

# KASNEB

## CIFA PART III SECTION 5

### ALTERNATIVE INVESTMENTS ANALYSIS

THURSDAY: 26 May 2016.

Time Allowed: 3 hours.

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

#### QUESTION ONE

- (a) Hedge funds were highly proficient at attracting capital prior to the world financial crises that began in 2007. However, in the recent past, hedge funds have increasingly competed with private equity firms in the purchase of corporate assets in the search for attractive opportunities in which to invest capital.

**Required:**

With respect to the above statement, evaluate five major differences between typical hedge fund incentive fees and typical private equity fund incentive fees. (5 marks)

- (b) Mezzanine debt can be viewed as filling either a gap in a company's financial structure or a gap in the supply of capital in the financial markets. This makes mezzanine financing extremely flexible.

**Required:**

In the context of the above statement, explain five characteristics of mezzanine debt that help to distinguish it from the other sources of financing and other types of investments. (5 marks)

- (c) An investment management firm is considering the following three investments in real estate:

1. Direct investment in an existing office building.
2. Investment in a public equity real estate investment trust (REIT).
3. Equity investment in a public real estate operating company (REOC).

The data relating to the investment is presented below:

**Option 1: Direct investment in an office building**

Expected net operating income: Years 1-7	Sh.7.0 million
Expected net operating income: Year 8	Sh.8.5 million
Required return on equity investment	10%.
Net operating income growth rate after 8 years	3.25%.

**Option 2: Real estate investment trust (REIT)**

Recent net operating income	Sh.140 million
Non cash rents	Sh.5 million
Full year adjustments for acquisition	Sh.5 million
Other assets	Sh.50 million
Total liabilities	Sh.300 million
Current market price per share	Sh.125
Shares outstanding	15 million
Going in cap rate	7.00%
Net operating income growth rate	2.50%

**Option 3: Real estate operating company (REOC)**

Expected adjusted funds from operations (AFFO) in year 8	Sh.13.5 million
Holding period	7 years
Present value of all dividends for 7 years	Sh.39.7 million
Shares outstanding	1.0 million
Cap rate	7.0%
Growth rate from year 8	2.50%

**Additional information:**

1. The office building under consideration has existing tenants with long term leases that will expire in seven years.
2. The real estate operating company (REOC) terminal value at the end of seven years is to be based on a price to adjusted funds from operations (AFFO) multiple of 12 times (12x).

**Required:**

- (i) The estimated value of the office building using the discounted cash flow approach. (4 marks)
- (ii) Determine whether the real estate investment trust (REIT) is fairly priced using the net asset value (NAV) approach. (3 marks)
- (iii) Calculate the estimated value per share of the real estate operating company (REOC). (3 marks)

**(Total: 20 marks)**

**QUESTION TWO**

(a) Discuss the following equity hedge fund strategies:

- (i) Market neutral strategy. (1 mark)
- (ii) Sector specific strategy. (1 mark)
- (iii) Fundamental growth strategy. (1 mark)
- (iv) Quantitative directional strategy. (1 mark)
- (v) Short bias strategy. (1 mark)

(b) Representativeness is the key aspect of hedge fund databases and indices. The representativeness of a sample is the extent to which the characteristics of that sample are similar to the characteristics of the universe. If the sample consistently favours inclusion of observations based on a particular characteristic, then the sample is biased in favour of that characteristic.

**Required:**

Based on the aforementioned statement, assess the following data biases associated with hedge fund databases.

- (i) Survivorship bias. (1 mark)
- (ii) Selection bias. (1 mark)
- (iii) Instant history bias/backfill bias. (1 mark)
- (iv) Liquidation bias. (1 mark)

(c) Ukulima University endowment fund makes an investment in a venture capital fund known as Beta Fund with a vintage year of 2013 and committed capital of Sh.195 million. The distribution waterfall calls for a 20% carried interest when the net asset value (NAV) before distributions exceeds the committed capital.

The performance of Sh.195 million of the venture Beta Fund capital is shown below:

Year	Called down Sh. "million"	Management fees Sh. "million"	Operating results Sh. "million"
2013	30	0.45	-10
2014	25	0.83	55
2015	75	1.95	75

**Required:**

- (i) Calculate the year 2015 percentage management fee of the Beta Fund. (3 marks)
- (ii) Determine the net asset value (NAV) of the fund after distributions for the year 2015. (4 marks)

(d) Stephen Ayabi, a private equity fund analyst is evaluating fund A and fund B whose information is provided below:

	Fund A	Fund B
Gross internal rate of return (IRR)	22.1%	2.4%
Net internal rate of return (IRR)	17.6%	-0.3%
Performance quantile	1	3
Distributed to paid in capital (DPI)	1.43	0.29
Residual value to paid in capital (RVPI)	1.52	1.03
Total value to paid in capital (TVPI)	2.95	1.32
Maturity of fund	6 years	4 years

**Required:**

Compare the financial performance of private equity fund A and fund B.

(4 marks)

**(Total: 20 marks)**

**QUESTION THREE**

(a) Explain three ways of categorising infrastructure investment as an alternative asset. (3 marks)

(b) Commodities are often viewed as an asset class that is distinct from shares and bonds (financial assets) in several regards.

**Required:**

In relation to the above statement, discuss three reasons that might make commodity prices not to have high positive correlation with share prices and bond prices. (3 marks)

(c) Highlight two disadvantages of investing in each of the following private real estate investment vehicles:

(i) Private equity real estate funds. (2 marks)

(ii) Commingled real estate funds (CREFs). (2 marks)

(d) Oduor Okoth is considering an investment in a two-sequential pay tranche collateralised mortgage obligation (CMO) and would like to understand how the cash flows are paid. Principal payments are made first to the highest seniority tranche, Tranche A, and next to the lower seniority tranche, Tranche B.

The CMO structure is as follows:

Tranche	Outstanding par value Sh. "million"	Coupon rate %
A	200	7
B	100	7

The total principal prepayments, both scheduled and unscheduled, are Sh.456,350 in month 1.

**Required:**

Calculate the cash flow allocation in Month 1.

(6 marks)

(e) (i) A speculator trades crude oil when the spot price is 40 United States dollars (USD) while the expiring futures contract is priced at 42 USD. Sometime later, a new futures contract is priced at 45 USD while crude oil is currently priced at 42.80 USD.

**Required:**

The roll yield.

(2 marks)

(ii) An asset is priced at Sh.90. A futures contract on the asset expires in 75 days. The risk free interest rate is 7%. The underlying asset's storage cost at the futures expiration is equal to Sh.3.00 and the compound value at the time of the futures expiration of the positive cash flows from the underlying asset is Sh.0.50.

**Required:**

The appropriate futures price.

(2 marks)

**(Total: 20 marks)**

#### QUESTION FOUR

- (a) (i) Analyse three risk factors associated with real estate investment. (3 marks)
- (ii) Evaluate three disadvantages of investing in real estate through publicly traded securities. (3 marks)
- (b) Jabavu Investments Services (JIS) operates as a hedge fund with an initial capital of Sh.350 billion. JIS charges a 3.2 per cent management fee based on assets under management at the end of the year. JIS also charges a 32 per cent incentive fee based on returns which are beyond a 10.2 per cent hurdle rate. In its first year, JIS hedge fund appreciates by 17.2 per cent. JIS calculates its management fees using end-of-period valuation.

**Required:**

The investors net return.

(Assume that the performance fee is calculated net of management fee).

(4 marks)

- (c) The table below shows monthly returns for a hedge fund and an index portfolio. The hurdle rate is the 91-day Treasury Bill rate, assumed to be 10% per annum.

Month	January	February	March	April	May	June	July	August	September	October	November	December
Hedge fund return (%)	7.1	8.1	-4.1	-4.1	-2.1	1.9	-2.1	3.5	5.5	7.5	0.9	-6.5
Index return (%)	-4.9	-8.1	-3.3	6.1	-8.5	4.1	5.1	-4.3	-4.1	1.1	6.2	0.5

The calculated annualised standard deviations for the hedge fund and the index are 16.84% and 17.87% respectively.

**Required:**

- (i) The annualised downside deviations for the hedge fund and the index. (3 marks)
- (ii) Contrast the results obtained in (c)(i) above with the calculated annualised standard deviations above. (1 mark)
- (iii) The Sortino ratio for the hedge fund and the index. (5 marks)
- (iv) Comment on the performance of the hedge fund against the performance of the index portfolio based on the result obtained in (c)(iii) above. (1 mark)

**(Total: 20 marks)**

#### QUESTION FIVE

- (a) (i) Explain the term separately managed accounts (SMAs) in relation to alternative investments. (1 mark)
- (ii) Evaluate four ways in which separately managed accounts differ from a fund. (4 marks)
- (b) Describe four categories of outside service providers as major participants in the world of alternative investments. (4 marks)
- (c) An asset backed security (ABS) structure has the following data:

Senior tranche Sh.150 million.  
 Subordinated tranche A Sh.60 million.  
 Subordinated tranche B Sh.20 million.  
 The assets in the pool are worth Sh.250 million

**Required:**

Determine the amount of losses at which the senior tranche investors would begin to lose money.

(3 marks)

- (d) The following data relates to selected mortgage backed securities (MBSs):

MBS	Initial principal Sh. "millions"	Coupon rate (%)	Underlying maturity (years)	Nominal spread (%)	Option adjusted spread (%)	Z-spread (%)
W	250	7.0	30	1.21	0.28	0.79
X	175	7.8	25	1.43	0.49	1.16
Y	225	7.2	20	1.62	0.31	1.12
Z	190	8.0	30	1.59	0.40	1.14

The outstanding principal of MBS-Z is Sh.183 million at the beginning of month 20 and the total mortgage principal payment for the month is Sh.0.42 million.

**Required:**

- (i) Calculate the expected prepayment for month 20 using 125 public securities association (PSA). (2 marks)
  - (ii) Justify the MBS that would add the most relative value in relation to the risk associated with the security, assuming the effective durations of the MBS securities is approximately the same. (2 marks)
- (e) A cash funded collateralised debt obligation (CDO) has a reference pool of assets that consists of 50 loans. The notional amount of each loan is Sh.5 million. The mezzanine tranche for this CDO has a notional value of Sh.20 million, and the spread is 90 basis points. The loss given default is 60%. The mezzanine tranche has a lower attachment point of 2% and a tranche width of 3%.

**Required:**

The loss for the mezzanine tranche if six defaults occur.

(4 marks)

**(Total: 20 marks)**

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