Portfolio Management (MB3H1INV) : January 2009

Section A : Basic Concepts (30 Marks)
This section consists of questions with serial number 1 - 30 .
Answer all q uestions.
Each question carries one mark.
Maximum time for answering Section A is 30 Minutes.

1. The standard deviation of returns of a portfolio of two stocks will be the weighted average of the standard
deviation of returns of the stocks, if
(a) The coefficient of correlation between the returns of two stocks is zero
(b) The coefficient of correlation between the returns of two stocks is –1
(c) The coefficient of correlation between the returns of two stocks is +1
(d) The coefficient of correlation between the returns of two stocks is 0.5
(e) The coefficient of correlation between the returns of two stocks is –0.5.

2. An investor can construct a portfolio that lies to the left of the optimal risky portfolio on asset allocation line by
I. Borrowing at the risk-free rate and investing in the optimal risky portfolio.
II. Lending some money at the risk-free rate and investing the remainder in the optimal risky portfolio.
III. Investing only in risk free security.
(a) Only (I) above
(b) Only (II) above
(c) Both (I) and (III) above
(d) Both (II) and (III) above
(e) All (I), (II) and (III) above.

3. Consider the following information in relation to three stocks:
Stock Realized Return (%) Beta
19
15
11
Anand Ltd.
Bhanu Ltd.
Cyan Ltd.
1.25
1.10
0.50
The portfolio consists of the shares of Anand Ltd., Bhanu Ltd. and Cyan Ltd. in equal proportions. It is observed
that the market index on an average generated a return of 12.5%. Assuming that the risk free rate is 8.5%, the
excess return generated b y the portfolio as per Jensen is
(a) 1.74%
(b) 2.70%
(c) 3.85%
(d) 4.46%
(e) 5.10%.

4. Which of the following risks is not considered by Burmeister, Ibbotson, Roll and Ross (BIRR) macro economic
factor model?

(a) Confidence risk
(b) Time horizon risk
(c) Currency risk
(d) Business cycle risk
(e) Market timing risk.

5. Which of the following statements is true regarding formula plans in portfolio revision?
(a) In dollar-cost-averaging, the investor must fix predetermined action points called revaluation p oints
(b) Variable ratio plan implies selling of stocks and buying of bonds as stock prices rise and the buying of
stocks and selling of bonds as stock prices fall
(c) Dollar-cost-averaging works well over short periods such as one to two years
(d) Variable ratio plan requires less accurate forecasting than other plans and hence is less complicated
(e) The constant dollar value plan does not require forecast of the level to which stock prices may fall.

6. Preference of a sure gain to an uncertain event with the same expected value as that of a sure outcome, is
referred to as
(a) Asset aversion
(b) Loss aversion
(c) Risk aversion
(d) Liability aversion
(e) Emotional constraint.

7. Goldman Sachs Asset Management (GSAM) factor model uses nine factors, which are categorized into three
measures-value, growth and momentum & risk. Which of the following factors represent growth and momentum
measure?
(a) Book value per share/Price
(b) Retained EPS/Price
(c) Estimate revisions
(d) Beta
(e) Disappointment risk.

8. For stock A, the residual variance of returns is 56(%)2 and its beta is 1.23. If the variance of the market's returns
is 62(%)2 , the coefficient of correlation of stock A's return with that of market is appro ximately
(a) 0.50
(b) 0.79
(c) 0.84
(d) 0.89
(e) 0.92.

9. A stock with a beta of 0.85 is currently trading at Rs.44. After one year the price of the stock is expected to be
Rs.48. The market return is 15% p.a and the risk-free rate is 8.5% p.a. If stock pays Rs.2.5 as dividend during the
next year

I. The required return on stock is 14.025% p.a.
II. The stock's alpha is 3.295%.
III. The stock is under priced and should be purchased.
IV. The stock is over priced and should be sold .
(a) Both (I) and (II) above
(b) Both (I) and (III) above
(c) Both (II) and (III) above
(d) Both (II) and (IV) above
(e) (I), (II) and (III) above.

10.The portfolio rebalancing should ensure that
(a) The systematic risk remains constant
(b) The unsystematic risk remains at unity
(c) The systematic risk remains at unity
(d) The systematic risk remains at zero
(e) The total risk does not exceed unity.

11.Which of the following statements is/are not true with respect to constant mix strategies?
I. These strategies are more static in nature.
II. The risk tolerance level of the investors varies with the level o f their wealth.
III. When the stock markets are perfectly capable of reversing themselves, such reversals fav or the constant
mix strategies over the buy and hold strategies.
(a) Only (I) above
(b) Only (III) above
(c) Both (I) and (II) above
(d) Both (I) and (III) above
(e) Both (II) and (III) above.

12.Alpha of stock of Cipla Ltd. is – 2.8%. Beta of the stock is 0.68. If the standard deviation of returns on market is
34.25%, the systematic risk of the stock returns is
(a) 542.42(%)2
(b) 498.58(%)2
(c) 412.64(%)2
(d) 376.86(%)2
(e) 304.32(%)2.

13.Which of the following is/are the reason(s) which make(s) the SML a band instead of a thin line?
I. Transaction costs.
II. Imperfect information.
III. Taxes.
IV. Number of stock s in the mark et index.
(a) Only (I) above
(b) Only (III) above
(c) Both (II) and (III) above
(d) (I), (II) and (III) above
(e) (I), (III) and (IV) above.

14.Who among the following assumes that the term structure of interest rates can provide best information about

the rate of expected inflation?
(a) Markowitz
(b) Nelson
(c) Fama
(d) Sharpe
(e) Livingston.

15.At the prevailin g environment, the slope of the SML is 6.5%, the sensitivity o f the return s of the portfolio to the
market returns is 1.2. If the realized return on the portfolio is 15% and the excess return on the portfolio as per
Jenson is 1.2, the yield on 91-day T-Bill is
(a) 10.00%
(b) 9.50%
(c) 8.97%
(d) 7.25%
(e) 6.00%.

16.As per Arbitrage Pricing Theory (APT), which is a multi factor model, the return on any asset i is given b y
Ri = i 0 + i 1 I1 + i2 I2 + i 3I3 + - - - - - + i mIm + ei
where the notations are in their standard use.
If the variance (Ri) = 360(%)2 and the above equation explains 80% of the total variance, then the variance of
error term i.e. Var (ei) will be
(a) 0(%)2
(b) 72(%)2
(c) 100(%)2
(d) 150(%)2
(e) 160(%)2.

17.The data given below relates to the sensitivity of a stock based on the BIRR model.
Estimated Market price for
Risk Factor Estimated Factor
Sensitivity
Risk (%)
Confidence risk 0.65
2.89
Time horizon risk 0.76
3.24
Inflation risk – 0.78
-
Business Cycle risk – 2.65
0.95
Market Timing risk 1.75
2.45
If the risk-free rate is 8.5% and the expected return on the stock is 13.3%, the estimated market price for
inflation risk is
(a) –2.87%
(b) –3.30%
(c) +0.35 %

(d) +1.68 %
(e) +2.87 %.

18.The unanticipated changes in which of the following variables usually determine the asset prices?
I. Rate of inflation.
II. Industrial prod uction.
III. Risk premiums.
IV. Slope of the term structure of interest rates.
(a) Both (I) and (III) above
(b) Both (II) and (IV) above
(c) (I), (II) and (III) above
(d) (II), (III) and (IV) above
(e) All (I), (II), (III) and (IV) above.

19.Which of the following is false with respect to leading indicator approach?
(a) This approach is valuable in indicating the direction of chan ges in econo mic activity
(b) This approach is based on movement of selected economic factors, which indicate the movement of
economy
(c) This method does not convey any information on the magnitude and duration of change
(d) This approach uses flow of funds or liquidity data to forecast the changes in general economic scenario
(e) Residential construction, corporate profits and change in general price level can be considered as leading
indicators.

20.Which of the following is/are false with respect to the Risk Attribute Model?
I. In this model for measuring economic growth, the monthly change in industrial production is u sed.
II. The difference between the exp ected inflation and the actual inflation is taken to determine the inflation
shock.
III. The factor representing the stage of the busines s cycle is taken as the difference between the yield on top
rated corporate bonds of a 2-year maturity and a 2 -year treas ury bonds.
(a) Only (I) above
(b) Only (III) above
(c) Both (I) and (II) above
(d) Both (I) and (III) above
(e) All (I), (II) and (III) above.

21.A portfolio manager has residual risk of 5% and alpha value of 3%. The information ratio and the number of
years he would need to sustain this performance to be 90% confidence of its significance are respectively
(a) 0.08 and 3.56 yrs
(b) 0.10 and 7.56 yrs
(c) 0.14 and 3.98 yrs
(d) 0.60 and 7.52 yrs
(e) 0.27 and 6.21 yrs.

22.Consider the following information on one year in vestment period of an investor:
Dividend
Price at the time
Stock Price at the time
received
of purchase
of sale
(Rs.)
Honey Ltd. 75.00 231.45 3.1
Ramson Ltd. 185.33 249.63 4.2
Clayware Ltd. 125.45 167.23 2.1
If the fund manager diversifies his portfolio by investing 34% in Honey Ltd., 35% in Ramson Ltd. and 31% in
Clayware Ltd., the ex-post return of the portfolio
(a) 95.10%
(b) 96.11%
(c) 97.22%
(d) 98.87%
(e) 99.21%.

23.Which of the following is/are not the characteristic(s) of an arbitrage portfolio?
I. A perfectly hedged portfolio position.
II. A net positive initial investment cost.
III. The certainty of a positive value at termination of the position.
(a) Only (I) above
(b) Only (II) above
(c) Only (III) above
(d) Both (I) and (II) above
(e) Both (II) and (III) above.

24.Which of the following statements is/are true with respect to risk penalty?
I. Higher the risk penalty, lower the utility of the return for the investor.
II. The risk penalty will be lower for smaller values of risk tolerance and higher values of variance of asset
mix.
III. For risk loving investors, risk tolerance is high and risk penalty is low resultin g in high utility.
(a) Only (I) above
(b) Only (III) above
(c) Both (I) and (II) above
(d) Both (I) and (III) above
(e) All (I), (II) and (III) above.

25.Which of the following statements is/are not true with respect to the overall return of a portfolio?
I. The residual effect is estimated by the model caused by the external factors that usually come from
systematic risk events.
II. The return produced b y the sector effect is due to a yield spread change in sector differentials.
III. The interest rate effect depends upon the manager’s action.
(a) Only (I) above
(b) Only (III) above
(c) Both (I) and (II) above
(d) Both (I) and (III) above
(e) All (I), (II) and (III) above.

26.The Sharpe's ratio and the Treynor's ratio of Reliance Growth Fund are 0.35 and 6.50, respectively. The
correlatio n coefficient between returns of the fund and the market index is 0.60. The standard deviation of the
market index's return is
(a) 9.45%
(b) 10.62%
(c) 11.14%
(d) 13.45%
(e) 15.30%.

27.Which of the following statements is/are true regarding trade motivation as explained b y Jack Treynor?
I. The value traders can use time accord ing to their convenience.
II. The value traders are more sensitive to time, compared to price.
III. The information traders tend to be less sensitive to time.
(a) Only (I) above
(b) Only (III) above
(c) Both (I) and (II) above
(d) Both (I) and (III) above
(e) Both (II) and (III) above.

28.Risk tolerance method for asset allocation focuses on
(a) Financial characteristics of the individual investors
(b) Investment opportunities available to the investors
(c) Formal approach of the asset allocation
(d) Psychology of the individual investor
(e) General economy conditions.

29.The risk which relates to errors in the execution of transactions, delays in settlement and losses due to counter
party default can be called
(a) Organizational risk
(b) Portfolio selection risk
(c) Management process risk
(d) Securities related risk
(e) Business risk.

30.In the tax-adjusted CAPM, if the tax rate on dividends is less than tax rate on long term capital gain, which of
the following statements is/are not true?
I. Investors in higher tax brackets will prefer to hold a higher percentage of low-yield high capital gains
stocks.
II. Tax factor is negative.
III. Expected pre-tax return is an increasing function of the dividend yield.
(a) Only (II) above
(b) Only (III) above
(c) Both (I) and (II) above
(d) Both (I) and (III) above
(e) Both (II) and (III) above.
END OF SECTION A

Portfolio Management (MB3H1INV) : January 2009
Section B : Problems/Caselet (50 Marks)
This section con sists of questions with serial number 1 – 5 .
Answer all questions.
Marks are indicated against each question.
Detailed workings/explanations should form part of your answer.
Do not spend more than 110 - 120 minutes on Section B.
1.Consider the following data pertaining to stocks of three companies:

Returns from stocks
Scenario Probab ility (%) ONGC (%) HDFC (%) ACC (%)
Optimistic 20 50 40 20
Most likely 70 35 28 15
Pessimistic 10 20 22 –15 (1 0marks)

You are required to determine whether investing in a combination of all the three stocks in equal prop ortions is better than investing in any one stock.

2.Mr. Sailesh has zeroed in on the following stocks with the parameters given below:
Stock Expected Return
(%) Beta Residual Variance
(%)2
Arvind Mills 14.90 0.95 9.25
Bajaj Auto 14.39 0.97 5.95
Cipla 17.45 1.25 9.75
Dena Bank 15.95 1.05 5.35
Essar Oil 16.15 1.10 4.50
The market is generating a return of 14% p.a. and the variance of its returns is 25(%)2. The Treasury Bills are yielding 7% p.a.
You are required to construct an optimum portfolio using the Sharpe’s optimization method.
(1 2marks)
3
.
Given below is the information p ertaining to a portfolio and a respective benchmark:
<answer
Portfolio
Benchmark
Portfolio
Benchmark
weight
weight
return
return
Equity
0.55 0.60 7.25% 6.75%
Fixed income securities 0.35 0.30 1.25% 1.50%
Cash & Equivalents 0.10 0.10 0.75% 0.75%
You are required to:
marks
a. Calculate the total value added by the portfolio manager.
(2
)

marks
b. Calculate the total value added by his selection and allocation abilities. (8
)
Caselet
Read the caselet carefully and answer the following questions:

4.According to the caselet, there is a need felt for new theories because the behavior of the investor is more dynamic and complex than the rational investor, which is defined in the traditional theories. In light of this, explain the various possible factors responsible for the changing behavior of the investors.
(9 marks)

5.According to the caselet, an alliance with a wrong advisor can be considered as a catastrophe and selecting a right advisor is the job of the investor. In this context, explain the possible situations under which there is a need to change the wealth manager. (9 marks)
Questions such as how much to spend and how much to save cannot be answered easily. Thus the need for a financial advisor, who is skilled to understand the goals and the constraints of the investors, arises. Thus, managing wealth needs expertise and experience. Wealth management is an integrated plan utilizing an array of capabilities that encompass planning, investment management, trust services and private banking. In other words, wealth management is a professional service, which is a combination of financial and investment advices, accounting and tax services, estate management and administratio n, succession planning and legal planning, for a fee. The management of wealth is a vibrant process. Wealth gives rise to uncommon challenges as well as unique oppo rtunities. It needs experience, capabilities and expertise that enable the customer to understand the challenges and gain from these opportunities. Market ripples, portfolio swings, changes in tax and estate laws make the task of managing the client's' investment more difficult. Investments are affected by a host factors like interest rates, inflation, economic develop ments, political issues, etc.

Planning for retirement, saving for children's education, arranging enough liquidity to buy a house, inclination to maximize the investment returns are some of the reasons why people spend less than what they earn. Managing wealth is not only restricted to regular investment and savings, but also concerned with ho using finance, mortgages, solutions for asset management after the demise, legal management of will and healthcare planning. Thus, the functions of wealth manager are evolving and taking a new shape. They have to perform various roles and responsibilities for managing the wealth of their client.
Wealth management is mostly required for the High Net-Worth Individuals (HNWIs). The number of millionaires grew over by 7% or 600,000 to 8.3 million worldwide. The increase in wealth across the world can be attributed to rising stock market indices, higher earnings and more disposable income.
The wealth manager has to develop the strategy based on each client's risk appetite. If the strategy is aggressive, the chance of exceeding a high goal is good. Comparisons and summaries about the financial goal of investors help make a proper and precise investment decision-making. A wealth manager makes projections of investors while determining the most appropriate level of savings and spendin g. To form a proper strategy, a wealth manager should be precise in estimating security risks, returns and correlations between each security.
But the question is "how a wealth manager will be able to decide about the characteristics and estimates of an investor for an appropriate strategy to be formed?" The question can be answered by applying Capital Market Theory. The theory usually aims at pricing assets, equity shares or assets in terms of the trade-off between risks and return that clients are looking for. But how far is this theory relevant to the daily portfolio advisor? Nawrocki in

one of his research papers replied the question in affirmatively. He explained that “the practitioners use capital market theory each time they put together a financial plan, a retirement plan or an investment plan for a client”. He further elaborated that “capital market theory is an important input for financial decision-making, therefore, an understanding of capital market theory is an important aspect in the training of a financial professional but unfortunately for the finance professional trying to stay current in the field, capital market theory is in the process of changing from traditional models to newer theories”. There is a need felt for new theories because the b ehavior of the investor is more dynamic and complex than the rational investor, which is defined in the traditional theories.

The role played by the wealth manager is vital to both the wealth management company and the investor. An alliance with a wrong advisor can be considered as a catastrophe. Thus, selecting a right advisor is the job of the investor only.

END OF
CASELET

END OF SECTION B

Section C : Applied Theory (20 Marks)

This section con sists of questions with serial number 6 - 7.
Answer all questions.
Marks are indicated against each question.
Do not spend more than 25 -30 minutes on Section C.

6. In recent years, equity style management has attracted great attention from the investment community. The popularity of style investing is evident from the number of style funds coming up. Describe the concept of style investing and also discuss different types of equity styles.
(10 marks)

7. The asset allocation process considers all the major aspects of asset allocatio n

in a systematic manner. The process involves not only integrating all the aspects, but also reviewing the allocation. Hence, the process is dynamic as well as integrated. Sometimes, it may be desirable to skip some of the steps in the allocation process. Depending on the steps that can be skipped, explain the different types of asset allocation.
(10 marks)</answer