



Singapore CA Qualification (Foundation) Examination

5 December 2022

Financial Management

INSTRUCTIONS TO CANDIDATES:

1. The time allowed for this examination paper is **3 hours 15 minutes**.
2. This examination paper has **FOUR (4)** questions and comprises **TWENTY (20)** pages (including this instruction sheet, Appendix A and Appendix B). Each question may have **MULTIPLE** parts and **ALL** questions are examinable.
3. This is a restricted open book examination. You are allowed to have only the following materials with you at your exam location:
 - One A4-sized double-sided cheat sheet
 - One A4-sized double-sided blank scratch paper
4. During the examination, you are allowed to use your laptop and any calculators that comply with the SAC's regulations. Please note that watches, mobile phones, tablets, and all other electronic devices **MUST NOT** be used during the examination.
5. During the examination, videos of you and your computer screen will be recorded for the purpose of ensuring examination integrity and you have consented to these recordings.
6. This examination paper and all video recordings of this exam are the property of the Singapore Accountancy Commission.

MODULE-SPECIFIC INSTRUCTIONS:

7. Assume that all dollar amounts are in Singapore dollar (S\$) unless otherwise stated.

IMPORTANT NOTICE:

If you are not feeling well, please do not press "Start Assessment". If you have started and leave during the exam, you would be deemed to have attempted the paper.

****VERY IMPORTANT NOTICE****

1. Your question paper is attached under the "**Resource**" tab found at the bottom right of **EACH** question.

Other important information:

2. You will **only be allowed** to access the Excel function from your computer.
3. You are **NOT ALLOWED** to access any websites or reference materials (except for your A4 sized double sided cheat sheet) during the exam.
4. You are **NOT ALLOWED** to print the question paper.
5. **Please take note that your screen will be monitored throughout the examination. If you are found to have accessed unauthorised materials or websites, or if you cheat or attempt to cheat, you will be liable to severe disciplinary action.**

Should you encounter any issues during the exam, please call the following number:

+65 6100 0516

6. **You do not need to fill in an answer for this question.**

Question 1 – (a) to (f)

Zenspring Sleep Systems (ZSS) manufactures comprehensive 'sleep systems' that includes mattresses, pillows, bed frames, bed sheets and smart electronic monitoring equipment. It is a for-profit business that aims to maximise shareholder wealth.

ZSS is planning to launch a new mattress based on an innovative spring-like material with a superior blend of support and comfort. The Board is currently appraising the investment.

The Finance Director has prepared the following 'working assumptions' to be used:

- Sales will be 10,000 in year 1, 25,000 in year 2, 18,000 in year 3 and 5,000 in year 4. The price in year 1 will be \$750 increasing by general inflation thereafter.
- Manufacturing and distribution costs will be \$400 per mattress in year 1, increasing by 8% per year in nominal or money terms.
- General inflation is uncertain. There is a 75% chance it could be 6% per year, and a 25% chance it could be 2% per year.
- Initial investment will be \$18 million on 1 January 20X3, with \$1 million scrap proceeds (in money terms) expected on the last day of year 4.
- Due to government assistance relating to research and development associated with the new mattress, corporate income tax is payable on net operating income at a special rate of 7% at the end of the year to which the cashflows relate for the duration of the project. The initial investment is not eligible for capital allowances.
- Working capital equal to 10% of revenues for any one year is required to be in place at the start of that year. All working capital will be released at the end of the project.
- Sales and manufacturing costs will arise evenly over the year.

ZSS has a real cost of capital of 4.762%. ZSS has a year-end date for tax and financial reporting purposes of 31 December.

The Finance Director appreciates that the above are 'best guess' assumptions and is concerned if any of the assumptions are so inaccurate that the decision made proves

to be incorrect. He believes the launch should proceed if the net present value of the project is positive.

The Sales Director disagrees with this criteria and says: 'I am aware that finances available are tight, so I feel the project needs to pay for itself in less than 3 years to be viable – this should be our main criteria.'

**e-Exam
Question
Number**

Question 1 required:

- 2** **(a)** Calculate the nominal (or money) cost of capital, rounded to one decimal place. **(2 marks)**
- 3** **(b)** Calculate the relevant nominal (or money) cashflows for the new mattress product. **(12 marks)**
- 4** **(c)** Calculate the Net Present Value of the new product. **(2 marks)**
- 5** **(d)** Calculate the payback period of the new product to the nearest month. **(3 marks)**
- 6** **(e)** Recommend and justify which approach is more suitable in this situation. **(3 marks)**
- 7** **(f)** Following from the Finance Director's comments, calculate the percentage sensitivity of the project's Net Present Value to the size of the initial investment and comment on the result. **(3 marks)**
- (Total: 25 marks)**

Question 2 – (a) to (f)

Today is 1 January 20X3.

LuxGreen Yachts Ltd (LGY) is a Singapore-based company that makes hand-built yachts to order, with a high degree of personalisation allowed by the customer. LGY sells yachts globally but has a regular stream of sales to the US – so much so it is considering investing in production facilities in the US.

One large order was placed a year ago by a wealthy customer based in Silicon Valley, California in the US for US\$45 million, for delivery on 30 June 20X3, payable on delivery. The Finance Director is considering how best to hedge these receipts.

A forward contract is available from LGY's bank. The Finance Director is also considering a money market hedge, futures and options.

The current spot rate bid-ask spread is: S\$1.3450 – S\$1.3650 per US\$1.

The forward rate adjustment is quoted as S\$0.003 – S\$0.004. The US dollar is at a premium in the forward price.

6-month interest rates are given below as a simply annual percentage:

% per annum	Borrowing	Lending
Singapore	7	5
USA	2	1

**e-Exam
Question
Number**

Question 2 required:

- 8** **(a)** Explain the THREE main types of foreign exchange risk, giving examples for LuxGreen Yachts Ltd (LGY).
(6 marks)
- 9** **(b)** Calculate the Singapore equivalent of the US\$45m receipt using the current spot rate.
(2 marks)
- 10** **(c)** Calculate the Singapore equivalent of the US\$45m receipt using a Forward Contract.
(3 marks)
- 11** **(d)** Calculate the Singapore equivalent value of the US\$45m receipt in 6 months' time using a money market hedge, assuming LGY has surplus cash on deposit in Singapore.
(6 marks)
- 12** **(e)** Discuss TWO advantages and TWO disadvantages of using Futures Contracts compared to using the spot market.
(4 marks)
- 13** **(f)** Discuss TWO advantages and TWO disadvantages of using Options compared to using Forward Contracts.
(4 marks)
- (Total: 25 marks)**

Question 3 – (a) to (e)

Hydrocommute Ltd (HCL) has the exclusive licence to distribute hydrogen powered bicycles in Singapore for commuting purposes. They are more powerful than electric bikes or scooters, and only produce water vapour as a result of operation.

Detailed and reliable market research shows the following:

- Forecast sales: 100 units in the first month, price \$3,000 each. Sales doubling each month for the first nine months. Sold to shops on 3 month's credit to encourage uptake.
- Profit margin: 50%. Credit received from suppliers – 1 month for the first year.
- The opening cash balance is zero.

**e-Exam
Question
Number**

Question 3 required:

- 14** **(a)** Produce a monthly statement of profit or loss for each of the first four months. **(4 marks)**
- 15** **(b)** Produce a monthly cash flow forecast for each of the first four months, showing the closing bank balance at the end of each month. **(4 marks)**
- 16** **(c)** Explain and compare the trends in **parts (a) and (b)**. **(6 marks)**
- 17** **(d)** Recommend and justify TWO practical actions that would help in this situation. **(4 marks)**

HCL decide to borrow money to expand their business. They intend to borrow \$10 million. From their own bank they can borrow at a fixed rate of 9% or a variable rate of SIBOR (the Singapore Interbank Offered Rate) + 8%. SIBOR currently stands at 1%.

HCL would like fixed funding to help them budget their cashflows in the early years of their venture. They have approached CogsRBest (CRB), a distributor of traditional cycles to see if they would entertain the idea of an interest rate swap, as in a recent interview the CRB Finance Director expressed the view that interest rates may fall in the future. CRB can borrow fixed rate 5% or variable SIBOR + 7% from its own bank.

The bank would charge each party 0.5% for arranging the swap.

**e-Exam
Question
Number**

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Question 3 required:

- (e)** Calculate the net benefit or cost to each party of entering into a swap compared to borrowing from their own bank, assuming swap benefits are shared equally. Present your answer in percentage terms.

(7 marks)

(Total: 25 marks)

Question 4 – (a) to (e)

Today's date is 1 January 20X3. Wizard Hat Cables Ltd (WHC) is in the process of assessing the launch of a new hifi speaker cable product and is calculating the weighted average cost of capital to help with the investment appraisal process.

Following is an extract from the financial statements:

	31.12.20X2
	\$'000
Total assets less current liabilities	<u>9,000</u>
Ordinary share capital (\$0.25 ordinary shares)	1,000
Retained earnings	4,500
6% Redeemable debentures 20X7	<u>3,500</u>
	<u>9,000</u>

Ordinary shares

The ordinary shares are currently priced at \$1.25 ex dividend per share and a dividend of \$0.189 per ordinary share has just been paid. The stock market has been unusually depressed in recent times with share prices in general reflecting low confidence in the future.

Historical dividends paid in recent years are as below:

	31.12.20W9	31.12.20X0	31.12.20X1	31.12.20X2
Dividend per share (cents)	30	31.5	33	18.9

On 1 January 20X2 there was a share split – the 2 million \$0.50 ordinary shares in existence at that time were gathered in and replaced with 4 million \$0.25 at that point.

WHC's shares have a calculated equity beta factor of 1.5. The risk-free rate is 5% and the market rate of return is 15%.

Redeemable debentures

The debentures are redeemable at a 4% premium on 31 December 20X7. The current cum-interest market price is \$106 per \$100 nominal.

Corporate income tax is 17%. Interest payments are tax deductible, whereas redemption proceeds are not.

**e-Exam
Question
Number**

Question 4 required:

- 19** **(a)** Calculate the cost of equity using the Dividend Growth Model.
(8 marks)
- 20** **(b)** Calculate the cost of equity using the Capital Asset Pricing Model (CAPM).
(2 marks)
- 21** **(c)** Discuss TWO reasons why there may be a difference between your answers to **parts (a) and (b)** in this case.
(6 marks)
- 22** **(d)** Calculate the cost of the redeemable debentures.
(6 marks)
- 23** **(e)** Calculate the Weighted Average Cost of Capital (WACC), assuming an agreed cost of equity of 20%.
(3 marks)
(Total: 25 marks)

END OF PAPER

Appendix A – Formulae and Present Value Tables

Financial ratios

Current ratio	= Current assets / Current liabilities
Net working capital	= Current assets - Current liabilities
Return on total assets	= Net income / Average total assets
Return on equity	= Net income / Average shareholders' equity
Receivables days	= (Accounts receivable balance / annual credit sales) x 365
Receivables turnover	= (Annual credit sales/ Accounts receivable balance) to give 'times a year'
Payables days	= (Accounts payable balance / annual purchases or cost of sales) x 365
Payables turnover	= (Annual purchases or cost of sales/ Accounts payable balance) to give 'times a year'
Inventory days	= (Inventory balance / cost of sales) x 365
Inventory turnover	= (Cost of sales / inventory balance) to give 'times a year'

Dividend growth model

$$K_e = [D_0(1+g) / P_0] + g$$

Where:

K_e = the cost of equity

D_0 = the current dividend per share

g = future anticipated annual growth rate in dividends per share

P_0 = the current ex-div share price

g can be estimated as

$$(D_r / D_e)^{(1/n)} - 1$$

Where:

D_r = the latest dividend in a historical pattern

D_e = the earliest dividend in a historical pattern

n = the number of years between the earliest and the latest dividend in a sequence of historical dividends.

Or $g = b \times r$

Where:

b = the proportion of earnings held back

r = the return on reinvested earnings

Capital Asset Pricing Model (CAPM):

$$K_e = R_f + \beta(R_m - R_f)$$

K_e = the cost of equity

R_f = The risk-free rate of return

R_m = the return on a market portfolio

β = the systematic risk factor

Valuations

Weighted Average Cost of Capital (WACC)

$$\text{WACC}\% = [(V_e / (V_e + V_d)) \times K_e] + [(V_d / (V_e + V_d)) \times K_d]$$

Where:

V_e = The market value of all ordinary shares

V_d = The market value of debt

K_e = Cost of Equity

K_d = After-tax Cost of Debt

Constant Growth Dividend discount model

$$P_0 = D_0 (1+g) / (K_e - g)$$

Where:

K_e = the cost of equity

D_0 = the current dividend per share

g = future anticipated annual growth rate in dividends per share

P_0 = the current ex-div share value of one share

Price-Earnings (P/E) model (EPS)

$$P_0 = P/E \times \text{EPS}$$

Where:

P_0 = value of 1 ordinary share

P/E = an applicable price/earnings ratio (calculated as price per share / earnings per share)

EPS = earnings per share (being earnings available for distribution to ordinary shareholders / number of ordinary shares)

Present value of an annuity

$$\frac{1 - (1 + r)^{-n}}{r}$$

Where:

r = discount rate

n = number of periods

Present value

$$PV = FV_n / (1 + i)^n$$

Where:

PV = Present Value

FV_n = Future value at end of period n

i = Interest rate per period

n = Number of periods

Internal Rate of Return

$$\text{IRR is approximately } A + \frac{(B - A)N_A}{(N_A - N_B)}$$

Where:

A = The lower discount rate chosen

B = The higher discount rate chosen

N_A = The net present value calculated at A%

N_B = The net present value calculated at B%

The nominal (or money) cost of capital

$$(1+m) = (1+i)(1+r)$$

m = the money rate

i = inflation rate

r = the real rate

The Baumol model of cash management:

$$Q = \sqrt{\frac{2C_oD}{C_H}}$$

Where:

Q = The value of securities to sell each time

C_o = the fixed costs associated with selling a parcel of securities

D = The annual demand for cash

C_H = The annual interest rate, as a decimal. Associated with holding cash as opposed to investments

Present value interest factor of an (ordinary) annuity of \$1 per period at i% for n periods, PVIFA(i,n).										
Period	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	15.678	14.324	13.134	12.085	11.158	10.336	9.604	8.950	8.365
20	18.046	16.351	14.877	13.590	12.462	11.470	10.594	9.818	9.129	8.514

Period	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

Present value interest factor of \$1 per period at i% for n periods, PVIF(i,n).										
Period	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

Period	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	0.074	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

Appendix B – Common verbs used by the Examiners

Verb	Description
Calculate / Compute	Do the number crunching and derive the correct answer. Make sure that you write down your workings and crosscheck your numbers.
Comment	Comment is similar to evaluate in that you are required to make a judgment or provide your opinion based on the facts at hand. Professional judgment and scepticism (a questioning mind) are called for when commenting .
Compare and Contrast	Compare requires you to show how things are similar and/or different while contrast requires you to show how things are different or opposite. Even if you are asked just to compare , you must indicate both the similarities and differences.
Discuss	Discuss requires you to provide the 'for' and 'against' arguments, you cannot have a discussion without opposing views otherwise it would be just a conversation. If discuss is placed near the front of the instruction, then it requires you to provide an answer that is similar to explain , but addresses both the for and against arguments.
Explain	Explain requires you to write at least several sentences conveying how you have analysed the information in a way that a layperson can easily understand the concept or grasp the technical issue at hand. Evaluate and Examine are interchangeable.
Justify	Whenever you see the word justify you <u>must</u> provide reasons for your answer, in other words, provide support for your argument or conclusion. If you fail to justify your answer, you will lose valuable marks. Justify is similar to defend .
Produce	Produce requires you to present your answer in a specific format from scratch. For instance, you may be required to " Produce a Profit or Loss Statement".
Recommend	Make a statement about the most appropriate course of action. If there is more than one possible course of action, state which action you would choose and why (justify your choice). Your professional judgment and your ability to interpret the wider situation are critical to scoring well in these types of questions. Don't forget to think about the future and the past, not just the present when making a recommendation .