s and early 1980s that was the real

economic fuel behind the new vitality of the art market. This newly prosperous, aesthetically-oriented generation, and their parents as well, saw their cash eroding in value and rushed to put their money into tangible assets such as art.”

Art was never undervalued in India. Since the ancient times, kings and the wealthy had the habit of collecting art pieces and they were considered as a status symbol. But never were art pieces considered to be an avenue of investment. It is only in the recent times, when the interest rates were continuously dropping, the gold and silver not reaping enough profits when compared to the inflation, and stock markets becoming highly unreliable (as it touched new highs almost daily), even the upper-middle-class people have sought for diversifying their portfolio and are considering art as an investment.

The Indians’ increasing desire for investment in art was evident from the Saffronart Spring Sale held on March 15 and 16 in 2006. The young artists who were yet to make an impression in the industry were able to sell their creations three times higher than the maximum amount they expected to be sold.

The financial institutions in India have also sensed the increasing trend of investment in art, for example, ICICI Bank offered personal loans (with repayment period of 12 to 36 months at varying rates of interest) for purchasing art pieces. The ING Vysya Bank also targeted the High Net-worth Individuals (HNIs) of India and offered new investment options for them.

The Indian art market, which was valued at Rs. 1,500 cr in 2005, is expected to reach Rs. 2,000 cr by the end of 2006. The Indian art-pieces were also gaining international demand to such an extent that in 2005, Tyeb Mehta’s (Indian Artist) art piece was auctioned abroad at over \$1 mn. So investment in art has already become a part of investor portfolio in India. And foreign investors are also investing in the Indian art. It seems investment in art is flowing from West to India. Many wealth managers consider investments in art as hedging activity or to diversify the risk, but every investor needs to take care of certain issues, which may (if ignored) shatter his/her expectations.

Caselet 3

Read the caselet carefully and answer the following questions:

10. According to the caselet, there are five dominant key investment strategies, i.e., value investing, growth investing, index investing, strategy of technical analysis and portfolio investing. Explain each of them in brief. [< Answer >](#)
- (9 marks)**
- 11 As per the caselet, asset-based approach and income statement approach are the approaches usually used for valuation. Explain the various ways in which valuation is done in asset-based approach. [< Answer >](#)

(6 marks)

At present, there are five dominant key investment strategies i.e., value investing, growth investing, index investing, strategy of technical analysis and portfolio investing. Out of all these strategies, value and growth investing place enormous importance on fundamental analysis of the company’s balance sheet and future prospects. Value investing was born out of the pioneering works of Benjamin Graham and David L Dodd of Columbia University in the 1930s. And growth investing, as a concept, was pioneered by Philip A Fisher and extended by Peter Lynch.

Value investing is partly a state of mind. It is characterized by habitually relating the price of a stock to the value of the underlying business. The gurus of value investing have prescribed three cardinal principles for this strategy, i.e., margin of safety, computation of value and long-term prospects.

A value investor must exercise as much diligence in determining his circle of competence, as he would have to exercise in stock picking. Meticulous examination of the firm’s balance sheet and income statement is the first and foremost step in any variant of value investing. Study of the balance sheet, income statement and cash flow statement helps the Graham clan of value investors answer a few basic questions about the firm’s financial performance. In value investing, usually, asset-based approach and income statement approach are adopted for valuation. Unlike traditional investors who are glued to their trading screens, value investors are not much concerned with market price movements, except to prevent overpaying during the boom times of the market. Most traditional and portfolio investors use Price to Earnings (P/E) ratio as a tool for stock picking—among a group of comparable stocks, they choose the stocks with the lowest P/E ratio.

Value investors also use the P/E ratio, but with a limited purpose for protecting them of overpaying. Graham avoided buying stocks until they were at their lowest P/E level during the last five years. He also required an earnings-return/price ratio to be at least twice as that prevailing on high-rated corporate bonds. The market might not be right, but this approach limits the value investors’ exposure from it being wrong.

Traditional investors and portfolio investors are driven by the market price to sell their investments, either due to panic, or for unlocking profits. Value investors on the other hand decide their exit strategy at the time they invest.

Value investing sets the criteria for selling right at the time of buying, and value investors strive to pick stocks that are least likely to trigger the selling criteria. The extreme case is that of Warren Buffet, the most celebrated value investor. Warren says that he would not buy a stock if he feels that sometime in the future he would have to think of selling it.

Graham's value investing is a strict and disciplined investing approach that rests totally on solid foundation of business analysis, meticulous study of company's financial statements, and circle of competence. Value investors do not get carried away by fantasy stories, which have no solid earnings counterpart like the information technology stocks in the late 1990s. As stated earlier, Warren Buffet stayed away from information technology stocks as he felt that he could not predict their future revenues and earnings with reasonable accuracy. When the bubble burst in 2000, value investors were unexposed to this precarious event. It is true about the frauds such as those at Enron, Worldcom, Quest and Global Crossing. When these frauds made thousands of people lose billions of dollars, value investors escaped unscathed, as they had avoided these fraudulent companies through their habit of rigorous analysis of the company's financial statement and accounting philosophy. For example, Enron followed the policy of focusing on accounting performance rather than economic performance. This is stated in the risk management policy in Enron's annual report. Such accounting policy will rarely escape the keen eyes of a diligent value investor, who will avoid such stock at all costs. The story of other big frauds such as WorldCom, Quest Communications or Global Crossing is no different. All these firms indulged in some or the other type of accounting window dressing to conceal their true financial picture from investors. Non-value investors got carried away by their fantasy stories. Value investors do not like such window dressed balance sheets and avoided all such stocks.

**END OF SECTION
E**

**END OF QUESTION
PAPER**

Suggested Answers

Portfolio Management and Mutual Funds - II (252): October 2006

Section D : Case Study

1. The main rationale behind this portfolio structuring in the Scheme is:

[< TOP >](#)

The two portions of the portfolio viz., Core (60-80%) of well established low risk companies and the Satellite (20-40%) of higher return potential (and also higher risk) companies are complementary to each other. The composite characteristics of the two portions and therefore of the Scheme are expected to be as follows.

	Return Expectations	Risk Profile
Core	Average	Low
Satellite	High	High
Total Scheme	Above Average	Average

In other words, the 'Core' group will provide stability to the Scheme and the 'Satellite' group will provide the potential for higher returns. The Satellite portion of the Scheme will be more diversified to reduce the higher risk in individual stocks in that portion of the Scheme. Thus, satellite portion will complement core portion.

2. T-bill rate = $(100 - 98.55) / 98.55 \times 365 / 91 \times 100 = 5.9\% \text{ p.a}$

[< TOP >](#)

Since, $R_m = 55.32 - 5.81R_f$ is annualized return, it should be converted into quarterly return.

$$R_m(p.q) = 13.83 - 5.81R_f$$

$$\text{Current market return} = 13.83 - 5.81 \times 1.475 = 5.26025 \sim 5.26\% \text{ p.q}$$

(Or)

$$R_m = 55.32 - 5.81R_f$$

$$R_m = 55.32 - 5.81 \times 5.9 = 21.041\% \text{ p.a or } 5.26\% \text{ p.q}$$

$$\text{Current allocation} = 60:40$$

First Quarter

T-Bill rate is expected to increase by 25 basis points during this quarter,

$$R_f = 5.9 + 0.25 = 6.15\% \text{ p.a}$$

$$R_f = 6.15 / 4 = 1.5375 \text{ p.q}$$

$$R_m(p.q) = 13.83 - 5.81R_f$$

$$= 13.83 - 5.81 \times 1.5375 = 4.897125\% \text{ p.q} \sim 4.897\% \text{ p.q}$$

(Or)

$$R_m = 55.32 - 5.81 \times 6.15 = 19.5885\% \text{ p.a or } 4.897\% \text{ p.q}$$

$$\text{Change in market return} = 4.897 - 5.26 = -0.363\%$$

Since market return is expected to decrease by more than 0.35%, the weights to core and satellite categories are 65:35.

Second Quarter

T-Bill rate is expected to increase by 25 basis points,

$$R_f = 6.15 + 0.25 = 6.4\% \text{ p.a}$$

$$R_f = 6.4 / 4 = 1.6 \text{ p.q}$$

$$R_m(p.q) = 13.83 - 5.81R_f$$

$$= 13.83 - 5.81 \times 1.6 = 4.534\% \text{ p.q}$$

(Or)

$$R_m = 55.32 - 5.81 \times 6.4 = 18.136\% \text{ p.a or } 4.534\% \text{ p.q}$$

$$\text{Change in market return} = 4.534 - 4.897 = -0.363\%$$

Since market return is expected to decrease by more than 0.35%, the weights to core and satellite categories are 70:30.

Third Quarter

T-Bill rate is expected to increase by 25 basis points,

$$R_f = 6.4 + 0.25 = 6.65\% \text{ p.a}$$

$$R_f = 6.65/4 = 1.6625 \text{ p.q}$$

$$R_m(\text{p.q}) = 13.83 - 5.81R_f$$

$$= 13.83 - 5.81 \times 1.6625 = 4.170875\% \text{ p.q} \sim 4.171\% \text{ p.q}$$

(Or)

$$R_m = 55.32 - 5.81 \times 6.65 = 16.6835\% \text{ p.a or } 4.171\% \text{ p.q}$$

$$\text{Change in market return} = 4.171 - 4.534 = -0.363\%$$

Since market return is expected to decrease by more than 0.35%, the weights to core and satellite categories are 75:25.

Fourth Quarter

T-Bill rate is expected to increase by 25 basis points,

$$R_f = 6.65 + 0.25 = 6.9\%$$

$$R_f = 6.9/4 = 1.725 \text{ p.q}$$

$$R_m(\text{p.q}) = 13.83 - 5.81R_f$$

$$= 13.83 - 5.81 \times 1.725 = 3.80775\% \text{ p.q} \sim 3.808\% \text{ p.q}$$

(Or)

$$R_m = 55.32 - 5.81 \times 6.9 = 15.231\% \text{ p.a or } 3.808\% \text{ p.q}$$

$$\text{Change in market return} = 3.808 - 4.171 = -0.363\%$$

Since market return is expected to decrease by more than 0.35%, the weights to core and satellite categories are 80:20

Fifth Quarter

T-Bill rate is expected to decrease by 15 basis points,

$$R_f = 6.9 - 0.15 = 6.75\%$$

$$R_f = 6.75/4 = 1.6875 \text{ p.q}$$

$$R_m(\text{p.q}) = 13.83 - 5.81R_f$$

$$= 13.83 - 5.81 \times 1.6875 = 4.025625\% \text{ p.q} \sim 4.026\% \text{ p.q}$$

(Or)

$$R_m = 55.32 - 5.81 \times 6.75 = 16.1025\% \text{ p.a or } 4.026\% \text{ p.q}$$

$$\text{Change in market return} = 4.026 - 3.808 = 0.218\%$$

Since market return is expected to increase by more than 0.2%, the weights to core and satellite categories are 75:25

Sixth Quarter

T-Bill rate is expected to decrease by 15 basis points,

$$R_f = 6.75 - 0.15 = 6.6\%$$

$$R_f = 6.6/4 = 1.65 \text{ p.q}$$

$$R_m = 13.83 - 5.81R_f$$

$$= 13.83 - 5.81 \times 1.65 = 4.2435\% \sim 4.244\% \text{ p.q}$$

(Or)

$$R_m = 55.32 - 5.81 \times 6.6 = 16.974\% \text{ p.a or } 4.244\% \text{ p.q}$$

$$\text{Change in market return} = 4.244 - 4.026 = 0.218\%$$

Since market return is expected to increase by more than 0.2%, the weights to core and satellite categories are 70:30

Seventh Quarter

T-Bill rate is expected to decrease by 15 basis points,

$$R_f = 6.6 - 0.15 = 6.45\%$$

$$R_f = 6.45/4 = 1.6125 \text{ p.q}$$

$$R_m = 13.83 - 5.81R_f$$

$$= 13.83 - 5.81 \times 1.6125 = 4.461375\% \sim 4.461\% \text{ p.q}$$

(Or)

$$R_m = 55.32 - 5.81 \times 6.45 = 17.8455\% \text{ p.a or } 4.461\% \text{ p.q}$$

$$\text{Change in market return} = 4.461 - 4.244 = 0.218\%$$

Since market return is expected to increase by more than 0.2%, the weights to core and satellite categories are 65:35

Eighth Quarter

T-Bill rate is expected to decrease by 15 basis points,

$$R_f = 6.45 - 0.15 = 6.3\%$$

$$R_f = 6.3/4 = 1.575 \text{ p.q}$$

$$R_m = 13.83 - 5.81R_f$$

$$= 13.83 - 5.81 \times 1.575 = 4.67925\% \sim 4.679\% \text{ p.q}$$

(Or)

$$R_m = 55.32 - 5.81 \times 6.3 = 18.717\% \text{ p.a or } 4.679\% \text{ p.q}$$

$$\text{Change in market return} = 4.679 - 4.461 = 0.218\%$$

Since market return is expected to increase by more than 0.2%, the weights to core and satellite categories are 60:40

3. a.

[< TOP >](#)

	MARKET (R_m)	CORE (R_c)	SATELLITE (R_s)	$(\frac{R_m}{\bar{R}_m} - \frac{\bar{R}_m}{\bar{R}_m})$	$(\frac{R_m}{\bar{R}_m} - \frac{\bar{R}_m}{\bar{R}_m})^2$	$(\frac{R_c}{\bar{R}_c} - \frac{\bar{R}_c}{\bar{R}_c})$	$(\frac{R_s}{\bar{R}_s} - \frac{\bar{R}_s}{\bar{R}_s})$	$(\frac{R_m}{\bar{R}_m} - \frac{\bar{R}_m}{\bar{R}_c})(\frac{R_c}{\bar{R}_c} - \frac{\bar{R}_c}{\bar{R}_c})$	$(\frac{R_m}{\bar{R}_m} - \frac{\bar{R}_m}{\bar{R}_s})(\frac{R_s}{\bar{R}_s} - \frac{\bar{R}_s}{\bar{R}_s})$
July 2005	4.13	9.87	6.56	0.97	0.93	7.19	2.88	6.94	2.78
August 2005	3.13	6.56	2.89	-0.03	0.00	3.87	-0.79	-0.13	0.03
September 2005	9.09	12.39	10.26	5.93	35.12	9.70	6.58	57.49	39.00
October 2005	-8.86	-5.67	-10.65	-12.02	144.53	-8.36	-14.33	100.49	172.26
November 2005	11.86	4.15	20.43	8.70	75.71	1.46	16.75	12.71	145.76
December 2005	6.95	1.22	1.23	3.79	14.33	-1.47	-2.45	-5.56	-9.27
January 2006	5.80	1.02	-1.56	2.64	6.96	-1.67	-5.24	-4.40	-13.82
February 2006	2.45	-0.77	6.56	-0.71	0.51	-3.46	2.88	2.46	-2.05
March 2006	10.66	5.17	8.96	7.50	56.24	2.48	5.28	18.59	39.61
April 2006	4.56	1.26	5.46	1.39	1.94	-1.43	1.78	-1.99	2.48
May 2006	-13.68	-4.16	-15.56	-16.84	283.58	-6.85	-19.24	115.42	323.97
June 2006	1.86	1.23	9.56	-1.30	1.70	-1.46	5.88	1.90	-7.66
Total	37.96	32.27	44.14		621.54			303.91	693.09
Average	3.16	2.69	3.68						

$$\text{Market variance} = 621.54/11 = 56.50 (\%)^2$$

$$\text{Covariance between market and core} = 303.91/11 = 27.63\%$$

$$\text{Beta of core} = 27.63/56.50 = 0.49$$

$$\text{Alpha of core} = \bar{R}_c - \beta_c \times \bar{R}_m$$

$$= 2.69 - 0.49 \times 3.16 = 1.14$$

$$\text{Return on core} = 1.14 + 0.49 \times R_m \quad (\text{Monthly})$$

$$\text{Return on core} = 3.42 + 0.49 \times R_m \quad (\text{Quarterly})$$

$$\text{Covariance between market and satellite} = 693.09/11 = 63.01\%$$

$$\text{Beta of satellite} = 63.01/56.50 = 1.115$$

$$\text{Alpha of satellite} = \bar{R}_s - \beta_s \times \bar{R}_m$$

$$= 3.68 - 1.115 \times 3.16 = 0.1566 \sim 0.16$$

$$\text{Return on satellite} = 0.16 + 1.115 \times R_m \quad (\text{Monthly})$$

$$\text{Return on satellite} = 0.48 + 1.115 \times R_m \quad (\text{Quarterly})$$

Quarter	Expected Return on Market ($13.83 - 5.81R_f$)(%)	Expected Return on Core ($3.42 + 0.49 \times R_m$)	Expected Return on Satellite ($0.48 + 1.115 \times R_m$)
1	4.897	5.820	5.940
2	4.534	5.642	5.535
3	4.171	5.464	5.131
4	3.808	5.286	4.726
5	4.026	5.393	4.969
6	4.244	5.500	5.212
7	4.461	5.606	5.454
8	4.679	5.713	5.697

b.

- The accuracy of expected returns computed above depends on the reliability and validity of the relationship between market and T-Bill rates and in turn the relationship between market and core & satellite category stocks in future.
- Usage of the returns on BSE SENSEX with that on satellite category stocks for establishing relationship is not reliable, as BSE SENSEX represents the blue chip and large cap companies, whereas satellite stocks are small-mid cap companies with market capitalisation of less than Rs. 2,500 crore.

4. Expected return on portfolio:

[< TOP >](#)

Quarter	Expected Return on Core	Expected Return on Satellite	Allocation to core and satellite category stocks	Expected Return on Fund ($W_c \times R_c + W_s \times R_s$)
1	5.820	5.940	65:35	5.862
2	5.642	5.535	70:30	5.610
3	5.464	5.131	75:25	5.381
4	5.286	4.726	80:20	5.174
5	5.393	4.969	75:25	5.287
6	5.500	5.212	70:30	5.414
7	5.606	5.454	65:35	5.553
8	5.713	5.697	60:40	5.707

If an investor invests Rs.1,00,000 in the fund at the beginning of the 1st quarter and the expected value of his investment at the end of 8th quarter = 1,00,000 (1.05862) (1.0561) (1.05381) (1.05174) (1.05287) (1.05414) (1.05553) (1.05707) = Rs.1,53,449.

5. The benchmark should be transparent and reflect the investor's objective and management strategy and it should be [< TOP >](#) defined before the management.

- The benchmark should be substantially and formally comparable to the portfolio in the scope of what securities are

considered and in the way retruns are calculated.

- The benchmark risk and exposure to various factors should be comparable to those of the mandate.
- The manager has current investment knowledge of the securities, which make up the benchmark.
- The benchmark is constructed prior to the start of the evaluation period.

The failure of the benchmark to possess any of the above characteristics compromises its utility as an effective management tool. Therefore, many managers all over the world begin to construct their own benchmark on the basis of their investment objectives and the same is supplied to their clients. The development of a formal understanding of the relationship between their investment objective and their investment management structure is the most important implication of the use of the benchmark. Here, the important thing in the use of benchmark is reduction in the cost. The cost of hiring managers of different classes for construction of their own benchmark is much less than the use of other benchmarks.

Managers are also benefiting from the use of benchmark as their performance is evaluated relative to the appropriate benchmark and no one can blame them for their investment skill in terms of asset allocation.

Suitable benchmark portfolios provide a framework around which the plan sponsor can develop a more effective investment program. Both asset allocation skill and active management skill can be facilitating with the appropriate use of portfolio benchmark.

Section E: Caselets

Caselet 1

6. A successful derivatives market needs liquidity. Participants will be cautious to enter the market if there is lack of liquidity. Reliable information on their biggest asset is extremely important. The price discovery will lead to a possible reduction in the boom and bust in the property market. The other problem with property derivatives is the two-sided market. Derivatives can find the investors when market rises; if market falls no one will invest. So, there is a need for products linked to positive and negative movements in the index. Furthermore, confidence in the instrument, divergent views on the future market's performance and investor education will have an impact on active functioning of the property derivatives market. [< TOP >](#)
7. The property derivatives offer a number of advantages to the investors such as gaining exposure to property without owning it, offsetting the risk in the existing portfolios, reduced transaction costs, benefits of price discovery. The property derivatives allow the transfer of property risk without the need to buy or sell physical property. Accordingly, the investors who want to hedge risks and speculate on housing prices indices across 10 cities can as well trade on the national index. The ability to buy exposure to property markets without the risks and expense of choosing and managing buildings is highly attractive, with an estimated transaction costs of 0.5% for buying a derivative, compared to 8% of trading in property. [< TOP >](#)

Caselet 2

8. 1. Art is such a commodity, for which there is no legitimate accreditation available by any authority across the globe. It is driven by emotions of stakeholders (artists, investors, dealers, and museums/art galleries). In such a case, it emerges to be a highly risk-oriented investment option. Any investor who lacks enough knowledge and experience in this market may get carried away due to false guidance by intermediaries and may end up with mere wallpapers rather than profits. Spending sufficient amount of time in understanding the game by visiting hundreds of museums, art galleries, and taking inputs from artists, experienced people and try to gain knowledge is the only way to avoid losing money in the art market. [< TOP >](#)
2. At times of urgent need of cash, any mutual fund unit can be sold on the spot, any stock can be sold at prevailing prices (may be for losses too!) and even the fixed deposits can be encashed, but an investor can not take a painting to sell at crossroads. Every person in this market would not hesitate to deny the chances. The art pieces are highly illiquid. They require specific place, time and most importantly the buyer's sentiments to sell them. An investor, who is ready to face such adverse situations, should only dare to think of investment in art. Many a times, dealers form cartels to deliberately increase/decrease the prices suiting their requirements and ultimately the investor has high chances of losing money. This

shows the lack of transparency prevalent in the art market.

3. An investment in art is supplemented with many other transaction costs. Every time an investor buys or sells a collection he/she has to pay commissions, which range from 15 to 25% and at times, they may go up to 30% to intermediaries (dealers, or museums/art galleries). In the Western countries, some of the insurance companies provide insurance cover for art pieces. In such cases, an investors has to bear the additional burden of paying premiums. Some of the art pieces made of specific materials are required to be stored in appropriate conditions (temperature, air quality, humidity etc.,) in order to avoid their deterioration. In those instances, an investor may be required to spend on storage costs.
9. Even if an investment in a stock (equity) goes awry for a few months/years, there are chances that somehow the investors would get at least their principal money back, though it would take a few more years. But an investment in an outdated art piece or on a work of an ordinary artist involves a high risk of not yielding any profits even after decades and even the investor would not be able to find any buyer for his/her art piece. Art is broadly valued, based on its quality and its distinctiveness from other art pieces on the earth. [< TOP >](#)

Though investment in art is considered to be a hedge against inflation and a diversifying opportunity, analysts are concerned on its illiquid character, highly volatile prices, fluctuating trends and an inability to appropriately measure its financial viability. The art market is highly volatile in short term, hence forcing an investor to wait for considerable period of time, which may be a decade or even more in some cases. It is the biggest challenge for art funds. Buying art is not as easy as buying stock, times change and fashions change as an investor in art you have to be in tune with what's going on. Artworks do not generate any income, except to the extent that income can be obtained from lending them to galleries, and they incur negative income in the form of storage and associated costs. While some artworks have appreciated enormously in value over time, it is difficult to make a case for artworks overall earning a positive net rate of return in real terms over the long-run. Moreover, there hardly exists any financial model, as available in case of stocks, to value art and hence it becomes very tough to predict its future performance. The art is on a large scale judged based on emotions of investors.

There are no intermediary benefits in an art investment (as dividends in stocks and mutual funds, bonus shares in stocks, etc.) The sum invested in an art piece can only be redeemed when an investor finds a suitable buyer and can't take advantage of any other intermediary benefits.

Caselet 3

10. Value investing relies on fundamental analysis to identify the stocks that are priced below their intrinsic value. The skill of a value investor is to accurately measure the intrinsic value of a company through an analysis of the company's financial statements. [< TOP >](#)

Growth investing is a variant of value investing; the difference is—Growth investors seek companies whose future prospects look promising, and high earnings in the future can boost intrinsic value rapidly, driving it above the price at which the stock is purchased by the investor. In other words, Growth investors seek stocks of companies expected to experience tremendous growth in earnings and cash flows, thus justifying their current stock price.

Index investing selects the shares, which replicate a popular market index. This is a defensive stock selection strategy meant for those small investors who lack time and resource to undertake detailed fundamental analysis required for both value and growth investing strategies..

The strategy of Technical Analysis studies the behavior pattern of the market prices of various stocks and suggests investment decisions based on the chart or pattern produced by the stock prices. Technical analysis completely ignores the fundamental analysis and considers the chart patterns as a reflection of the psychology of the investors. In other words, technical investors seek stocks that are expected to appreciate substantially in a very short-term based on their price charts.

Finally, portfolio investing is one that banks on the principle of diversification. Portfolio investors assess their risk appetite and select a diverse group of stocks to optimize return for a given level of risk.

11. The balance sheet or asset-based approach to valuation can take three forms: Book value, liquidation value, and the reproduction or replacement value. [< TOP >](#)

Book value is the difference between total assets and total liabilities. A firm can be considered to be at least as valuable as its book value. Graham adopted a conservative, hard line approach where the value of the firm was computed as current assets—total liabilities. Graham made this famous as the net—networking capital figure. This is, however, impractical in modern times, as very few companies would have current assets more than their total liabilities. A key reason for this conservative approach was the reliability of asset value data. Valuation data for current assets is much more reliable than that for long-term assets. Liquidation value is another approach to firm valuation. This is the net amount that would be realized by selling all of a company's assets and liquidating all its liabilities. When using liquidation value method, liabilities are taken at their face value, while assets are discounted. When cash and securities are taken at face value, receivables require a small discounting, while inventory and long-term assets require a much larger discount. This valuation method does not take into the value arising from deploying resources in combination. It is thus of limited use for valuing firms as going concerns. The third method for valuing firms as going concerns is reproduction cost method. This method values a firm on the basis of what it would take to replicate the firm to its current level from scratch.

[< TOP OF THE DOCUMENT >](#)