

Singapore CA Qualification (Foundation) Examination

18 June 2024

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 **NINETEEN (19)** 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 ISCA's regulations. Please note that smartwatches, 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 Accounting and Corporate Regulatory Authority.

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****

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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 6028 9811

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

Question 1 – (a), (b) and (c)

Shoeglue Ltd (SGL) makes a range of footwear accessories, including world-renowned non-slip shoe soles for a variety of applications. They are particularly popular in marine and construction applications.

The following table provides an extract from their latest financial statements:

	\$'m
Ordinary shares (\$2 nominal value)	20
Retained earnings	80
Total equity	100

SGL has a gearing ratio (measured as (Long-term debt) / (Long-term debt + Equity) using book values) of 37.5%. The long-term debt is made up of irredeemable 7% debentures with a current market price of \$132 cum interest per \$100 nominal value.

The ordinary shares are listed with a current market value of \$2.50 per share. A dividend of \$0.30 per share has just been paid. Dividends have been increasing steadily in recent years – they were \$0.235, 5 years ago. The Directors believe this rate will triple in the future as SGL have recently won some lucrative tenders with governments of several large states around the world. However, shareholders are more conservative – they predict a doubling of the historical rate going forward.

The rate of return provided to holders of short-dated government debt is 4%. The rate of return being earned on the Straits Times Index (STI) on the stock market in Singapore is 15%. The corporate tax rate is 17%.

**e-Exam
Question
Number**

Question 1 required:

2

(a) Calculate:

(i) The cost and total market value of equity using the dividend valuation model;

(7 marks)

(ii) The post-tax cost and total market value of debt (ex-interest); and

(6 marks)

(iii) The weighted average cost of capital (WACC) using market values.

(2 marks)

3

(b) Calculate and interpret SGL's equity beta.

(6 marks)

4

(c) Identify and evaluate TWO main assumptions of the Capital Asset Pricing Model (CAPM) theory.

(4 marks)

(Total: 25 marks)

Question 2 – (a), (b) and (c)

Solar Cotton Ltd (SCL) has developed a new product that uses nano-sized solar panels incorporated into clothing fabric. This means standard-looking clothing items generate electricity for recharging personal equipment such as smartwatches or smartphones. SCL is currently appraising and launching the product. It will be manufactured in Singapore and sold in the US.

The plant will cost S\$200 million to build, with zero scrap value. This investment will qualify for writing down allowances, writing the cost off over 3 years straight-line, with a balancing charge if applicable at the end of the final year.

Volumes of cloth to be sold are anticipated to be as follows:

Year 1	10,000 bolts of cloth
Year 2	20,000 bolts of cloth
Year 3	20,000 bolts of cloth

The price will be US\$10,000 per bolt in year one, rising by US general inflation of 2% in year two and 5% in year three.

The contribution margin will be 65% in Singapore. Fixed costs will be a constant S\$30 million per year in money terms. Working capital equal to 10% of sales revenue, will be required to be in place at the start of each year. The full amount will be recoverable at the end of the project.

Assume the project can start immediately.

The rate of interest is 5% in Singapore, and 9% in the US. This is expected to continue for the next 5 years. The current exchange rate is 1.33 Singapore dollars per US dollar. SCL's nominal weighted average cost of capital is 10%.

Tax is payable at 17% on all Singapore operating income. Assume that sufficient taxable profits exist elsewhere in the company to absorb excess capital allowances. Ignore US tax effects.

**e-Exam
Question
Number**

Question 2 required:

5

(a) For the proposed investment:

(i) Estimate the US dollar to Singapore dollar exchange rates for the end of each year for the 3 years of the project using interest rate parity. Present your answer to 4 decimal places. **(3 marks)**

(ii) Calculate the amount and timing of all nominal (or money) cashflows, stated in Singapore dollars. **(9 marks)**

(iii) Calculate the Net Present Value in Singapore dollars of the project. **(3 marks)**

6

(b) Explain the transaction, translation and economic risk that arises due to the proposed investment, giving an example of each from this project. **(6 marks)**

7

(c) Evaluate ONE advantage and ONE disadvantage of using a Monte Carlo simulation for the decision-making in this project. **(4 marks)**

(Total: 25 marks)

Question 3 – (a), (b) and (c)

Trotting Hot Clothing (THC) sells a wide range of fashion apparel for men and women through a website. THC buys its inventory from a small range of suppliers and promises to deliver orders to customers within 2 hours. To achieve this, it maintains an inventory of all items in its centrally located warehouse.

THC's revenue in the previous year was \$75 million, with a contribution margin of 60%, and a net profit margin after tax of 10%. The following has been extracted from their recent year-end financial statements:

	\$'m
Non-current assets: Warehouse	15
Non-current assets: Other	25
Inventory	2.5
Receivables	6.25
Trade payables	(7.5)
Overdraft	(0.5)

The Board of THC have growth ambitions. They see a key limitation currently being the limited range of clothing they are able to offer from their own warehouse. They are considering moving to a 'Virtual Warehousing' approach whereby they will cease to hold inventory themselves. Customers browsing the website will be able to see what clothing is available from THC's suppliers' inventory. When an order is placed, THC will collect the items from its suppliers to deliver directly to the customer. It is forecasted that this will have the following impact:

- The warehousing assets will be sold for 50% of their net book value. Investment will be required in systems and the website of \$30 million.
- An increase in sales of 10% due to a wider range of inventory being offered.
- Trade payables days will be reduced by 30 days as suppliers will invoice on collection from their warehouse.

All variable costs relate to clothing purchases. Assume 365 days in a year.

**e-Exam
Question
Number**

8

Question 3 required:

(a) For the first year, calculate:

(i) The impact of the proposition on the receivables, payables and inventory balances; and

(9 marks)

(ii) The change in the amount of funding needed as a result of the proposition.

(7 marks)

The Board are also considering offering a 1% early settlement discount to customers. They anticipate this will reduce the overall receivables days down to 15 days. The interest rate on the overdraft is 20% per annum.

**e-Exam
Question
Number**

9

Question 3 required:

(b) Based on the prior year's level of sales and receivables, calculate the net annual benefit/cost of the proposition, and recommend whether the proposition should be accepted.

(3 marks)

Question 3 cont.

The Board appreciate that reskilling and redundancies are likely to be required in the move to virtual warehousing. An assessment and plan to achieve this reskilling and staff turnover will be a large and complex assignment for the Human Resources (HR) Department to undertake. Before they ask the HR Department to undertake the work, they want to ensure it is capable of doing the work, so the Board want to commission a review of the HR Department in advance. Hopefully then, the HR Department will be able to work to ensure the transition is likely to be successful. They want to assess if the HR Department provides Value for Money: Economy, Efficiency and Effectiveness.

**e-Exam
Question
Number**

10

Question 3 required:

- (c)** Explain economy, efficiency and effectiveness in this context, giving an example of each for the THC Human Resources Department.

(6 marks)

(Total: 25 marks)

Question 4 – (a), (b) and (c)

Pinnacle Office Space (POS) is a listed business that owns commercial properties in Singapore and rents them out on long-term leases to commercial tenants. It is looking to expand by acquiring DeskNest, an unlisted property management company, to add property management services to the service portfolio. There are 4 other bidders interested in acquiring DeskNest.

DeskNest's own management currently forecasts operating cashflows (before interest and tax) for next year as \$2.5 million, \$3 million the following year and \$3.2 million the year after that. POS management feels that the forecasts were probably too optimistic and should be reduced by 10% to be realistic. Should POS acquire DeskNest, then, annual pre-tax synergies of \$0.5 million per year are predicted for the first 3 years. After 3 years, POS feel a prudent estimate of the business's net value would be 5 times its cashflows after synergies, interest and tax in year three.

Upon acquisition, DeskNest headquarters could be absorbed into POS's existing head office, and the DeskNest property could be sold for \$3 million. POS feels a cost of equity of 10% is relevant to this acquisition.

Tax is payable at 17% per annum, and interest is also payable on a \$10 million, 8% irredeemable loan by DeskNest.

POS intend to finance the acquisition by reducing their usually growing dividend for 1 year by 75%.

**e-Exam
Question
Number**

Question 4 required:

- 11** (a) Calculate the maximum amount that POS should offer to pay for DeskNest. **(11 marks)**
- 12** (b) Explain FOUR reasons why target companies are often overvalued, using the DeskNest acquisition as an example in each case. **(8 marks)**
- 13** (c) Explain THREE practical considerations relevant to the decision to reduce reported dividends to finance the acquisition. **(6 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'
Working Capital cycle	=	Receivables days + Inventory days - Payables days

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)

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

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)

$$P_0 = P/E \times EPS$$

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

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

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

- m = The money rate
- i = The 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

Interest Rate Parity

An unbiased estimate for the future spot rate of exchange can be calculated as:

$$S_1 = S_0 \times (1+i_a / 1+i_b)$$

Where:

a = One country

b = The base country

S₁ = The estimated future spot rate in 1 year's time in terms of the number of \$ in country a per \$1 in country b

S₀ = The current spot rate in terms of the number of \$ in country a per \$1 in country b

i_a = Annual interest rate in country a as a decimal

i_b = Annual interest rate in country b as a decimal

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.
Estimate	Suggest an approximate value (or range of values) based on the available information. Remember, although estimating involves uncertainty, some answers will be <u>more right</u> (or appropriate) than others.
Evaluate	Pass judgment on or provide your opinion based on the facts at hand. When making an evaluation , there are often predetermined criteria that you will use to base your opinion on. The key here is to give your opinion or make a judgment of the facts, but providing just a description of the facts is insufficient. Professional judgment and scepticism (a questioning mind) are called for when making an evaluation .
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. For instance, “ Explain whether an ‘emphasis of matter’ paragraph or an ‘other matter’ paragraph would be most appropriate in this situation”, or “ Explain how a partnership is assessed for tax”. Evaluate and Examine are interchangeable.
Identify	Identify is similar to list , but requires you to also provide an explanation as to why the item/s that you have identified is/are relevant to the facts given in the question.
Interpret	Look at the whole as well as the individual parts and decide what the data (or diagram) is telling you. Remember, although interpret may involve some subjective assessment, some answers will be <u>more right</u> (or appropriate) than others.
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).