



UNIVERSITY
OF
JOHANNESBURG

Department of Finance and Investment Management

Investment Planning

FPL05X7

Final Assessment Opportunity

30 May 2016

Time: 3 Hours

Marks: 100

Assessor: Mr. Paul Snyman

External moderator: Dr. Rousseau Lötter

INSTRUCTIONS:

- This paper consists **12** of pages
- Answer Questions 1 & 2 on the **answer sheets** provided and question 3 - 7 in the **answer book** provided.
- Silent, non-programmable calculators may be used, unless otherwise instructed.
- Where applicable, show all calculations clearly.
- Answers with Tippex and in pencil will **not** be marked.
- Scratch out all open spaces and empty pages.
- Round all calculations to the nearest rand.
- Good luck!

Question	Topic	Marks	Time
1	Multiple Choice (Section A)	20	36 minutes
2	Multiple Choice (Section B)	30	54 minutes
3-7	Longer Questions (Section C)	50	90 minutes
		100	180 minutes

Section A: Multiple Choice

(20 x 1 = 20 Marks)

- 1.1 Rookies Ltd issued 100 million 7% preference shares with a par value of R1 in 2012, and the issuance was fully subscribed. They had a difficult year in 2014 and experienced cash flow problems – Rookies Ltd consequently did not pay a dividend to ordinary shareholders and paid only R4million to their preference shareholders. In 2015 they experienced a much better year, and had R20million available to distribute as dividends. The dividends may be distributed to ordinary and preference shareholders as follows:
- a R7 million to preference shareholders and R13 million to ordinary shareholders;
 - b R4 million to preference shareholders and R16 million to ordinary shareholders;
 - c R10 million to preference shareholders and R10 million to ordinary shareholders;
 - d They may exercise their discretion to distribute it in any proportion to the preference shareholders and ordinary shareholders.
- 1.2 Derivative instruments may be used for the following purposes:
- a Protection of an existing exposure;
 - b To realise extraordinary returns in the short term due to the leverage it offers;
 - c To hedge a position in the forex market;
 - d All of the above.
- 1.3 The process applied by exchanges to ensure that obligations are met in terms of futures contracts is called:
- a Arbitrage;
 - b Insurance of the position;
 - c Hedging of the position;
 - d Mark-to-market.
- 1.4 A company with a high PE ratio may be regarded as:
- a Being undervalued;
 - b A growth company;
 - c A value company;
 - d None of the above.

1.5 If the ZAR strengthens against most major currencies, it may have the following effect on the economy:

- a The volume of imported goods will decrease;
- b The balance of payments account will improve;
- c Exports will become more profitable;
- d Portfolio investments by foreigners will increase because they can buy more rands for their respective currencies.

1.6 Consider the bonds described below.

- i. A semi-annual bond with a coupon of 8.7% with a principal value of R1 500 000 with 12 years to maturity and a YTM of 10%.
- ii. An annual bond with a coupon of 8.7% with a principal value of R1 500 000 with 9 years to maturity and a YTM of 10%.

Which bond is trading at a discount?

- a i
- b ii
- c Both bonds are trading at a discount.
- d None is trading at a discount.

1.7 Consider the two bonds in 1.6 again. Which bond will be more expensive?

- a i
- b ii
- c Both bonds will be trading at the same price.
- d There is not enough information to tell.

1.8 Consider the two bonds in Question 1.6 again. Which bond will be trading at the highest current yield?

- a i
- b ii
- c Both bonds will be trading at the same current yield.
- d There is not enough information to tell.

1.9 Your client wants to construct a portfolio of shares with minimum volatility. You explained to her that the way to achieve this, is to select the shares such that the correlation coefficient of the portfolio will be as close as possible to:

- a 1
- b 0.5
- c 0
- d -1

- 1.10 Which of the following statements is/are not true regarding systematic risk?
- a It includes the impact of monetary and fiscal policies.
 - b It includes the impact of strategies, such as innovation, on an individual company.
 - c This is the contribution of any one security to the risk of a portfolio.
 - d All the above are true.
- 1.11 Which of the following statements are/is true?
- a The purchase of an at-the-money put option has an expected return that is slightly less than expected return associated with a short sale in the spot market.
 - b The person who will deliver an asset in a futures contract is said to have a short position.
 - c The person who will buy an asset in a futures contract is said to have a long position.
 - d All the above are true.
- 1.12 Which of the following statements regarding the required rate of return and the expected rate of return is/are true?
- a The required rate of return is always higher than the expected rate of return.
 - b There is always uncertainty about whether an investment will earn its expected rate of return.
 - c The required rate of return is the minimum rate of return an investor will accept for the deferring of consumption, while the expected rate of return reflects the probable return a portfolio of investments will produce.
 - d None of the above.
- 1.13 Financial assets include all but which of the following:
- a Certificates of deposit.
 - b Gold coins.
 - c Banker's acceptance.
 - d Eurodollar deposits.

- 1.14 Fundamental analysis is characterised by the following sequence:
- a The macroeconomic factors are analysed first, the industries that will benefit from the prevailing macroeconomic environment is established and then individual companies within the industries are analysed.
 - b The industries that will benefit from the prevailing macroeconomic environment is established where after the macroeconomic factors are analysed and then finally individual companies within the industries are analysed.
 - c Individual companies that shows investment potential are identified, after which industries in which those companies reside are analysed and finally the macroeconomic factors to confirm the selected companies and industries are analysed.
 - d None of the above.
- 1.15 Which of the following is a measure of the sensitivity of an option's price to changes in interest rates?
- a Rho.
 - b Gamma
 - c Delta
 - d Sigma
- 1.16 Indicate which of the following statements are true regarding interest rate sensitivity:
- a A bond with a longer term is subject to less interest rate risk than a shorter term bond.
 - b The higher the coupon of a bond, the less sensitive it is to changing interest rates.
 - c High yield bonds are subject to more interest rate risk than low yield bonds.
 - d All of the above.
- 1.17 A change in the risk-free rate will cause the following change in the security market line:
- a The slope of the line will be adjusted.
 - b A parallel shift will result.
 - c The security market line will remain unchanged.
 - d There will be a movement along the security market line.

- 1.18 The Gordon Growth model is particularly suited for valuation of which type of companies?
- a Companies from the same sector.
 - b Utility companies
 - c Defensive companies.
 - d Mature companies
- 1.19 Which ratio was developed for the banking sector and is especially suited for valuating banking companies?
- a Price/cash flow ratio
 - b Price/book value ratio
 - c Price/sales ratio
 - d Price/net asset value ratio
- 1.20 A warrant is an exchange traded derivative and is a standardised _____.
- a Forward.
 - b Future.
 - c Option.
 - d Swap.

Section B: Multiple Choice (calculations)

(15 x 2 = 30 Marks)

- 2.1 The following information is given:
- The mid spot exchange rate for USDZAR is 14.4255;
 - The SA inflation rate is 6.50%;
 - The US inflation rate is 1.70%.
- Calculate the expected future exchange rate in 2 years from now under relative PPP.
- a 13.1471
 - b 15.8436
 - c 15.8283
 - d 13.0739

2.2 An analysis of Baleke Ltd produced the following data:

- They have maintained a retention ratio of 55% over the last five years;
- They have maintained a growth rate of 10% over the last five years and it is envisaged that the growth rate will be maintained indefinitely;
- The required rate of return is 25% p.a.;
- The company is expected produce earnings of R10.00 per share over the next year.

Calculate the current value of an ordinary share.

- a 30.00
- b 36.67
- c 33.00
- d 66.67

2.3 A zero coupon bond has a par value of R10 000 000. The YTM is 9.5% and expected inflation is 5.5%. The term to maturity is 20 years. Calculate the price at which the bond should trade in the open market.

- a R3 952 932
- b R1 628 237
- c R1 562 567
- d R3 378 522

2.4 Fikile invested in TMW Ltd 6 years ago. He paid R250 per share and recently sold the shares for R320. If the shares did not pay any dividends during this period, calculate the Annual Holding Period Yield.

- a 4.20%
- b 1.28%
- c 28.0%
- d 4.39%

2.5 Below is a table giving probabilities of returns under different conditions for Hot Chocolate Ltd and Cappuccino Ltd:

State of the economy	Probability of state occurring	Expected rate of return during the state of economy
Hot Chocolate		
Boom	25%	28%
Normal	50%	20%
Recession	25%	-10%
Cappuccino		
Boom	25%	18%
Normal	50%	12%
Recession	25%	2%

Calculate the expected returns for both Chocolate and Cappuccino.

- | | | |
|---|-----------------|------------------|
| a | Chocolate 38% | Cappuccino 32% |
| b | Chocolate 4.8% | Cappuccino 3.7% |
| c | Chocolate 14.5% | Cappuccino 11% |
| d | Chocolate 12.7% | Cappuccino 10.7% |

2.6 The table below indicates the expected returns of a company during different economic cycles.

State of the economy	Probability of state occurring	Expected rate of return during the state of economy
Boom	30%	13%
Normal	40%	12%
Recession	30%	-7%
	Expected return	6.6%

Calculate the variance for Top Speed Company.

- a 79.44%
- b 43.56%
- c 85.03%
- d None of the above

2.7 The following data is given for a company:

- expected return is 14.5%;
- the variance is 130;
- the risk-free rate is 8.5%.

The standard deviation for the company is:

- a -6.0%
- b 6.0%
- c 11.40%
- d None of the above

2.8 The coefficient of variation gives the risk per unit of return. Use the information below to determine which share you would include in the portfolio of a risk averse investor, based on the best risk/return payoff.

	Expected return	Standard deviation
Company A	17%	15.15%
Company B	20%	18.50%

- a Company A as the standard deviation is 3.35% lower than that of Company B.
b Company A as the coefficient of variation is 0.034 lower than that of Company B.
c Company B as the coefficient of variation is 0.020 lower than that of Company A.
d There is not enough information to determine the best option.
- 2.9 The delivery price of a futures contract on a non-dividend paying share needs to be determined. The spot share price is R100 and the risk-free interest rate is 7.5% per annum. The futures price for delivery in nine months is:
- a R105.63
b R94.72
c R80.63
d R105.57
- 2.10 You can hedge a portfolio by selling index futures. You have analysed a client's exposure and found the following:
- He has a R5 000 000 portfolio with a beta of 0.75;
 - The All Share Index is 53 000.
- What will the optimal number of contracts to protect the portfolio be?
- a 7
b 70
c 2
d 20
- 2.11 You have the following information:
Mid spot for USDZAR = 14.4056
Mid spot for ZAREUR = 0.0589
Mid spot for USDEUR = 0.8888
The triangular arbitrage opportunity that exists is as follows:
- a Sell USD at the cross rate and simultaneously buy the USD back at the quoted rate. This produces a profit of 4.03 USD cents;
b Sell EUR at the quoted rate and simultaneously buy the EUR back at the cross rate. This produces a profit of 5.34 EUR cents;
c Sell EUR at the cross rate and simultaneously buy the EUR back at the quoted rate. This produces a profit of 4.78 EUR cents;
d There is no arbitrage opportunity.
- 2.12 Mary decided to invest in Kinky Cattle Ltd. The detail of her investment is as follows:
- She bought 3000 shares at R120.66 per share five years ago;
 - She received dividends to the amount of R90 000 in total over the last five years;

- She have reinvested the dividends as and when she received it in Kinky Cattle;
 - She now have 3 439 shares in Kinky Cattle, which is trading at R258.99 per share.
- Calculate the holding period return and holding period yield on this investment

- a HPR 2.15 HPY 16.65%
- b HPR 11.78% HPY 1.75
- c HPR 1.75 HPY 11.78%
- d HPR 16.65% HPY 2.15

2.13 Economists predict the following probabilities for the economy over the next year:

- normal state of the economy: 50%
- economy booming: 35%
- economy in recession: 15%

A consensus analyst report indicate the following expected rates of return during the period:

State of the economy	Bonsmara Ltd	Hereford Ltd
Boom	30%	20%
Normal	20%	10%
Recession	-10%	5%

Based on the above:

- a Hereford is expected to outperform Bonsmara by 6.25%
- b Bonsmara is expected to outperform Hereford by 5.00%
- c Hereford is expected to outperform Bonsmara by 15%%
- d Bonsmara is expected to outperform Hereford by 6.25%

2.14 A bond has the following characteristics:

- Coupon 12.0%
- Price R 115.22
- Risk free rate: 6.8%
- Term 10 years to maturity
- Payment 2 x per year
- Principal 100

The current yield will be:

- a 5.21%
- b 10.42%
- c 12.00%
- d 5.20%

2.15 Calculate the yield to maturity for the same bond.

- a 9.60%
- b 10.15%
- c 22.38%
- d 8.23%.

Section C: Calculations and applied theory (50 Marks)

3. In the table below an index representing the value of an investment over 12 months is given in the form of a total return index. The value at the beginning of the first month is indicated next to month 0. The index figure represents the closing price of the investment plus any dividends that were paid during the month.

Month	Total Return index
0	10 654
1	10 556
2	11 001
3	11 155
4	11 150
5	11 000
6	10 522
7	9 988
8	10 278
9	10 388
10	10 299
11	10 556
12	11 122

Required:

- 3.1 Calculate the standard deviation of the investment over the twelve months. (12)
- 3.2 Irrespective of your answer, assume that the average return for the investment in 3.1 is 5.00% p.a. and the standard deviation is 10.0%. Compare this to another investment of which the average return is 10.0% p.a. with a standard deviation of 25.0%, using the coefficient of variance. Indicate what type of investor will prefer which investment. (4)

4. Derek wants to compare the performance of the JSE using the Top 40 Index to the NSE using the Dow Jones. Explain to Derek the difference between a value weighted index and a price weighted index. In order to illustrate your explanation, assume that Anglo trades at R135 per share and has a market capitalisation which is 15% of the total market capitalisation of the Top 40 Index's companies. The prices of the Top 40 Index ranges roughly between R12 and R2 000 per share. Also assume that Walmart is trading at \$69 and that it represents 5% of the total market capitalisation of the Dow Jones companies. The prices of the companies on the Dow Jones varies roughly between \$166 and \$28.

Required:

Explain to Derek the difference between a value weighted and a price weighted index, and use the figures provided for the Top 40 Index and the Dow Jones to illustrate the concepts. In your discussion indicate in which category the two indices fall. (10)

5. Gwede bought a bond with a term of 15 years for R124.56. His investment horizon is 10 years. The following information regarding the investment also needs to be taken into consideration.

Coupon	9.00%
Payment frequency	2 x per year
Principal	R100
Reinvestment rate	9.50% for first four years
Reinvestment rate	8.00% for last six years
Required yield to maturity for 5 year bond	10.00%

Required:

Calculate Gwede's horizon yield. Express the answer as an effective return (NACA). (15)

6. The following currency rates are quoted on the market:

Mid rates:

AUDUSD = 0.7685

USDEUR = 0.8888

Required:

Calculate the AUDEUR mid cross rate. (3)

7. The current USDZAR exchange rate is 14.4789/999. The annual interest rate for a 3-month investment in ZAR is 7.22% and for an investment in USD is 2.23%. The 3-month USDZAR forward is quoted at 14.7402/652.

Required:

Determine whether an arbitrage opportunity exists. Show all your calculations and base your arguments on a borrowed amount of 100 000 USD. (6)

..... TOTAL 100