



CIFA PART III SECTION 5

ALTERNATIVE INVESTMENTS ANALYSIS

THURSDAY: 30 November 2017.

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) Explain four return characteristics that distinguish alternative investments from traditional investments. (4 marks)
- (b) (i) Explain four market imperfections that could limit an investor's ability to implement arbitrage transaction in the commodity market. (4 marks)
- (ii) Discuss three theories of commodity futures returns. (6 marks)
- (c) Theresa Mwende works for a firm that deals with non-conforming residential mortgages. She has assembled Sh.80 million pool of 30 year-fixed rate mortgages with unusually high loan-to-value (LTV) ratios. Theresa Mwende meets with a potential investor who inquires about the pool created from these securities. Mwende explains to the client that the pool has a weighted average coupon (WAC) of 7.10% and a weighted average maturity (WAM) of 356 months and that under current market conditions, prepayments are expected at 310 PSA (Public Securities Association Standard Prepayment Model). Mwende also presents a table showing pool cash flow estimates for a different prepayment assumption. An extract of that table is given below:

Mortgage pool monthly cash flow estimates

Months from now	Mortgage payment	Outstanding balance	Net interest	Scheduled principal
24	Sh.327,321	Sh.47,563,831	Sh.281,419	Sh.45,901

The single monthly mortality (SMM) prepayment rate is assumed to be 2.1482%.

Required:

- (i) The conditional prepayment rate (CPR) for the pool. (3 marks)
- (ii) The expected prepayment amount for month 24 of the pool's life. (3 marks)
- (Total: 20 marks)**

QUESTION TWO

- (a) (i) Real estate has been a very large and important portion of wealth for thousands of years. However, there are some aspects of real estate that could discourage its inclusion in an investment portfolio.
- In relation to the above statement, discuss three potential disadvantages of investing in real estate. (6 marks)
- (ii) Highlight three advantages of real estate investment trusts (REITs) ownership compared to direct real estate ownership. (3 marks)
- (b) A real estate lender agreed to make a 10% interest-only (IO) loan on a property that was recently appraised at Sh.1,200,000 as long as the debt-to-service coverage ratio (DSCR) is at least 1.5 and the loan-to-value (LTV) ratio does not exceed 80%. The property has a net operating income of Sh.135,000.

Required:

The equity capitalisation rate (Equity dividend rate) given that the property is purchased for the above appraised value. (5 marks)

- (c) Upperhill Tower is a 200,000 square foot residential apartment building located in Nairobi, Kenya. The building has an effective age of 10 years, while its total economic life is estimated at 40 years. The building has a structural problem that is not feasible to repair. The building also needs a new roof at a cost of Sh.1 million. The new roof will increase the value of the building by Sh.1,300,000.

The bedrooms in each apartment are too small, thus rents are Sh.400,000 a year lower than the competing properties.

The negative impact on rents is estimated to be Sh.600,000 per year due to traffic congestion, power interruption and inadequate water supply and dumpsite being located nearby.

Due to recent construction of competing properties, vacancy rates have increased significantly resulting in an estimated loss in value of Sh.1,200,000.

The cost to replace Upperhill Tower is estimated at Sh.400 per square foot plus builder's profit of Sh.5,000,000. The market value of the land is estimated at Sh.20,000,000. The appropriate discount rate is 8%.

Required:

Estimate the value of Upperhill Tower using the cost approach.

(6 marks)

(Total: 20 marks)

QUESTION THREE

- (a) Summarise three forms of hedge fund regulation. (3 marks)
- (b) Assess three benefits of investing in mezzanine debt. (6 marks)
- (c) In relation to leveraged buyouts (LBOs), explain the term "cash sweep". (1 mark)
- (d) The following information and assumptions relate to a leveraged buyout (LBO) structure:

Assumptions	Year-1 to Year-5
Sales growth	5.0%
Cost of goods sold as a percentage of sales	60.0%
Selling, general and administration expenses as a percentage of sales	15.0%
Depreciation as a percentage of sales	5.5%
Transaction fee amortisation	Sh.1 million each year
Tax rate	30.0%
Capital expenditure as a percentage of sales	5.5%
Increase in working capital as a percentage of increase in sales	7.0%

Uses of funds:	Sh. "million"
Purchase price	200.0
Transaction costs	<u>5.0</u>
Total	<u>205.0</u>
Sources of funds:	
Senior debt at 9.0%	45.0
Junior debt at 13.0%	100.0
Equity	<u>60.0</u>
Total	<u>205.0</u>

	Year 0
	Sh. "million"
Net sales	170.0
Cost of goods sold	(102.0)
Selling, general and administration expenses	(25.5)
Depreciation	<u>(9.4)</u>
Operating income	33.1
Transaction fee amortisation	<u>-</u>
Earnings before interest and taxes	<u>33.1</u>

Required:

Determine for the five years, the ending balance for the:

- (i) Senior debt. (5 marks)
- (ii) Junior debt. (5 marks)

(Total: 20 marks)

QUESTION FOUR

- (a) Evaluate three limitations of investing in funds of hedge funds. (6 marks)
- (b) The exit value is a critical element in the return for the private equity firm and is considered carefully before the investment is undertaken. The means and timing of the exit strongly influence the exit value.

Required:

Explain three exit routes that private equity firms use. (6 marks)

- (c) Protus Murumba, a Chief Investment Officer at an endowment fund is reviewing the following investment data relating to an investment in energy commodities:

Year	GSCI total annual return (%)	GSCI collateral yield (%)	GSCI Roll yield (%)	GSCI Spot annual return (%)
1	29.1	9.6	?	6.1
2	-30.5	?	-14.2	-24.3

Note: GSCI is Goldman Sachs Commodity Index, a composite index of commodity sector returns which represents a broadly diversified, unleveraged long-only position in commodity futures.

Required:

- (i) The roll yield for year 1. (2 marks)
- (ii) The collateral yield for year 2. (2 marks)
- (iii) Murumba notes that the collateral yield is positive in both scenarios although the GSCI total annual return for year 2 is -30.5%. He asks for an explanation with regard to the positive yield.
Justify the positive collateral yield by discussing the concepts of margin and implied yield. (2 marks)
- (iv) A consultant tells Murumba “commodities exhibit positive event risk”.
Justify the consultant’s statement by discussing the relationship between commodity prices and event risk. (2 marks)

(Total: 20 marks)

QUESTION FIVE

- (a) Explain five stages of venture capital fund development. (10 marks)
- (b) Alex Kilonzo tells Ann Kipruto that he has seen exciting data on the performance of market-neutral, convertible arbitrage, and global macro hedge funds. Kilonzo states “The Sharpe ratios of all of these hedge fund strategies are much higher than for traditional equities or bonds, which means they have a greater risk-return profile. We should definitely plan a major investment in hedge funds”.

Kipruto responds “There are several reasons that the Sharpe ratio may be misleading”.

Required:

- (i) Advise Ann Kipruto on four situations that could cause an upward bias in the calculation of the hedge fund Sharpe ratio. (4 marks)
- (ii) Evaluate two reasons that statistically indicate that the Sharpe ratio is not the most appropriate measure of risk for the hedge funds. (2 marks)
- (c) A hedge fund manager purchases 10 convertible bonds with a par value of Sh.1,000, a coupon of 7.5%, and a market price of Sh.900. The conversion ratio for the bonds is 20. The hedge ratio for the bonds is 0.5. The fund manager receives a short rebate of 4.5%. The current price of the underlying ordinary shares is Sh.45 per share. The manager pays for the 10 bonds without using any leverage. Later, the price of the ordinary share increase to Sh.47 per share, and the price of the convertible bond increases to Sh.920.

Required:

Compute the holding period return (HPR) for the convertible bond arbitrage transaction. (4 marks)

(Total: 20 marks)

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