kasneb

CIFA PART III SECTION 6

ADVANCED PORTFOLIO MANAGEMENT

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) In the context of asset allocation, explain the following terms:

(i) Strategic asset allocation. (1 mark)

(ii) Tactical asset allocation. (1 mark)

(iii) Asset/liability management (ALM) approach. (1 mark)

(iv) Asset only (AO) approach. (1 mark)

(v) Mean-variance approach. (1 mark)

(b) Apco Capital, an investment management firm has a client intending to temporarily reduce his exposure to equities by converting a Sh.25 million equity position to cash for a period of four months. The client would like this reduction to take place without liquidating his equity position. Apco Capital plans to create a synthetic cash position using an equity futures contract. The futures contract is priced at Sh.1,170.10, has a multiplier of Sh.250, and expires in four months. The dividend yield on the underlying index is 1.25% and the risk-free rate is 2.75%.

Required:

(i) The number of futures contracts required to create a synthetic cash. (2 marks)

(ii) The effective amount of money committed to this risk-free transaction and the effective number of units of the equity index that are converted to cash. (3 marks)

(iii) Assume that the equity index is at 1031 when the futures contract expires. Illustrate how this strategy is equivalent to investing the risk-free asset, cash. (3 marks)

(c) Kennedy Imanyara, a portfolio manager, believes that the market will be volatile in the near future, but he does not feel particularly strongly about the direction of the movement. With this expectation, he decides to buy both a call and a put with the same exercise price and the same expiration on the same underlying stock trading at Sh.28. He buys one call option and one put option on this stock, both with an exercise price of Sh.25. The premium on the call is Sh.4 and the premium on the put is Sh.1.

Required:

(i) Identify the term commonly used to refer to the position taken by Kennedy Imanyara. (1 mark)

(ii) Determine the value at expiration and the profit for Imanyara's strategy when the price of the stock at expiration is Sh.35, Sh.29 and Sh.25 respectively. (6 marks)

(Total: 20 marks)

QUESTION TWO

(a) In relation to portfolio performance evaluation:

(i) Compare and contrast the terms "macro attribution" and "micro attribution". (2 marks)

(ii) Discuss three inputs that could be used under micro attribution approach. (3 marks)

(b) In practice, an acceptable benchmark is one that both the investment manager and the plan sponsor agree represents the manager's investment process. However, in order to function effectively in performance evaluation, a benchmark should possess certain basic properties.

Required:
In relation to the above statement, highlight five properties of a valid benchmark. (5 mark)

(c) Simon Ageyo, an international bond portfolio manager is considering two bonds for investment. The two bonds are comparable in terms of risk characteristics. The following information relates to the two bonds:

Country	Nominal return (%)	Risk-free rate (%)	Exchange rate per domestic currency
A	9.75	8.5	3.0
B	4.75	3.25	5.0
Domestic	Not applicable	5.75	Not applicable

Additional information:
1. Country A's currency is expected to depreciate against the domestic country's currency by 2.6%.
2. Country B's currency is expected to appreciate against the domestic country's currency by 2.6%.

Required:
(i) Determine the bond that Simon Ageyo should select on a fully hedged basis. Justify your answer. (3 marks)

(ii) Assuming that Simon Ageyo selects the bond identified in (c) (i) above, explain whether the bond's currency exposure should be hedged. (3 marks)

(d) David Mwanzia is evaluating an active manager, C Limited. The selected information for other active managers as well as their normal benchmark returns and investor benchmark returns are presented below:

Active portfolio managers' characteristics and benchmark information

Portfolio manager	Manager's return (%)	Normal benchmark return (%)	Investor benchmark return (%)	Total active risk (%)	Misfit active risk (%)
A	15.00	11.25	8.50	6.05	4.40
B	13.20	14.25	7.50	4.68	3.40
C	12.75	15.00	10.00	5.50	4.00

PM Ltd. follows a passive investment strategy that is implemented using exchange-traded funds.

David Mwanzia proposes to construct a core satellite portfolio with the following allocations: 45% in PM Ltd., 15% in A Ltd., 20% in B Ltd. and 20% in C Ltd. Mwanzia assumes that the manager's active returns are uncorrelated. Mwanzia assumes that active return and active risk for PM Ltd. are 0%.

Required:
(i) The portfolio's total active return. (2 marks)

(ii) The portfolio's total active risk. (2 marks)
(Total: 20 marks)

QUESTION THREE

(a) In the context of execution of portfolio decisions:

(i) Explain the term "implementation shortfall". (1 mark)

(ii) Outline four advantages of implementation shortfall. (4 marks)

(b) The following sell orders were placed for a stock on Tuesday, 21 November 2017:

Trade quotes during the trading hours of 21 November 2017

Time	Bid price (Sh.)	Bid size	Ask price (Sh.)	Ask size
10.00 am	121.00	300	121.60	400
1.00 pm	120.00	300	120.70	400
2.00 pm	118.00	300	118.80	400

Additional information:

1. At 10.00 am, the trader placed an order to sell 100 shares. The execution price was Sh.121.10.
2. At 1.00 pm, the trader placed an order to sell 300 shares. The execution price was Sh.120.00.
3. At 2.00 pm, the trader placed an order to sell 600 shares. The average execution price was Sh.117.50.

Required:

(i) Average quoted spread. (2 marks)

(ii) Average effective spread. (3 marks)

(iii) Weighted average effective spread. (2 marks)

(c) The board of Trustees of Mambo Ltd.'s Sh.50 million pension fund are meeting to discuss a presentation they recently received from their pension consultant. The consultant has recommended that they diversify their current 50/50 equity/bond asset allocation to include a 10% allocation to real asset. Although the trustees would like to reduce portfolio risks without sacrificing a significant amount of return, the trustees have previously been reluctant to change asset allocation since they are concerned about "making a mistake we can't easily fix" if the economic environment changes.

One trustee, Samson Wako, makes reference to Table I below and some notes that provide an overview of how the various indices are constructed. Wako states: "To address our stated risk and return objectives and given the superior historical benefits of direct investing in real estate, represented by the unsmoothed NCREIF index, I recommend that we reallocate 10% from our bond investments indexed to the Lehman aggregate to a direct real estate asset".

A second trustee, Samuel Mogaka, responds with a different recommendation: "I believe we should reallocate 10% from the 50% S & P 500 allocation to REITs to achieve our goals".

Table I : Real estate performance

Measure	NAREIT Index	NAREIT Index hedged	NCREIF Index	NCREIF Index unsmoothed	S & P 500	Lehman Aggregate Bond index
Annualised return	12.71%	8.96%	6.14%	7.27%	10.94%	7.70%
Annualised standard deviation	12.74%	11.93%	3.37%	8.95%	14.65%	3.91%
Sharpe ratio	0.66	0.39	0.55	0.33	0.45	0.87
Minimum quarterly return	–14.19%	–16.16%	–5.33%	–18.55%	–17.28%	–2.87%
Correlation with NAREIT	1.00	0.94	– 0.001	0.21	0.35	0.18
Correlation with NAREIT hedged	0.94	1.00	0.00	0.24	0.00	0.14
Correlation with NCREIF	0.00	0.00	1.00	0.71	0.01	– 0.18
Correlation with NCREIF unsmoothed	0.21	0.24	0.71	1.00	– 0.01	– 0.27

Required:

(i) Critique Samson Wako's recommendation with reference to the return, risk, diversification and liquidity characteristics of the two asset classes that Wako is referring to. (4 marks)

(ii) Critique Samuel Mogaka's recommendation with reference to the return, risk, diversification and liquidity characteristics of the two asset classes that Mogaka is referring to. (4 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Discuss five factors that a portfolio manager should consider while establishing the band for an asset class under a percentage-of-portfolio rebalancing program. (5 marks)

(b) Describe three strategic portfolio implications of the bullet structure with an intermediate maturity. (3 marks)

(c) With reference to credit relative-value analysis, examine the following basic approaches used in global credit bond portfolio management:

(i) Top-down approach. (2 marks)

(ii) Bottom-up approach. (2 marks)

(iii) Classic relative-value analysis. (2 marks)

(d) Stephen Tarus is a portfolio manager at a global firm investing in emerging markets. He has collected the following data regarding equity portfolio and currency data:

Mexican equity portfolio and currency data

	Now	In one month
Portfolio value in Mexican Pesos (MXN)	20,000,000	21,000,000
British Pound-Mexican Peso spot rate (GBP/MXN)	0.0494	0.0490
British Pound-Mexican Peso futures rate (GBP/MXN)	0.0491	0.0486

British one-year interest rate	5.35%
Mexican one-year interest rate	7.50%

Note: The futures contract has three months to expiration.

Required:

(i) The one-month British Pound return on the unhedged portfolio. (3 marks)

(ii) The one-month British Pound return on the hedged portfolio. (3 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Evaluate two advantages of each of the following bond portfolio management strategies:

(i) Pure bond indexing (PBI) strategy. (2 marks)

(ii) Enhanced indexing by matching primary risk factors. (2 marks)

(iii) Enhanced indexing by small risk factor mismatches. (2 marks)

(iv) Active management by larger risk factor mismatches. (2 marks)

(v) Full-blown active management. (2 marks)

(b) Phillip Kyalo is evaluating several alternatives for the United States (US) equity portfolio of his company's pension plan, involving the following managers:

Manager	Active return (%)	Active risk (with respect to normal benchmark (%)	Normal benchmark
Index	0	0	Russell 3000
Semiactive	1	1.5	Russell 3000
Active manager A (Value)	3	5	Russell 1000 Value
Active manager B (Growth)	4	6	Russell 1000 Growth
Long-short	6	6	Cash with Russell 1000 overlay

Active manager A's misfit risk is 7.13%. The overall equity portfolio benchmark is Russell 3000.

Assume that the active returns are uncorrelated.

Required:

(i) Kyalo has taken the information in the table above and used a mean-variance optimiser to create an implementation efficient frontier. The highest risk point on the efficient frontier is a 100% allocation to the long-short manager with a 100% Russell 1000 overlay. The active risk of this portfolio is 6.1%.

Explain why the risk is greater than 6%. (2 marks)

(ii) Calculate the total active risk for Active manager A. (1 mark)

(iii) Kyalo's current equity manager allocation is 30% index and 70% semiactive.

Calculate this portfolio's current expected active return, active risk, and information ratio. (3 marks)

(iv) After determining the desired level of active risk, Kyalo selected the appropriate portfolio from the efficient frontier. The portfolio allocates 39% to the index manager, 34% to the semiactive manager, 7% to active manager A, 8% to active manager B, and 12% to the long-short manager. This portfolio has an expected active return of 1.59% and an expected active risk of 1.10%.

Explain whether this portfolio represents an improvement over the current allocation, and if so, by how much. (2 marks)

(v) Upon further investigation of long-short manager, Kyalo learns that approximately 20% of the active return generated comes from equity positions in non-US companies.

Giving reasons, explain whether this is a concern. (2 marks)

(Total: 20 marks)

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