INSTITUTE OF COST AND MANAGEMENT ACCOUNTANTS OF PAKISTAN

Fall 2012 (February 2013) Examinations

Wednesday, the 27th February 2013

INVESTMENT ANALYSIS AND PORTFOLIO MANAGEMENT– (AF-602)

SEMESTER-6

Extra Reading Time:	**15 Minutes**	**Maximum Marks: 90**	**Roll No.:**
Writing Time:	**02 Hours 45 Minutes**		

(i) Attempt all questions.

(ii) Answers must be neat, relevant and brief.

(iii) In marking the question paper, the examiners take into account clarity of exposition, logic of arguments, effective presentation, language and use of clear diagram/ chart, where appropriate.

(iv) Read the instructions printed inside the top cover of answer script CAREFULLY before attempting the paper.

(v) Use of non-programmable scientific calculators of any model is allowed.

(vi) DO NOT write your Name, Reg. No. or Roll No. anywhere inside the answer script.

(vii) Question No.1 – "Multiple Choice Question" printed separately, is an integral part of this question paper.

(viii) **Question Paper must be returned to invigilator before leaving the examination hall.**

Answer Script will be provided after lapse of 15 minutes Extra Reading Time (9:30 a.m. or 2:30 p.m. [PST] as the case may be).

Marks

Q. 2 **(a)** List the steps of the Portfolio Management Process. **03**

(b) The data for a sample of 5 shares for two years, the base year and year 't' is as under:

Share	Price in Base Year (Rs.)	Price in Year 't' (Rs.)	No. of Outstanding Shares (in million)
A	50	68	10
B	63	54	18
C	18	25	15
D	22	35	32
E	39	41	21

Required:

Calculate the equal weighted index, and value weighted index for year 't'. **05**

(c) Briefly explain the following: **04**

(i) Current return

(ii) Capital return

(iii) Business risk

(iv) Interest rate risk

(d) Consider two stocks, 'A' and 'B':

	Expected Return (%)	**Standard Deviation (%)**
Stock 'A'	15	10
Stock 'B'	21	14

Required:

(i) State the condition for a zero-standard deviation portfolio consisting of these two stocks. **01**

(ii) What is the expected return of a portfolio comprising stocks 'A' and 'B', when the portfolio is constructed to drive the standard deviation of portfolio return to zero? **04**

(e) The following information is available for stock 'X' and stock 'Y':

	Stock 'X'	**Stock 'Y'**
Expected return (r)	27	32
Standard deviation (σ)	15	20
Coefficient of correlation (ρ)	0.65	

Marks

Required:

(i) What is the covariance between stocks 'X' and 'Y'? **02**

(ii) What is the expected return and risk of a portfolio in which 'X' and 'Y' are equally weighted? **03**

Q. 3 (a) (i) In the context of 'Risk Diversification', draw graphical relationship of portfolio risk with the number of securities in the portfolio. **02**

(ii) Explain the concept of covariance and its importance in diversification of portfolio risk. **03**

(iii) Define Total Risk. **01**

(b) Mr. Ahmed Ali had invested Rs. 8 million each in PLC and Set Cement and Rs. 4 million in Fine Corporation, only a week before his untimely demise. As per his will this portfolio of stocks was to be inherited by his wife alone. As the partition among the family members had to wait for one year as per the terms of the will. The portfolio of shares had to be maintained as they were, for the time being. Meanwhile the widow of the deceased was very eager to know certain details of the securities and had asked your firm to brief her in this regard. For this purpose you are to run a few analyses using CAPM.

You have obtained the following forecast of future returns of the three stocks from a reputed asset management firm:

State of the Economy	Probability	Returns (in %age)				
		Treasury Bills	PLC	Set Cement	Fine Corp.	KSE-100
Recession	0.3	7	5	15	-10	-2
Normal	0.4	7	18	8	16	17
Boom	0.3	7	30	12	24	26

You also have the information of the estimated beta sensitivities of the three stocks, the risk free rate, and the expected return on market portfolio:

$\beta_{PLC} = 1.7$ $\beta_{Set\ Cement} = 0.8$ $\beta_{Fine\ Corporation} = 1.36$ $E(R_{KSE}) = 14$ $R_f = 7\%$

Required:

(i) Calculate of expected returns and standard deviation for PLC, Set Cement, Fine Corporate and KSE-100. **06**

(ii) Determine overpricing and under pricing of stocks using CAPM. **03**

(c) The current dividend of an equity share of ABN Limited is Rs. 15.00. Assume that ABN's dividend will grow at the rate of 15% per year for the next 3 years. Thereafter, the growth rate is expected to fall and stabilize at 9%. Equity investors require a return of 17% from ABN's equity shares.

Required:

Calculate the intrinsic value of ABN's equity share. **03**

Q. 4 (a) The balance sheet of Green Fertilizer Limited at the end of previous year is as follows:

Rs. in million

Liabilities		Assets	
Shareholders' Equity:		• Net fixed assets	550
• Share capital (20 million shares of Rs. 10 each)	200	• Net working capital	200
• Retained earnings	300		
• 10% loan	250		
	750		750

Marks

The return on assets (NOPAT) is expected to be 18% of the asset value at the beginning of each year. The growth rate in assets and revenues will be 30% for the first three years, 18% for the next two years, and 10% thereafter.

The effective tax rate of the firm is 34%, the pre-tax cost of debt is 10% and the cost of equity is 24%. The debt-equity ratio of the firm will be maintained at 1:2.

Required:

(i) Using the following table, forecast the free cash flows (FCF) of the company: **04**

Rs. in million

Year	1	2	3	4	5	6
Asset value (beginning)						
NOPAT						
Net investment						
FCF						
Growth rate (%)						

NOPAT = Net operating profit after tax

(ii) Calculate WACC. **01**

(iii) Calculate horizon value of the firm. **01**

(iv) Calculate enterprise value of the firm. **01**

(v) Calculate value of equity of the firm. **01**

(vi) Calculate the price per share of the firm. **01**

(b) Write any three arguments against Technical Analysis. **03**

(c) The price of, a Rs. 1,000 par bond carrying a coupon rate of 12% and maturing after 5 years, is Rs. 1,040.

Required:

(i) What is the approximate yield to maintain (YTM)? **02**

(ii) What will be the realised YTM if the reinvestment rate is 7%? **03**

(d) Consider the Pakistan Investment Bond, PIB-1.

	Rupees
	PIB-1
Face value	1,000
Redemption value	1,000
Current market price	950
Years to maturity	3
Coupon (interest rate) payable annually	13%

Required:

Calculate the following:

(i) Yield to maturity (use the approximate formula). **02**

(ii) Duration of bond. **03**

(iii) Volatility. **01**

(e) Briefly describe the concept of Immunization in bond portfolio management. **03**

Q. 5 **(a)** List and briefly explain the Heuristic-Driven Biases. **06**

(b) Draw the Behavioural Portfolio Pyramid and label the asset types in proper order. **02**

Marks

(c) The firm Zeta Trading has been registering spectacular growth in recent years. With a view to broaden its investment base, the firm had applied for the shares of Global Manufacturing Ltd., a month back during its initial public offer (IPO) and got allotment of 5,000 shares thereof. Recently the Chief Investment Officer (CIO) had attended a seminar on capital markets organized by a leading bank and had decided to enter in the derivatives market. Assuming yourself a finance manager, the CIO has called you for a meeting to get a better understanding of the options market and to know the implications of some of the strategies he has heard about. For this he has provided you the following chart of the option quotes of Global Manufacturing Ltd., and requested you to advise him based on the data in the chart.

Global Manufacturing Option Quotes.
Stock Price: 350

Amount in Rupees

Strike Price	Calls			Puts		
	January	February	March	January	February	March
290	50	55	N/A	N/A	N/A	N/A
320	36	40	43	3	5	7
340	18	20	21	8	11	N/A
360	6	9	16	18	21	23
380	4	5	6	N/A	43	N/A

N/A = Not available

Required:

(i) List out the options which are out-of-the-money. **02**

(ii) What are the relative pros and cons (i.e., risk and reward) of selling a call against the 5,000 shares held, using Feb/ 380 calls versus March/ 320 calls? **02**

(iii) Calculate the maximum profit associated with the strategy of simultaneously buying March/ 340 call while selling March/ 360 call? **02**

(iv) What are the implications for the firm, if for instance, it simultaneously writes March/ 360 call and buys March/ 320 put? **02**

Q. 6 **(a)** Differentiate between Active Portfolio Management and Passive Portfolio Management. **02**

(b) Consider the following information for two mutual funds, Fund-A and Fund-B, and the KSE-100:

	Mean Return (%)	Standard deviation (%)	Beta
Fund-A	25	20	1.70
Fund-B	19	12	0.90
KSE-100	16	10	1.00

The risk-free rate is 10%.

Required:

Calculate for the two mutual funds and the KSE-100 index:

(i) Treynor measure **02**

(ii) Sharpe ratio **02**

(iii) Jensen measure **02**

THE END

PRESENT VALUE FACTORS

Year	15%	15.12%	16%	17%	18%	18.2%	19%	20%
1	0.870	0.869	0.862	0.855	0.847	0.846	0.840	0.833
2	0.756	0.755	0.743	0.731	0.718	0.716	0.706	0.694
3	0.658	0.655	0.641	0.624	0.609	0.606	0.593	0.579
4	0.572	0.569	0.552	0.534	0.516	0.512	0.499	0.482
5	0.497	0.495	0.476	0.456	0.437	0.433	0.419	0.402
6	0.432	0.430	0.410	0.390	0.370	0.367	0.352	0.335
7	0.376	0.373	0.354	0.333	0.314	0.310	0.296	0.279
8	0.327	0.324	0.305	0.285	0.266	0.262	0.249	0.233
9	0.284	0.282	0.263	0.243	0.225	0.222	0.209	0.194
10	0.247	0.245	0.227	0.208	0.191	0.188	0.176	0.162

CUMULATIVE PRESENT VALUE FACTORS

Year	15%	15.12%	16%	17%	18%	18.2%	19%	20%
1	0.870	0.869	0.862	0.855	0.847	0.846	0.840	0.833
2	1.626	1.623	1.605	1.585	1.566	1.562	1.547	1.528
3	2.283	2.279	2.246	2.210	2.174	2.167	2.140	2.106
4	2.855	2.848	2.798	2.743	2.690	2.680	2.639	2.589
5	3.352	3.343	3.274	3.199	3.127	3.113	3.058	2.991
6	3.784	3.772	3.685	3.589	3.498	3.480	3.410	3.326
7	4.160	4.145	4.039	3.922	3.812	3.790	3.706	3.605
8	4.487	4.470	4.344	4.207	4.078	4.052	3.954	3.837
9	4.772	4.751	4.607	4.451	4.303	4.274	4.163	4.031
10	5.019	4.996	4.833	4.659	4.494	4.462	4.339	4.192