



ZIMBABWE EZEKIEL GUTI UNIVERSITY

FACULTY OF BUSINESS, ECONOMICS AND ACCOUNTING

DEPARTMENT OF ACCOUNTING AND FINANCE

EXAMINATION PAPER

COURSE CODE : CAC 214
COURSE TITLE : CORPORATE FINANCE
SPECIAL REQUIREMENTS : STATISTICAL TABLES
DURATION : 3 Hours
LEVEL : 1
DATE : 04 OCT 2022

INSTRUCTIONS TO CANDIDATES:

1. No cell phones are allowed in the examination venue
2. Use of silent, non-programmable calculators is allowed
3. Answer ALL questions in both Section A and Section B.
4. Begin each question on a new page in section B.
5. The number of marks for each question or part question is shown in brackets []

SECTION A [MULTIPLE CHOICE] 20 MARKS

Answer all questions in this section

Each question carries (2marks)

Select the most appropriate answer

1) The common stock of Ashton ltd is currently selling for \$50 per share and the market participants expect it to generate benefits of \$6.50 per share during each coming period. The risk free rate is currently 7%, the market return, r_m is 12 % and the stock's beta is 1.20. Calculate the current expected return

A. 0.07

B. 0.13

C. 0.12

D. 0.27

2) Using information from question 1 above, calculate the value of equity using CAPM

A. 0.27

B. 0.07

C. 0.13

D. 0.12

3). What is the present value of 15 payments of \$100 each received every 18 months (the first one occurring in 18 months from now), if the annual discount rate (compounded annually) is 9%?

A. \$620.43

B. \$951.28

C. \$875.56

D. \$1,209.10

E. \$930.61

4. Corporate managers can maximize shareholder wealth by choosing positive NPV projects because:

A. all investors have the same preferences.

B. the unhappy shareholders can sell off their shares.

C. given the existence of financial markets, investors will be satisfied with the same real investment decisions regardless of personal preferences.

D. none of the above

5) Cate Ltd firm has the following statement of financial information

Assets	\$
Non-current assets	150000
Current assets	
Inventory	50000
Trade Receivables	50000
Cash	40000
Total Assets	290000
Current Liabilities	
Trade payables	30000
Bank Overdraft	40000
Equity	220000
	290000

Calculate the current ratio of Cate Ltd

A. 1:1

B. 2:1

C. 4:1

D. 3:1

6) Using the information in question 5 above, calculate the acid test ratio

A. 3:1

B. 1:2

C. 2.29:1

D. 1.29:1

7) Using information in question 5 and 6 comment on the liquidity position of the business

A. Cate ltd is facing financial problems

B. There is sufficient working capital for the smooth running of Cate ltd

C. There is sufficient profits for the sustainability of the firm

D. The going concern of Cate ltd is largely compromised

8) Consider 10-year, 12% coupon bond with a par value of \$1 000. Assume the required yield on this bond is 13%.

A. \$120

B. \$1000

C. \$946.

D. \$130

9). Consider an 8-year, 12 percent coupon bond with a par value of \$100 on which interest is payable semi-annually. The required return on this bond is 14%. Determine the value of the bond

A. \$96

B. \$100

C. \$14

D. \$90.6

10). Suppose you were offered a 14 year. 10% annual coupon, \$1000 par value bond at a price of \$ 1 494.93. What rate of interest would you earn on your investment if you bought the bond and held it to maturity?

A. 9.48%

B. 4.98%

C.10%

D. 14.98%

Section B (80MARKS)

Answer all questions

Question one

1(a) The success of Delta Beverages Ltd, a company in the beverages sector is affected by the state of the economy. The following information applies to investment decision of this company in relation to the return and riskiness of its security.

State of the economy	Probability of the state of the economy	Return given state of the economy
Recession	10%	20%
Normal	30%	25%
Boom	35%	30%
Super Boom	20%	40%

(i) Calculate the expected return of this scenario (4marks)

(ii) Calculate the standard deviation of the security (6marks)

(iii) Distinguish clearly between risk and return (5marks)

(b) Econet Wireless Ltd is a well-established multinational company which is involved in telecommunication business. The company has opened branches in many African and western countries. The Finance director of this well- established company is contemplating raising

additional finance through either a public offer or a rights issue. As a financial analyst, advise the finance director on which source of finance to use clearly showing the difference between the two sources. (10marks)

[25MARKS]

Question Two

3(a) Analyse the importance of financial management to a firm of your choice (12marks)

(b) Examine the difference between equity and debt finance to a large manufacturing company in your country (13marks)

[25marks]

Question Three

Vaportrail Inc is a new company that intends to provide executive jets on hire for use by the CEOs and other senior executives of its client firms. The company is trying to choose between the following two alternative strategies:

Strategy 1:

- Acquire second-hand aircraft with a remaining useful life (for the company's purposes) of about 7 years, and replace with similar assets at the end of the useful life.
- Appropriate second-hand aircraft can be obtained at a price of about \$3.5 million each but, due to their age and lower fuel efficiency, about \$2 million would need to be spent on the annual operating and maintenance costs of such an aircraft.
- Under the relevant Alternative Depreciation System, Vaportrail Inc will be entitled to claim tax depreciation on the purchase cost on straight line basis over the 7-year period, starting from the first year after purchase.
- It is estimated that the residual value of such aircraft on the second-hand market when they are replaced after 7 years would be approximately 30 percent of the price that Vaportrail paid for them.

Strategy 2:

- the industry average ratio of debt to equity is 0.5:1
- the industry average beta is 1.09
- the rate of return on the market is currently estimated at 8% annual effective
- the yield on short-dated treasury bills is currently around 0.5%

Required:

- (a) Calculate the weighted average cost of capital of Vaportrail Inc. (7 marks)
- (b) Explain the potential problem in evaluating a project without increasing the cash flows at the rate of inflation, and calculate the discount rate that would be appropriate for dealing with such un-inflated cash flows. (3 marks)
- (c) Based on the information provided:
- (i) Evaluate appropriately and recommend which of the two alternative strategies Vaportrail Inc should choose (4 marks)
- (d) Explain the meaning of mezzanine finance, describing the circumstances in which it is commonly used. (2 marks)
- (e) Explain the meaning and purpose of equity finance and non-equity finance. Give an example of each and comment on the main problems that may be faced by companies that provide these. (4 marks)
- (f) (i) What are the limitations of the CAPM? (4 marks)
- (ii) If the risk-free rate of return is 12% and the average market return is 20%, what will be the expected return from a portfolio with a beta factor of 0.945? (6marks)
- [30marks]**

END OF EXAMINATION QUESTION PAPER

FORMULA SHEET FOR CAC 214 CORPORATE FINANCE

1. Bond Price = $\sum(C_n / (1+YTM)^n) + P / (1+i)^n$

Where n = Period which takes values from 0 to the nth period till the cash flows ending period,

C_n = Coupon payment in the nth period,

YTM = interest rate or required yield and

P = Par Value of the bond

2. CAPM Required return, $R_i = R_f + \beta (R_m - R_f)$.

Where R_i -required return of stock i,

R_f - Risk free rate,

R_m -Market return rate and

β - Beta coefficient of the market

3. Beta coefficient of stock A, $\beta = \text{Cov}(r_a, r_m) / \sigma^2_m$,

Where r_a = stock A return,

R_m = Market return and

σ^2_m = Market variance

4. Correlation coefficient for Assets A and B., $R = \text{Cov}(A, B) / \sigma_a \sigma_b$

Where σ_a = Standard deviation of stock A and

σ_b = Standard deviation of Stock B.

5. Covariance for stock A and B, $\text{Cov}(a,b) = \sum p_i (r_a - E(r_a))(r_b - E(r_b))$

or $\sum (r_x - \bar{X})(r_y - \bar{Y}) / (n - 1)$

6. Expected return of stock X, $E(r) = \sum p_x$ or $\sum x/n$

where p = probability of economic state,

x = return of each economic state and

n = number of items.

7. Sharpe's ratio = $(R_p - R_f) / \sigma_p$

where σ_p = standard deviation of the portfolio,

R_p = return on portfolio and

R_f = risk free rate.

8. Treynor's ratio = $(R_p - R_f) / \beta_p$ where β_p = beta of portfolio.

9. Jensen's alpha = $R_i - ((R_f + \beta_p (R_m - R_f)))$

10. Duration = $\sum (t \times PV) / \sum PV$

where t = time and

PV is the present value of the cashflows.

11. Variance of stock A, $\sigma_A^2 = \sum p_i (r_a - E(r_a))^2$

12. Portfolio variance, $\sigma_{ab}^2 = w_a^2 \sigma_a^2 + w_b^2 \sigma_b^2 + 2w_a w_b \text{Cov}_{ab}$

OR $w_a^2 \sigma_a^2 + w_b^2 \sigma_b^2 + 2w_a w_b \sigma_a \sigma_b r_{ab}$

PRESENT VALUE TABLE

Present value of \$1, that is $(1+r)^{-n}$, where r = interest rate; n = number of periods until payment or receipt.

Periods (n)	Interest rates (r)									
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751
4	0.961	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.708	0.683
5	0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621
6	0.942	0.888	0.837	0.790	0.746	0.705	0.666	0.630	0.596	0.564
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513
8	0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467
9	0.914	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.350
12	0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290
14	0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239
16	0.853	0.728	0.623	0.534	0.458	0.394	0.339	0.292	0.252	0.218
17	0.844	0.714	0.605	0.513	0.436	0.371	0.317	0.270	0.231	0.198
18	0.836	0.700	0.587	0.494	0.416	0.350	0.296	0.250	0.212	0.180
19	0.828	0.686	0.570	0.475	0.396	0.331	0.277	0.232	0.194	0.164
20	0.820	0.673	0.554	0.456	0.377	0.312	0.258	0.215	0.178	0.149

Periods (n)	Interest rates (r)									
	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	0.812	0.797	0.783	0.769	0.756	0.743	0.731	0.718	0.706	0.694
3	0.731	0.712	0.693	0.675	0.658	0.641	0.624	0.609	0.593	0.579
4	0.659	0.636	0.613	0.592	0.572	0.552	0.534	0.516	0.499	0.482
5	0.593	0.567	0.543	0.519	0.497	0.476	0.456	0.437	0.419	0.402
6	0.535	0.507	0.480	0.456	0.432	0.410	0.390	0.370	0.352	0.335
7	0.482	0.452	0.425	0.400	0.376	0.354	0.333	0.314	0.296	0.279
8	0.434	0.404	0.376	0.351	0.327	0.305	0.285	0.266	0.249	0.233
9	0.391	0.361	0.333	0.308	0.284	0.263	0.243	0.225	0.209	0.194
10	0.352	0.322	0.295	0.270	0.247	0.227	0.208	0.191	0.176	0.162
11	0.317	0.287	0.261	0.237	0.215	0.195	0.178	0.162	0.148	0.135
12	0.286	0.257	0.231	0.208	0.187	0.168	0.152	0.137	0.124	0.112
13	0.258	0.229	0.204	0.182	0.163	0.145	0.130	0.116	0.104	0.093
14	0.232	0.205	0.181	0.160	0.141	0.125	0.111	0.099	0.088	0.078
15	0.209	0.183	0.160	0.140	0.123	0.108	0.095	0.084	0.079	0.065
16	0.188	0.163	0.141	0.123	0.107	0.093	0.081	0.071	0.062	0.054
17	0.170	0.146	0.125	0.108	0.093	0.080	0.069	0.060	0.052	0.045
18	0.153	0.130	0.111	0.095	0.081	0.069	0.059	0.051	0.044	0.038
19	0.138	0.116	0.098	0.083	0.070	0.060	0.051	0.043	0.037	0.031
20	0.124	0.104	0.087	0.073	0.061	0.051	0.043	0.037	0.031	0.026

Cumulative present value of \$1 per annum, Receivable or Payable at the end of each year for n years $\frac{1-(1+r)^{-n}}{r}$

Periods (n)	Interest rates (r)									
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909
2	1.970	1.942	1.913	1.886	1.859	1.833	1.808	1.783	1.759	1.736
3	2.941	2.884	2.829	2.775	2.723	2.673	2.624	2.577	2.531	2.487
4	3.902	3.808	3.717	3.630	3.546	3.465	3.387	3.312	3.240	3.170
5	4.853	4.713	4.580	4.452	4.329	4.212	4.100	3.993	3.890	3.791
6	5.795	5.601	5.417	5.242	5.076	4.917	4.767	4.623	4.486	4.355
7	6.728	6.472	6.230	6.002	5.786	5.582	5.389	5.206	5.033	4.868
8	7.652	7.325	7.020	6.733	6.463	6.210	5.971	5.747	5.535	5.335
9	8.566	8.162	7.786	7.435	7.108	6.802	6.515	6.247	5.995	5.759
10	9.471	8.983	8.530	8.111	7.722	7.360	7.024	6.710	6.418	6.145
11	10.368	9.787	9.253	8.760	8.306	7.887	7.499	7.139	6.805	6.495
12	11.255	10.575	9.954	9.385	8.863	8.384	7.943	7.536	7.161	6.814
13	12.134	11.348	10.635	9.986	9.394	8.853	8.358	7.904	7.487	7.103
14	13.004	12.106	11.296	10.563	9.899	9.295	8.745	8.244	7.786	7.367
15	13.865	12.849	11.938	11.118	10.380	9.712	9.108	8.559	8.061	7.606
16	14.718	13.578	12.561	11.652	10.838	10.106	9.447	8.851	8.313	7.824
17	15.562	14.292	13.166	12.166	11.274	10.477	9.763	9.122	8.544	8.022
18	16.398	14.992	13.754	12.659	11.690	10.828	10.059	9.372	8.756	8.201
19	17.226	15.679	14.324	13.134	12.085	11.158	10.336	9.604	8.950	8.365
20	18.046	16.351	14.878	13.590	12.462	11.470	10.594	9.818	9.129	8.514

Periods (n)	Interest rates (r)									
	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	1.713	1.690	1.668	1.647	1.626	1.605	1.585	1.566	1.547	1.528
3	2.444	2.402	2.361	2.322	2.283	2.246	2.210	2.174	2.140	2.106
4	3.102	3.037	2.974	2.914	2.855	2.798	2.743	2.690	2.639	2.589
5	3.696	3.605	3.517	3.433	3.352	3.274	3.199	3.127	3.058	2.991
6	4.231	4.111	3.998	3.889	3.784	3.685	3.589	3.498	3.410	3.326
7	4.712	4.564	4.423	4.288	4.160	4.039	3.922	3.812	3.706	3.605
8	5.146	4.968	4.799	4.639	4.487	4.344	4.207	4.078	3.954	3.837
9	5.537	5.328	5.132	4.946	4.772	4.607	4.451	4.303	4.163	4.031
10	5.889	5.650	5.426	5.216	5.019	4.833	4.659	4.494	4.339	4.192
11	6.207	5.938	5.687	5.453	5.234	5.029	4.836	4.656	4.486	4.327
12	6.492	6.194	5.918	5.660	5.421	5.197	4.988	4.793	4.611	4.439
13	6.750	6.424	6.122	5.842	5.583	5.342	5.118	4.910	4.715	4.533
14	6.982	6.628	6.302	6.002	5.724	5.468	5.229	5.008	4.802	4.611
15	7.191	6.811	6.462	6.142	5.847	5.575	5.324	5.092	4.876	4.675
16	7.379	6.974	6.604	6.265	5.954	5.668	5.405	5.162	4.938	4.730
17	7.549	7.120	6.729	6.373	6.047	5.749	5.475	5.222	4.990	4.775
18	7.702	7.250	6.840	6.467	6.128	5.818	5.534	5.273	5.033	4.812
19	7.839	7.366	6.938	6.550	6.198	5.877	5.584	5.316	5.070	4.843
20	7.963	7.469	7.025	6.623	6.259	5.929	5.628	5.353	5.101	4.870

FORMULAE

PROBABILITY

$A \cup B = A \text{ or } B$. $A \cap B = A \text{ and } B$ (overlap).

$P(B | A)$ = probability of B, given A.

Rules of Addition

If A and B are mutually exclusive: $P(A \cup B) = P(A) + P(B)$

If A and B are **not** mutually exclusive: $P(A \cup B) = P(A) + P(B) - P(A \cap B)$

Rules of Multiplication

If A and B are *independent*: $P(A \cap B) = P(A) * P(B)$

If A and B are **not** independent: $P(A \cap B) = P(A) * P(B | A)$

$E(X) = \sum (\text{probability} * \text{payoff})$

DESCRIPTIVE STATISTICS

Arithmetic Mean

$$\bar{x} = \frac{\sum x}{n} \quad \bar{x} = \frac{\sum fx}{\sum f} \quad (\text{frequency distribution})$$

Standard Deviation

$$SD = \sqrt{\frac{\sum (x - \bar{x})^2}{n}} \quad SD = \sqrt{\frac{\sum fx^2}{\sum f} - \bar{x}^2} \quad (\text{frequency distribution})$$

INDEX NUMBERS

Price relative = $100 * P_1/P_0$

Quantity relative = $100 * Q_1/Q_0$

Price:
$$\frac{\sum w * \left(\frac{P_1}{P_0}\right)}{\sum w} * 100$$

Quantity:
$$\frac{\sum w * \left(\frac{Q_1}{Q_0}\right)}{\sum w} * 100$$

TIME SERIES

Additive Model

Series = Trend + Seasonal + Random

Multiplicative Model

Series = Trend * Seasonal * Random

FINANCIAL MATHEMATICS

Compound Interest (Values and Sums)

Future Value S , of a sum of X , invested for n periods, compounded at $r\%$ interest

$$S = X[1 + r]^n$$

Annuity

Present value of an annuity of £1 per annum receivable or payable for n years, commencing in one year, discounted at $r\%$ per annum:

$$PV = \frac{1}{r} \left[1 - \frac{1}{[1 + r]^n} \right]$$

Perpetuity

Present value of £1 per annum, payable or receivable in perpetuity, commencing in one year, discounted at $r\%$ per annum:

$$PV = \frac{1}{r}$$

LEARNING CURVE

$$Y_x = aX^b$$

where:

Y_x = the cumulative average time per unit to produce X units;

a = the time required to produce the first unit of output;

X = the cumulative number of units;

b = the index of learning.

The exponent b is defined as the log of the learning curve improvement rate divided by log 2.

INVENTORY MANAGEMENT

Economic Order Quantity

$$EOQ = \sqrt{\frac{2C_o D}{C_h}}$$

where: C_o = cost of placing an order
 C_h = cost of holding one unit in Inventory for one year
 D = annual demand

10/0 AM