

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF COMMERCE
DEPARTMENT OF FINANCE
BACHELOR OF COMMERCE HONOURS DEGREE IN FINANCE
PART IV – 2ND SEMESTER FINAL EXAMINATION – JUNE 2007
INSTITUTIONAL INVESTMENT MANAGEMENT [CFI 4203]
TIME ALLOWED: 3 HOURS 20 MINUTES

INSTRUCTIONS

1. This paper is 3 hours 20 minutes, of which 20 minutes is reading time.
2. The paper contains six [6] questions.
3. Attempt question one, [the case study, which is compulsory], plus any other four questions.
4. All questions carry equal marks [20 marks each]
5. Show all your workings.
6. Write legibly.

QUESTION ONE – [COMPULSORY QUESTION – CARRIES 20 MARKS]

Study the following case and answer the questions that follow:

Mr Mlambo is 70 years of age, is in excellent health, pursues a simple but active lifestyle, and has no children. He has interest in a private company for \$90 million and has decided that a medical research foundation will receive half the proceeds now; it will also be the primary beneficiary of his estate upon his death. Mr Mlambo is committed to the foundation's well-being because he believes strongly that, through it, a cure will be found for the disease that killed his wife. He now realizes that an appropriate investment policy and asset allocations are required if his goals are to be met through investment of his considerable assets. Currently, the following assets are available for use in building an appropriate portfolio:

\$45.0 million cash (from sale of the private company interest, net of pending \$45 million gift to the foundation)

10.0 million stocks and bonds (\$5 million each)

9.0 million warehouse property (new fully leased)

1.0 million Mlambo residence

\$65.0 million total available assets.

- (a) Formulate and justify an investment policy statement setting forth the appropriate guidelines within which future investment actions should take place. Your policy statement must encompass all relevant objective and constraint considerations.

[13 marks]
- (b) Recommend and justify a long-term asset allocation that is consistent with the investment policy statement you created in part (a) above. Briefly explain the key assumptions you made in generating your allocation.

[7 marks]

QUESTION TWO [20 MARKS]

- (a) Distinguish between top-down and bottom-up approaches to active equity portfolio management. **[4 marks]**
- (b) Identify and provide brief explanations of the market timing approaches that are open to an investor. **[16 marks]**

QUESTION THREE [20 MARKS]

- (a) Top-down adherents would argue that the biggest differences in portfolio performance come from differences in asset allocation than in individual stock selection. Explain why this is likely to be the case. **[4 marks]**
- (b) You are given the following information regarding investments in the market portfolio plus a set of side bets taken by an investment manager against other active managers:

Shares	Market Portfolio Weightings (%)	Side Bets (%)
S1	15.0	8.5
S2	10.0	14.6
S3	25.0	23.4
S4	7.5	-4.0
S5	17.5	-17.5
S6	25.0	-25.0

- Determine the optimal active portfolio. Comment on the significance of your results. **[6 marks]**
- (c) You are an investment advisor for an up-and-coming investment company. You are trying to come up with an optimal asset allocation for two clients whose degrees of risk tolerance are as follows:
- Client A - 0.0
Client C - 1.5

In addition, the following information is available to you:

Expected return on shares	20%
Expected return on bonds	14%
Standard deviation of the return on shares	32%
Standard deviation of the return on bonds	18%
Correlation between the returns on shares and bonds	45%

Determine the optimal share-bond mix for the investors. Comment on the significance of your results. **[10 marks]**

QUESTION FOUR [20 MARKS]

- (a) The yield curve on Government Treasury obligations is shown below:

Maturity	YTM
1 year	20%
2	20%
3	22%
4	24%
5	24%

You are a financial administrator of a pension fund and have been provided with the following actuarial projections of payment obligations, which will be paid as current and future benefits to retired employees in the next ten years.

End of Year	Pension Obligation
1	\$30 million
2	\$30 million
3	\$25 million
4	\$25 million
5	\$23 million

Demonstrate how you would immunize these liabilities today? **[5 marks]**

- (b) Identify and briefly explain five active bond management strategies that are available to an investor **[15 marks]**

QUESTION FIVE [20 MARKS]

- (a) Invest Engineers plc, are financial/investment specialists, whose analysts have gathered the following data on the performance of a fund and on the market:

Return on the portfolio	25%
Total risk of the portfolio	30%
Beta of the portfolio	1.2
Return on the market	20%
Total risk of the market	24%
Riskless interest rate	12%

Over the preceding five years, the fund had an average beta estimate of 0.8.

Using Fama's decomposition, identify the sources of the fund manager's performance. **[10 marks]**

- (b) You are given the following information on a bond portfolio:

Bond	Proportion of Portfolio (%)	Return (%)	Specific Risk (%)	Duration (years)
A	20	18	22	5
B	30	20	20	7
C	35	22	21	9
D	15	23	23	11

If the riskless rate of interest is 12 percent and the return, total risk and duration of the market portfolio of bonds are respectively, 20%, 22% and 10 years, assess the performance of the manager of the bond portfolio.

[4 marks]

- (c) Distinguish between the time-weighted rate of return and the money-weighted rate of return on a portfolio. Under what circumstances might the money-weighted return be preferred to the time-weighted?

[6 marks]

QUESTION SIX [20 MARKS]

- (a) Annual total returns for ten years are shown below for five equity mutual funds. Characteristic lines are calculated using annual market returns. The ex post values are as follows:

Fund	R_p (%)	σ_p (%)	α_p	β_p	R^2
Jega Fund	17.0	20.0	7.53	0.88	0.82
Midas Fund	12.3	25.0	3.12	0.83	0.47
Jupiter Fund	18.6	19.0	-1.37	0.91	0.95
Snob Fund	20.0	21.0	9.52	0.93	0.78

Where, R_p = mean annual total return for each fund

σ_p = standard deviation of the annual yields

α_p = the constant of the characteristic line

β_p = the slope.

Using an 8.6 percent risk-free return, rank the performance of the funds on the basis of:

- (i) The Reward-to-volatility ratio
- (ii) The Reward-to-variability ratio.

Comment on the degree of diversification of the mutual funds. [10 marks]

- (b) Outline the major challenges being faced by asset management firms in Zimbabwe. [10 marks]