

**UNIVERSITY OF SWAZILAND**  
**DEPARTMENT OF ACCOUNTING AND FINANCE**  
**SUPPLEMENTARY EXAMINATION PAPER**  
**JULY 2013**  
**ACADEMIC YEAR 2012/2013**

**PROGRAMME OF STUDY** : Bachelor of Commerce

**YEAR OF STUDY** : Year 3 (Full Time)

**TITLE OF THE PAPER** : Investment Analysis and Portfolio Management

**COURSE CODE** : AC 321 (S)

**TIME ALLOWED** : Three (3) Hours

**INSTRUCTIONS**

- 1 There are FOUR (4) questions, **ANSWER ALL.**
- 2 Begin the solution to each question on a new page.
- 3 The marks awarded for a question are indicated at the end of each question.
- 4 Show your necessary workings.

**NOTE:** You are reminded that in assessing your work, account will be taken of accuracy of the language and the general quality of expression, together with layout and presentation of your answer.

**THIS PAPER IS NOT TO BE OPENED UNTIL PERMISSION HAS BEEN GRANTED BY THE INVIGILATOR / SUPERVISOR.**

**SPECIAL REQUIREMENT: FINANCIAL CALCULATOR**

**QUESTION 1**

- (a) In Figure 2.4 look at the Treasury bond maturing in February 2015.
- How much would you have to pay to purchase one of these bonds?
  - If you already owned the bond, how much would a bond dealer pay you for it?
  - By how much did the price change from the previous day?
  - What annual interest payment does the bond make?
  - What is the bond's yield to maturity? **(5 marks)**
- (b) A Swaziland Government bond with a E100 par value has a fixed coupon rate of 10% per year; coupon interest is payable semi-annually and the maturity date is the end of October 2015. Assume the current date is November 1, 2011. The current market yield (yield to maturity) on similar securities is 8% per year (4% per half-year).
- What is the value of this Swaziland Government security? **(3 marks)**
  - Is the bond trading at a premium or discount? **(2 marks)**
  - What would be the value of the bond if market interest rates rise to 12%? **(3 marks)**
  - Is the bond trading at a premium or discount? **(2 marks)**
- (c) Nkosingiphile Simelane recently purchased a bond with a E1,000 face value, a 10% coupon rate, and four years to maturity. The bond makes annual interest payments, the first to be received one year from today. Nkosingiphile paid E1,032.40 for the bond.
- What is the bond's yield-to-maturity? **(3 marks)**
  - If the bond can be called two years from now at a price of E1,100, what is its yield-to-call? **(3 marks)**
- (d) Sithembiso Ndlovu is considering investing in a bond currently selling for E8,785.07. The bond has four years to maturity, a E10,000 face value, and a 8% coupon rate. The next annual interest payment is due one year from today. The approximate discount factor for investments of similar risk is 10%.
- Calculate the intrinsic value of the bond. Based on this calculation, should Sithembiso purchase the bond? **(5 marks)**
  - Calculate the YTM of the bond. Based on this calculation, should Sithembiso purchase the bond? **(5 marks)**
- (Question 1 - Total marks : 31)**

**QUESTION 2**

Questions (a) – (c) are based on Table 14.1, use it to answer these questions:

- (a) (i) Suppose you buy 50 January 30 call contracts, how much do these contracts cost you? **(3 marks)**
- (ii) Suppose AAPL has risen to \$50 per share, would you exercise the option? **(2 marks)**
- (iii) Is the call option in the money or out of the money? **(2 marks)**
- (iv) What is the value of your options? **(2 marks)**
- (v) How much is your net profit/loss? **(2 marks)**

(b) (i) Suppose you want the right to sell 100 shares of AAPL for \$30 anytime up until the third Friday in July. What should you tell your broker? (2 marks)

(ii) How much will it cost you? (2 marks)

(c) (i) Suppose you buy 10 AAPL January 32.50 put contracts. How much does this cost you (ignoring commissions)? (2 marks)

(ii) Just before the option expires, AAPL is selling for \$22.50 per share. Is this good news or bad news? (2 marks)

(iii) What is your net profit? (2 marks)

(Question 2 - Total marks : 21)

### QUESTION 3

(a) If the risk-free rate is 6 percent and the expected rate of return on the market portfolio is 13 percent, is a security with a beta of 1.25 and an expected rate of return of 16 percent overpriced or underpriced? (3 marks)

(b) A mutual fund manager expects her portfolio to earn a rate of return of 11 percent this year. The beta of her portfolio is 0.8. If the rate of return available on risk-free assets is 4 percent and you expect the rate of return on the market portfolio to be 14 percent, should you invest in this mutual fund? (3 marks)

(c) Figure 11-10 shows plots of monthly rates of return on three stocks versus the stock market index. The beta and standard deviation of each stock is given besides its plot.

(i) Which stock is safest for a diversified investor? (1 mark)

(ii) Which stock is safest for an undiversified investor who puts all her funds in one of these stocks? (1 mark)

(iii) Consider a portfolio with equal investments in each stock. What would this portfolio's beta have been? (2 marks)

(iv) Consider a well-diversified portfolio made up of stocks with the same beta as Microsoft. What are the beta and standard deviation of this portfolio's return? The standard deviation of the market portfolio's return is 20 percent. (4 marks)

(v) What is the expected rate of return on each stock? Use the capital asset pricing model with a market risk premium of 8 percent. The risk-free rate of interest is 4 percent. (3 marks)

(Question 3 - Total marks : 17)

**QUESTION 4**

(a) When estimating the spread of possible outcomes from investing in the stock market, most financial analysts start by assuming that the spread of returns in the past is a reasonable indication of what could happen in the future. Therefore, they calculate the standard deviation of past returns.

A share of stock of Maziya Incorporated is now selling for E94.00. A financial analyst summarises the uncertainty about next year's holding-period return on the stock by specifying three possible scenarios:

Business conditions	Scenarios, $s$	Probability, $p$	End-of-year Price	Annual Dividend
High growth	1	0.25	E140	E17.60
Normal growth	2	0.50	E108	E16.00
No growth	3	0.25	E60	E16.00

(i) What are the annual holding-period returns of Maziya Incorporated stock for each of the three scenarios? **(3 marks)**

(ii) Calculate the expected HPR and the standard deviation of the HPR. **(5 marks)**

(b) Consider the following scenario analysis:

Scenario	Probability	Rate of Return on Stocks	Rate of Return on Bonds
Recession	0.20	- 5%	+14%
Normal economy	0.60	+15%	+8%
Boom	0.20	+25%	+4%

(i) Is it reasonable to assume that Treasury bonds will provide higher returns in recessions than in booms? **(2 marks)**

(ii) Calculate the expected rate of return and standard deviation for each investment. **(10 marks)**

(iii) Suppose you invest 75 percent in stocks and 25 percent in bonds, what is the portfolio expected rate of return? What can you conclude? **(3 marks)**

(iv) What are the covariance and correlation coefficient between the rates of return on the two portfolios? What can you conclude about each one? **(5 marks)**

(v) What is the portfolio's standard deviation? What can you conclude? **(3 marks)**

**(Question 4 – Total marks : 31)**

===== **End of Paper** =====

## TREASURY BONDS, NOTES & BILLS

### Explanatory Notes

Representative Over-the-Counter quotation based on transactions of \$1 million or more. Treasury bond, note and bill quotes are as of mid-afternoon. Colons in bid-and-asked quotes represent 32nds; 101:01 means 101 1/32. Net changes in 32nds. n-Treasury note. i-Inflation-Indexed issue. Treasury bill quotes in hundredths, quoted on terms of a rate of discount. Days to maturity calculated from settlement date. All yields are to maturity and based on the asked quote. Latest 13-week and 26-week bills are boldfaced. For bonds callable prior to maturity, yields are computed to the earliest call date for issues quoted above par and to the maturity date for issues below par. \*When issued.

Source: eSpeed/Cantor Fitzgerald

RATE	MATURITY MO/YR	BID	ASKED	CHG	ASK YLD	RATE	MATURITY MO/YR	BID	ASKED	CHG	ASK YLD
<b>Government Bonds &amp; Notes</b>						3.875	Feb 13n	94:21	94:22	3	4.62
3.250	May 04n	100:00	100:01	-1	0.18	3.625	May 13n	92:25	92:26	3	4.61
2.875	Jun 04n	100:05	100:06	-1	0.75	1.875	Jul 13i	99:09	99:10	-4	1.96
2.250	Jul 04n	100:06	100:07	-1	0.95	4.250	Aug 13n	96:19	96:20	2	4.70
2.125	Aug 04n	100:08	100:09	-1	0.99	12.000	Aug 13	132:16	132:17	3	3.62
6.000	Aug 04n	101:03	101:04	...	0.92	4.250	Nov 13n	96:11	96:12	4	4.73
7.250	Aug 04n	101:12	101:13	...	0.90	2.000	Jan 14i	100:00	100:00	-6	2.00
13.750	Aug 04	102:25	102:26	-1	0.98	<del>4.000</del>	<del>Feb 14n</del>	<del>94:16</del>	<del>94:17</del>	<del>3</del>	<del>4.70</del>
1.875	Sep 04n	100:07	100:08	-1	1.10	4.750	May 14n	100:04	100:05	2	4.73
2.125	Oct 04n	100:10	100:11	...	1.28	13.250	May 14	142:05	142:06	5	3.84
5.875	Nov 04n	102:02	102:03	-1	1.36	12.500	Aug 14	140:03	140:04	5	3.92
7.875	Nov 04n	103:00	103:01	-1	1.35	11.750	Nov 14	137:21	137:22	5	4.01
11.625	Nov 04	104:25	104:26	...	1.32	11.250	Feb 15	153:08	153:09	4	4.82
						10.625	Aug 15	149:02	149:03	5	4.89

figure 2.4

Listing of treasury issues  
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AppleC (AAPL)

Underlying stock price: 30.69

&lt; TABLE 14.1

A Sample Wall Street  
Journal Option  
Quotation

Expiration	Strike	Call			Put		
		Last	Volume	Open Interest	Last	Volume	Open Interest
Oct	22.50	...	...	286	0.30	39	2790
Jan	22.50			3497	0.65	2	2031
Jun	25.00	5.90	30	1300	...	...	5101
Jul	25.00	5.90	208	9465	0.10	465	9484
Oct	25.00	6.60	27	1195	0.65	12	3218
Jan	25.00	7.10	103	18045	1.15	66	11359
Jun	27.50	3.21	68	10283	...	...	3618
Jul	27.50	3.80	167	17887	0.30	2787	9468
Oct	27.50	4.70	39	5104	1.25	10	3908
Jan	27.50	5.70	197	7478	1.80	10	3162
Jun	30.00	0.85	1549	7662	0.15	1406	2417
Jul	30.00	1.85	860	34929	1.05	2613	8318
Oct	30.00	3.30	367	8898	2.20	391	2023
Jan	30.00	4.00	391	31627	2.75	187	2032
Jun	32.50	0.05	2	2641	1.55	5	339
Jul	32.50	0.80	141	34663	2.35	335	1413
Oct	32.50	2.00	60	4502	3.40	10	344
Jan	32.50	2.90	5	4069	4.00	3	73
Jul	35.00	0.30	227	182	...	...	...
Oct	35.00	1.05	34	10217	5.00	20	451
Jan	35.00	1.85	100	10693	...	...	292

Underlying stock price represents listed exchange price only. It may not match the composite closing price.

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**FIGURE 11-10** These plots show monthly rates of return for (a) Ford, (b) General Electric, and (c) Microsoft, plus the market portfolio. See Practice Problem 9.

