UNIVERSITI SAINS MALAYSIA
Master of Business Administration

Third Semester Examination
Academic Session 1998/1999

April 1999

AKU 614 - INVESTMENT ANALYSIS AND PORTFOLIO MANAGEMENT

Time: [3 hours]

INSTRUCTIONS:

Please make sure that this examination paper consists of **SIX (6)** printed pages before you begin.
Answer Questions **ONE (1)** and **TWO (2)** and any other **THREE (3)** Questions.
Some important formulas are given in the appendix on page 6 and you are free to use them.

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1. State, giving reasons, whether the following statements are true, false or uncertain (choose any **FIVE**)

   a. Markowitz's portfolio theory is based on the sound assumptions about the investors' behaviour.

   b. Experienced technical analysts usually have one favourite tool that they follow closely.

   c. Malaysia's capital market is perfectly (strong-form) efficient.

   d. Options are levered investments.

   e. International diversification causes the efficient frontier to move up and to the left.

   f. Diversification across assets, however achieved, is synomymous to that across investment managers.

   g. If an investor possesses good security selection skills and not so good market timing skills, then he/she must go for a diversified and a constant β portfolio.

   h. The CAPM is easier to test than the APT.

[25 marks]
...2/-

2. The following model was used to run regressions for each of the three selected mutual funds:

$$(R_i - R_f)_t = A_i + \beta_i (R_m - R_f)_t + e_{it}$$

Where i stands for the fund
t stands for the period

The empirical results obtained were as follows:

Fund	Regression results			$(R_i - R_f)$	
	A_i	β_i	R^2	Mean	std. dev.
ABC	0.192 (1.75)	1.048 (10.48)	0.941	1.022%	1.193%
DEF	-0.053 (0.28)	0.662 (7.36)	0.916	0.473%	0.764%
GHI	0.463 (2.43)	0.594 (8.49)	0.686	0.935%	0.793%

Numbers in parentheses are t- values

Answer the following questions:

(a) For which fund (s), CAPM is validated? why?

(b) Which fund has had the highest degree of diversification? Why?

(c) Which fund has performed the best by the Sharpe's measure? By Jensen's measure? Are the results consistent? How?

(d) Which funds have statistically outperformed and underperformed the market using a two-sided 95% confidence interval (theoretical t - value = 2.00)

(e) Which fund had the least systematic error? Least unsystematic error? Why?

(f) Which fund is the best? Why?

[15 marks]

3. Consider the data on page 5 about three counters and stock market/sector indices in Malaysia. If you were to invest in one of these stocks, which one would you select? Why? Use your knowledge of the Malaysian economy and state your assumptions, if any, explicitly.

[20 marks]

...3/-

4. Consider the following **two** bonds, each having a par value of RM1,000:

Bond	Maturity (yrs.)	Coupon rate (%)	Current price (RM)	YTM (%)
A	2	10	-	11
B	4	12	1000	-

(a) Calculate the missing data (denoted by -)

(b) If the market interest rate is 8%, compute the duration for each of the two bonds.

(c) Assume that the Lee Public Ltd (LPL) has the following payments to make at the end of each of the next 5 years:

Year	1	2	3	4	5
Payments (RM thousands)	100	90	80	80	70

If the LPL wishes to immunize the above payments through the above two bonds, how much money the company must invest in each bond?

[20 marks]

5. Suppose you are in the thirtees, have a working spouse and two children, and have RM100,000 in liquid assets. How would you go about in choosing your investment portfolio? Would you insure it and how? Would you revise it later and how? How would you assess the performance of your portfolio management skills?

[20 marks]

6. Suppose on a preliminary basis you have identified five securities for your portfolio and the relevant data on them are as follows:

Security	Expected return	Beta	Unsystematic Variance (σ_e^2)
A	15	1.0	30
B	12	1.5	20
C	8	0.8	10
D	9	1.0	20
E	14	1.5	10

...4/-

The risk free rate of return is 5%, investors are free to borrow and lend at the risk free rate, the variance of the market return (σ_m^2) = 10%, and short sales are not permitted.

(a) Determine the optimum portfolio, its expected return, beta and standard error.

(b) Could the optimum portfolio for an investor be determined? If yes, how? if not, what additional information would you require for the purpose?

[20 marks]

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Stock Market Data

Period	Consumer Product			Trading/Services			Finance		
	KFC Holdings (M)			**Telekom Malaysia**			**Public Bank**		
	Price (RM)	DPS (sen)	EPS (sen)	Price (RM)	DPS (sen)	EPS (sen)	Price (RM)	DPS (sen)	EPS (sen)
1994	7.00	3.1	16.7	13.30	6.8	46.8	2.40	3.3	12.4
1995	8.39	3.2	19.3	12.10	7.0	52.7	2.20	3.4	16.2
1996	9.25	3.4	27.7	14.65	7.0	62.7	2.60	3.4	20.0
1997	8.14	5.6	29.0	11.10	8.2	61.1	2.30	4.0	13.5
1998	3.95	4.3	10.2	9.05	8.6	55.7	1.50	3.1	3.5
April 19, 1999	3.94	-	-	10.00	-	-	3.00	-	-
	Par Value (RM)	Book Value (RM)	D/E	Par Value (RM)	Book Value (RM)	D/E	Par Value (RM)	Book Value (RM)	D/E
Dec 1995	1	2.39	0.36	1	5.48	0.32	0.50	1.71	0
Dec 1996	1	1.63	0.95	1	6.04	0.30	0.50	1.48	0
Dec 1997	1	1.49	1.47	1	3.78	0.69	0.50	1.74	0

Maket Indices				
	KLSE-CI	**Consumer Products**	**Trading/Services**	**Finance**
Dec 1993	1,275	230	230	8,760
Dec 1996	1,238	259	189	10,282
April 19, 1999	615	133	94	4,239

...6/-

Some Difficult Formulas

Appendix 1

1. Markowitz Model

(a) $$\sigma_p^2 = \sum_{i=1}^{n} x_i^2 \sigma_i^2 + \sum_{i \neq j} \sum x_i x_j \sigma_{ij}$$

(b) $$R_i - R_F = \sum_j \sigma_{ij} Z_j$$

2. Sharpe's Model

(c) $$\sigma_p^2 = \sigma_m^2 [(\Sigma x_i \beta_i)^2] + \Sigma x_i^2 \sigma^2 e_i$$

(d) $$\text{ERT } \beta \text{ ratio} = \frac{R_i - R_f}{\beta_i}$$

(e) $$C_i = \frac{\sigma_m^2 \sum_{j=1}^{i} \frac{(R_j - R_f)\beta_j}{\sigma e_j^2}}{1 + \sigma_m^2 \sum_{j=1}^{i} \frac{\beta_j^2}{\sigma e_j^2}}$$

(f) $$Z_i = \frac{\beta_i}{\sigma e_i^2} \left[\frac{R_i - R_f}{\beta_i} - C^* \right]$$

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