

CHRISTIAN SERVICE UNIVERSITY COLLEGE KUMASI CSUC SCHOOL OF BUSINESS DEPARTMENT OF ACCOUNTING & FINANCE BACHELOR OF BUSINESS ADMINISTRATION End of Second Semester Examination, 2019/2020 Academic Year Level 400

CSBF 422:: INVESTMENT AND PORTFOLIO MANAGEMENT

JUNE, 2020

[100 marks]

INSTRUCTIONS TO CANDIDATES:

- Answer TWO Questions only. Question ONE and any other question
- Write your answer on the answer sheets provided
- Your answer for EACH QUESTION should be FOUR (4) pages minimum.
- Write your index number clearly at the top of every page of the answer sheets used.

Note: Marks will be awarded for:

- Introduction
- Content
- Conclusion
- Evidence of Further Reading
- Originality and Independence (Cheating would be penalized and integrity rewarded)
- Correct grammar, clarity of expression and logical presentation of facts.
- Answers to questions must be well referenced.

Examiner: Osei-Anim Reindolph

QUESTION 1 (70MARKS)

CASE A

A. Lakamuun is an individual with low risk tolerance who has just inherited \$100,000 from her father Osei-Anim Reindolph. She has no immediate needs for the funds but would like to supplement her current income. Thus, Laka as she is affectionately called is considering investing these funds in debt instruments, since the interest and repayment of principal are legal obligations of the issuer. While she realizes that the borrower could default on the payments, she believes this is unlikely, especially if she limits her choices to triple- or double-A-rated bonds. Laka does realize that she could earn more interest by purchasing lower-rated bonds hut is not certain that she is capable of bearing the risk.

Besides risk and expected return, 'Laka decides that tax considerations must also play a role in this investment decision. She is currently in the 28 percent federal income tax bracket and pays state income tax of 5 percent. She believes that her job is relatively secure and that her salary will increase over time but does not expect it to rise sufficiently so that her income tax brackets will be significantly increased.

Laka quickly learned that there are many bonds among which to choose. For example, the PHONE Company has four double-A bonds outstanding. Their annual interest payments (or coupon rate), term to maturity, price, and yield to maturity are:

Bond	Interest per \$1,000 Bond	Coupon %
А	50	5
В	100	10
С	100	10
D	80	8

Bond	Term	Price	Yield to Maturity %
А	1 year	\$981	7.0%
В	5 years	1,035	9.1
С	10 years	1,000	10.0
D	20 years	742	11.3

Currently the interest rate of long-term debt ranges from 9 to 11.5 percent, but Laka expects that this rate will fall, as inflation is declining. In addition, the level of unemployment is increasing, so she anticipates that the Federal Reserve will take actions to stimulate the economy through reductions in the rate of interest. She believes that interest rates could fall to 8 percent within a year. Of course, she also realizes that this decline may not occur - or even if it does, that interest rates could rise again after the initial decline. Laka decided to analyze the four PHONE Company

Index Number Signature

bonds to determine which may be the best investment under various assumptions concerning future interest rate behavior. To do this she sought your help as an investment analyst in answering the following questions:

δ. What would be the expected price of each bond one year from now if interest rates were 8 percent?
 5MARKS

β. What would be the expected price two years from now if interest rates initially fall but subsequently rise to 12 percent at the end of the second year? 5MARKS

- ii. If interest rates were expected to fall and not rise back to 12 percent, which alternative is best?
 5MARKS
- iii. If interest rates were expected to decline initially and then rise, which alternative should be selected?
 5MARKS
- iv. If bond A were selected, what would happen after a year elapses? What decision must then be made? 5MARKS

The answers to these questions emphasize to Laka the importance of expected future interest rates on the selection of a bond. Since she firmly believes that interest rates will fall and remain below current levels for several years, she has decided to select bond D, the longest-term bond that would lock in the current high yields. However, she has also decided to consider other bonds to determine what additional returns she could earn for bearing more risk, along with the tax implications of her selections. She has noticed that the following ten-year bonds are available:

Bond	Interest per	Price	YTM	Rating
	\$1,000 (\$)	\$	%	
М	0	463	8	
Ν	80	1,000	8	
О	140	1,000	14	В
Р	120	896	14	В

At this point Laka is sufficiently frustrated and asks your advice. As her financial advisor and analyst, which bond(s) do you recommend? In your advice, specifically explain the tax implications (both in terms of income and capital gains) of each bond. Also consider her willingness to bear risk and the anticipated flow of income both from the bond and her job. Then construct a portfolio: that you believe meets her needs and willingness to bear risk. Assume that the bonds are sold in units of \$1000 with a minimum purchase of \$10,000.

Exclude the impact of commissions and accrued interest.

CASE B

B.Jemima Mensah is a self-employed banking consultant. Her hard work and dedication to duty has resulted in her success as one of the best consultants in Ghana. She is the risk preferring type who has both willingness and ability to shoulder substantial risk so as to earn a .higher return. Jemima believes in herself to the extent that she prefers to make her own decisions in respect of investment alternatives. Jemima in securing her future has a Keogh account that she manages herself. Jemima has preference for specific assets even though there are a wide range of mutual funds as investment vehicles for the Keogh account. The value of the accounts exceeds \$200,000. Jemima has liquidated several of her securities whose market value has sharply risen significantly. She holds the contention that it is unlikely for further increase in the near future.

Jemima holds the view that two heads is better than one and therefore has approached you as an investment analyst. You have given her an expert advice that debt instruments with high yields are more attractive and worth investing into than stocks. You have also expose Jemima to the view that there is a positive correlation between risk and return and so high yield financial instruments have a higher risk exposure. Since Jemima is risk preferring coupled with her love for higher returns have ignited her desire for the investment. You have given her the terms of several bonds from some companies as captured in the table below

Company Name	Coupon rate %	Maturity period	Bond Price \$	YTM %
		in Years		
Snoozy	10	10	900	11.752
Lakamuun	15	15	1,200	12.055
Abrafi	0	7	487	10.825
Boaa	7	10	772	10.874

Jemima is interested in each of the bonds but has several questions concerning their risk. Since each bond has the same rating, it seems reasonable to conclude that the probability of default is about the same for each bond. However, there may be considerable difference in their price volatility. She has asked you to rank each bond from the least to the most price volatile. She also wants you to compare the bonds' price volatility with the triple-A-rated bonds with the same terms to maturity. To do this, you have found four triple-A-rated bonds with the following terms:

Company	Coupon rate %	Maturity period	Bond Price \$	YTM %
		in years		
Bassilia	6.5	10	900	7.990
Cassandra	10.5	15	1,200	8.143
Queenster	0	7	587	7.908
Reindolph	4.5	10	772	7.879

- i. If interest rates rise by 3 percent across the board, what will be the new price of each of the eight bonds?
 5MARKS
- ii. What do these new prices suggest about the price volatility of high-yield versus high-quality bonds? (Note to answer this last question, compare bond A to bond E, B to F, C to G, and D to H and so on).
- iii. Which bonds' prices were more volatile? If two bonds with the same term to maturity sell for the same price, which bond may subject the investor to more interest rate risk?5MARKS
- iv. Does acquiring bonds with higher credit ratings and less default risk also imply the investor has less interest rate risk?
 5MARKS
- C. Snoozy. Inc. can begin producing a newelectronics project, with cash flows starting next year. The Treasury rate is 9% and the expected market return is 14.95%. The average debt/equity ratio in the electronics industry is 35%. Beta for the electronics industry is 1.34. The average tax rate for the industry is 45%. Snoozy expects to use 40% debt ($W_D = 0.4$) to finance its electronics project. Snoozy tax rate is 45% and its pretax cost of debt is 12%.
- i. What is the required return on equity for Snoozy?

ii. What is the Snoozy's WACC for this project?

15MARKS 10MARK

Stock	Investment GH¢ million	Beta
1	200	0.3
2	120	1.2
3	130	1.5
4	140	3.1
5	110	2.0
6	40	1.3
7	60	1.4

2. a. Orchestra Incorporated has an investment fund which would be invested in different stocks from different companies. The total capital to be invested amounts to GH¢800 million

Investment analysis of the beta coefficients of these investment funds was deduced as the weighted average of the investment funds. Currently the rate on T-bills is 800 Bp. The same analysis also portray that returns from the market have the following probability distribution for the next period.

Probability	Market return %
0.2	8
0.3	9
0.4	15
0.1	11
0.1	12
0.2	13
0.3	10

i. Deduce the estimated SML equation ii. Deduce the required rate of return of the fund of the next period 2MARKS

iii. Assume Gabby the CEO of Orchestra Investment receives a proposal of an additional new stock which requires an amount of GH¢30 million with an expected return of 14% and its estimated beta coefficient is 1.2

Required

δ. By analyzing the new stock provide your decision on whether or not the stock should be bought 5MARKS

β. Deduce the expected rate of return when the company takes an indifferent stand to purchasing the stock.3MARKS

b. Explain how expected return and liquidity can affect the demand for 3-month treasury bills in Ghana. 15MARKS

Year	Return % M	Returns % N
1	(15)	(16)
2	23	18
3	19	20.35
4	(0.35)	2
5	23	(0.5)

3. a Consider the information below based on the returns of two stocks M and N for Lakamuun Inc. for the past five years

- i. Deduce the average return for stocks M and N for the 5-year period. 2MARKS
- ii. Dacosta held the portfolio of Lakamuun investment of 50% of both stocks.
 - i. Deduce the realized rate of return on the portfolio for the five year period 2MARKS

ii.	Deduce the average return on the portfolio during the period	2MARKS
iii. De	duce the standard deviation of returns for M and N	2MARKS
iv. Co	mpute the coefficient of variation of	
i.	Stock M	2MARKS
ii.	Stock N	2MARKS
iii.	The entire portfolio	2MARKS

which of the investment M, N or the entire portfolio would you invest in? Justify your answer.
 1MARK

b. The stand-alone risk of an individual project may be quite high, but viewed in the context of the projects effect on stockholders, its true risk may not be very large. Discuss **15MARKS**

4.a Two bonds have the following features:

Bon	d A	Bor	nd B
Principal	\$1,000	Principal	\$1,000
Coupon	6%	Coupon	12%
Maturity	5 years	Maturity	5 years

The structure of yields is

Term	Interest rate
1 year	6%
2 years	7%
3 years	8%
4 years	9%
5 years	10%

- i. What is the valuation of each security based on the yield to maturity for a five-year bond?
 3MARKS
- ii. What is the valuation based on the structure of yields? **3MARKS**
- iii. Given the valuations in (ii), what is each bond's yield to maturity?3MARKS
- iv. Do the yields to maturity in (iii) differ from each other and from the assumed yield to maturity in (i)?3MARKS
- v. Given the price of bond A in (i), what would you do? Why? **3MARKS**
- b. Are there any reasons to question the validity of the CAPM? Explain 15MARKS