

Strategic Professional – Options

Advanced Financial Management

Specimen Exam applicable from
September 2018



Time allowed: 3 hours 15 minutes

This question paper is divided into two sections:

Section A – This ONE question is compulsory and MUST be attempted

Section B – BOTH questions are compulsory and MUST be attempted

Formulae and tables are on pages 8–12.

Do NOT open this question paper until instructed by the supervisor.

This question paper must not be removed from the examination hall.

Think Ahead

ACCA

Advanced Financial Management

The Association of
Chartered Certified
Accountants

Section A – This ONE question is compulsory and MUST be attempted

1 Cocoa-Mocha-Chai (CMC) Co is a large listed company based in Switzerland and uses Swiss Francs as its currency. It imports tea, coffee and cocoa from countries around the world, and sells its blended products to supermarkets and large retailers worldwide. The company has production facilities located in two European ports where raw materials are brought for processing, and from where finished products are shipped out. All raw material purchases are paid for in US dollars (US\$), while all sales are invoiced in Swiss Francs (CHF).

Until recently CMC Co had no intention of hedging its foreign currency exposures, interest rate exposures or commodity price fluctuations, and stated this intent in its annual report. However, after consultations with senior and middle managers, the company’s new board of directors (BoD) has been reviewing its risk management and operations strategies.

You are a financial consultant hired by CMC Co to work on the following two proposals which have been put forward by the BoD for further consideration:

Proposal one

Setting up a treasury function to manage the foreign currency and interest rate exposures (but not commodity price fluctuations) using derivative products. The treasury function would be headed by the finance director. The purchasing director, who initiated the idea of having a treasury function, was of the opinion that this would enable her management team to make better decisions. The finance director also supported the idea as he felt this would increase his influence on the BoD and strengthen his case for an increase in his remuneration.

In order to assist in the further consideration of this proposal, the BoD wants you to use the following upcoming foreign currency and interest rate exposures to demonstrate how they would be managed by the treasury function:

- (i) a payment of US\$5,060,000 which is due in four months’ time; and
- (ii) a four-year CHF60,000,000 loan taken out to part-fund the setting up of four branches (see proposal two below). Interest will be payable on the loan at a fixed annual rate of 2.2% or a floating annual rate based on the yield curve rate plus 0.40%. The loan’s principal amount will be repayable in full at the end of the fourth year.

Additional information relating to proposal one

The current spot rate is US\$1.0635 per CHF1. The current annual inflation rate in the USA is three times higher than Switzerland.

The following derivative products are available to CMC Co to manage the exposures of the US\$ payment and the interest on the loan:

Exchange-traded currency futures

Contract size CHF125,000 price quotation: US\$ per CHF1

3-month expiry	1.0647
6-month expiry	1.0659

Exchange-traded currency options

Contract size CHF125,000, exercise price quotation: US\$ per CHF1, premium: cents per CHF1

Exercise price	Call Options		Put Options	
	3-month expiry	6-month expiry	3-month expiry	6-month expiry
1.06	1.87	2.75	1.41	2.16
1.07	1.34	2.22	1.88	2.63

It can be assumed that futures and option contracts expire at the end of the month and transaction costs related to these can be ignored.

Over-the-counter products

In addition to the exchange-traded products, Pecunia Bank is willing to offer the following over-the-counter derivative products to CMC Co:

- (i) A forward rate between the US\$ and the CHF of US\$ 1.0677 per CHF1.
- (ii) An interest rate swap contract with a counterparty, where the counterparty can borrow at an annual floating rate based on the yield curve rate plus 0.8% or an annual fixed rate of 3.8%. Pecunia Bank would charge a fee of

20 basis points each to act as the intermediary of the swap. Both parties will benefit equally from the swap contract.

Alternative loan repayment proposal

As an alternative to paying the principal on the loan as one lump sum at the end of the fourth year, CMC Co could pay off the loan in equal annual amounts over the four years similar to an annuity. In this case, an annual interest rate of 2% would be payable, which is the same as the loan's gross redemption yield (yield to maturity).

Proposal two

This proposal suggested setting up four new branches in four different countries. Each branch would have its own production facilities and sales teams. As a consequence of this, one of the two European-based production facilities will be closed. Initial cost-benefit analysis indicated that this would reduce costs related to production, distribution and logistics, as these branches would be closer to the sources of raw materials and also to the customers. The operations and sales directors supported the proposal, as in addition to above, this would enable sales and marketing teams in the branches to respond to any changes in nearby markets more quickly. The branches would be controlled and staffed by the local population in those countries. However, some members of the BoD expressed concern that such a move would create agency issues between CMC Co's central management and the management controlling the branches. They suggested mitigation strategies would need to be established to minimise these issues.

Response from the non-executive directors

When the proposals were put to the non-executive directors, they indicated that they were broadly supportive of the second proposal if the financial benefits outweigh the costs of setting up and running the four branches. However, they felt that they could not support the first proposal, as this would reduce shareholder value because the costs related to undertaking the proposal are likely to outweigh the benefits.

Required:

- (a) **Advise CMC Co on an appropriate hedging strategy to manage the foreign exchange exposure of the US\$ payment in four months' time. Show all relevant calculations, including the number of contracts bought or sold in the exchange-traded derivative markets.** (15 marks)
- (b) **Demonstrate how CMC Co could benefit from the swap offered by Pecunia Bank.** (6 marks)
- (c) **Calculate the modified duration of the loan if it is repaid in equal amounts and explain how duration can be used to measure the sensitivity of the loan to changes in interest rates.** (7 marks)
- (d) **Prepare a memorandum for the board of directors (BoD) of CMC Co which:**
 - (i) **Discusses proposal one in light of the concerns raised by the non-executive directors; and** (9 marks)
 - (ii) **Discusses the agency issues related to proposal two and how these can be mitigated.** (9 marks)

Professional marks will be awarded in part (d) for the presentation, structure, logical flow and clarity of the memorandum. (4 marks)

(50 marks)

Section B – BOTH questions are compulsory and MUST be attempted

2 You have recently commenced working for Burung Co and are reviewing a four-year project which the company is considering for investment. The project is in a business activity which is very different from Burung Co's current line of business.

The following net present value estimate has been made for the project:

All figures are in \$ million

Year	0	1	2	3	4
Sales revenue		23.03	36.60	49.07	27.14
Direct project costs		(13.82)	(21.96)	(29.44)	(16.28)
Interest		(1.20)	(1.20)	(1.20)	(1.20)
Profit		8.01	13.44	18.43	9.66
Tax (20%)		(1.60)	(2.69)	(3.69)	(1.93)
Investment/sale	(38.00)				4.00
Cash flows	(38.00)	6.41	10.75	14.74	11.73
Discount factors (7%)	1	0.935	0.873	0.816	0.763
Present values	(38.00)	5.99	9.38	12.03	8.95

Net present value is negative \$1.65 million, and therefore the recommendation is that the project should not be accepted.

Notes to NPV appraisal

In calculating the net present value of the project, the following notes were made:

- (i) Since the real cost of capital is used to discount cash flows, neither the sales revenue nor the direct project costs have been inflated. It is estimated that the inflation rate applicable to sales revenue is 8% per year and to the direct project costs is 4% per year.
- (ii) The project will require an initial investment of \$38 million. Of this, \$16 million relates to plant and machinery, which is expected to be sold for \$4 million when the project ceases, after taking any taxation and inflation impact into account.
- (iii) Tax allowable depreciation is available on the plant and machinery at 50% in the first year, followed by 25% per year thereafter on a reducing balance basis. A balancing adjustment is available in the year the plant and machinery is sold. Burung Co pays 20% tax on its annual taxable profits. No tax allowable depreciation is available on the remaining investment assets and they will have a nil value at the end of the project.
- (iv) Burung Co uses either a nominal cost of capital of 11% or a real cost of capital of 7% to discount all projects, given that the rate of inflation has been stable at 4% for a number of years.
- (v) Interest is based on Burung Co's normal borrowing rate of 150 basis points over the 10-year government yield rate.
- (vi) At the beginning of each year, Burung Co will need to provide working capital of 20% of the anticipated sales revenue for the year. Any remaining working capital will be released at the end of the project.
- (vii) Working capital and depreciation have not been taken into account in the net present value calculation above, since depreciation is not a cash flow and all the working capital is returned at the end of the project.

Further financial information

It is anticipated that the project will be financed entirely by debt, 60% of which will be obtained from a subsidised loan scheme run by the government, which lends money at a rate of 100 basis points below the 10-year government debt yield rate of 2.5%. Issue costs related to raising the finance are 2% of the gross finance required. The remaining 40% will be funded from Burung Co's normal borrowing sources. It can be assumed that the debt capacity available to Burung Co is equal to the actual amount of debt finance raised for the project.

Burung Co has identified a company, Lintu Co, which operates in the same line of business as that of the project it is considering. Lintu Co is financed by 40 million shares trading at \$3.20 each and \$34 million debt trading at \$94

per \$100. Lintu Co's equity beta is estimated at 1.5. The current yield on government treasury bills is 2% and it is estimated that the market risk premium is 8%. Lintu Co pays tax at an annual rate of 20%.

Both Burung Co and Lintu Co pay tax in the same year as when profits are earned.

Required:

(a) Calculate the adjusted present value (APV) for the project, correcting any errors made in the net present value estimate above, and conclude whether the project should be accepted or not. Show all relevant calculations. (15 marks)

(b) Comment on the corrections made to the original net present value estimate and explain the APV approach taken in part (a), including any assumptions made. (10 marks)

(25 marks)

- 3 Hav Co is a publicly listed company involved in the production of highly technical and sophisticated electronic components for complex machinery. It has a number of diverse and popular products, an active research and development department, significant cash reserves and a highly talented management who are very good in getting products to market quickly.

A new industry which Hav Co is looking to venture into is biotechnology, which has been expanding rapidly and there are strong indications that this recent growth is set to continue. However, Hav Co has limited experience in this industry. Therefore it believes that the best and quickest way to expand would be through acquiring a company already operating in this industry sector.

Strand Co

Strand Co is a private company operating in the biotechnology industry and is owned by a consortium of business angels and company managers. The owner-managers are highly skilled scientists who have developed a number of technically complex products, but have found it difficult to commercialise them. They have also been increasingly constrained by the lack of funds to develop their innovative products further.

Discussions have taken place about the possibility of Strand Co being acquired by Hav Co. Strand Co's managers have indicated that the consortium of owners is happy for the negotiations to proceed. If Strand Co is acquired, it is expected that its managers would continue to run the Strand Co part of the larger combined company.

Strand Co is of the opinion that most of its value is in its intangible assets, comprising intellectual capital. Therefore, the premium payable on acquisition should be based on the present value to infinity of the after tax excess earnings the company has generated in the past three years, over the average return on capital employed of the biotechnological industry. However, Hav Co is of the opinion that the premium should be assessed on synergy benefits created by the acquisition and the changes in value, due to the changes in the price-to-earnings (PE) ratio before and after the acquisition.

Financial information

Given below are extracts of financial information for Hav Co for 20X3 and Strand Co for 20X1, 20X2 and 20X3:

Year ended 30 April	Hav Co	Strand Co		
	20X3	20X3	20X2	20X1
	\$ million	\$ million	\$ million	\$ million
Earnings before tax	1,980	397	370	352
Non-current assets	3,965	882	838	801
Current assets	968	210	208	198
Share capital (\$0.25/share)	600	300	300	300
Reserves	2,479	183	166	159
Non-current liabilities	1,500	400	400	400
Current liabilities	354	209	180	140

The current average PE ratio of the biotechnology industry is 16.4 times and it has been estimated that Strand Co's PE ratio is 10% higher than this. However, it is thought that the PE ratio of the combined company would fall to 14.5 times after the acquisition. The annual after tax earnings will increase by \$140 million due to synergy benefits resulting from combining the two companies.

Both companies pay tax at 20% per year and Strand Co's annual cost of capital is estimated at 7%. Hav Co's current share price is \$9.24 per share. The biotechnology industry's pre-tax return on capital employed is currently estimated to be 20% per year.

Acquisition proposals

Hav Co has proposed to pay for the acquisition using one of the following three methods:

- (i) A cash offer of \$5.72 for each Strand Co share; or
- (ii) A cash offer of \$1.33 for each Strand Co share plus one Hav Co share for every two Strand Co shares; or
- (iii) A cash offer of \$1.25 for each Strand Co share plus one \$100 3% convertible bond for every \$5 nominal value of Strand Co shares. In six years, the bond can be converted into 12 Hav Co shares or redeemed at nominal value.

Required:

- (a) Distinguish between the different types of synergy and discuss possible sources of synergy based on the above scenario. (9 marks)
- (b) Based on the two different opinions expressed by Hav Co and Strand Co, calculate the maximum acquisition premium payable in each case. (6 marks)
- (c) Calculate the percentage premium per share which Strand Co's shareholders will receive under each acquisition payment method and justify, with explanations, which payment method would be most acceptable to them. (10 marks)

(25 marks)

Formulae

Modigliani and Miller Proposition 2 (with tax)

$$k_e = k_e^i + (1 - T)(k_e^i - k_d) \frac{V_d}{V_e}$$

The Capital Asset Pricing Model

$$E(r_i) = R_f + \beta_i(E(r_m) - R_f)$$

The asset beta formula

$$\beta_a = \left[\frac{V_e}{(V_e + V_d(1 - T))} \beta_e \right] + \left[\frac{V_d(1 - T)}{(V_e + V_d(1 - T))} \beta_d \right]$$

The Growth Model

$$P_0 = \frac{D_0(1 + g)}{(r_e - g)}$$

Gordon's growth approximation

$$g = br_e$$

The weighted average cost of capital

$$WACC = \left[\frac{V_e}{V_e + V_d} \right] k_e + \left[\frac{V_d}{V_e + V_d} \right] k_d(1 - T)$$

The Fisher formula

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

Purchasing power parity and interest rate parity

$$S_1 = S_0 \times \frac{(1 + h_c)}{(1 + h_b)} \quad F_0 = S_0 \times \frac{(1 + i_c)}{(1 + i_b)}$$

Modified Internal Rate of Return

$$MIRR = \left[\frac{PV_R}{PV_I} \right]^{\frac{1}{n}} (1 + r_e) - 1$$

The Black-Scholes option pricing model

$$c = P_a N(d_1) - P_e N(d_2) e^{-rt}$$

Where:

$$d_1 = \frac{\ln(P_a / P_e) + (r + 0.5s^2)t}{s\sqrt{t}}$$

$$d_2 = d_1 - s\sqrt{t}$$

The Put Call Parity relationship

$$p = c - P_a + P_e e^{-rt}$$

Present Value Table

Present value of 1 i.e. $(1 + r)^{-n}$

Where r = discount rate

n = number of periods until payment

		<i>Discount rate (r)</i>										
<i>Periods</i>		1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	
(n)												
1		0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	1
2		0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826	2
3		0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751	3
4		0.961	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.708	0.683	4
5		0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621	5
6		0.942	0.888	0.837	0.790	0.746	0.705	0.666	0.630	0.596	0.564	6
7		0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513	7
8		0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467	8
9		0.914	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424	9
10		0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386	10
11		0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.350	11
12		0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319	12
13		0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290	13
14		0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263	14
15		0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239	15
(n)		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	1
2		0.812	0.797	0.783	0.769	0.756	0.743	0.731	0.718	0.706	0.694	2
3		0.731	0.712	0.693	0.675	0.658	0.641	0.624	0.609	0.593	0.579	3
4		0.659	0.636	0.613	0.592	0.572	0.552	0.534	0.516	0.499	0.482	4
5		0.593	0.567	0.543	0.519	0.497	0.476	0.456	0.437	0.419	0.402	5
6		0.535	0.507	0.480	0.456	0.432	0.410	0.390	0.370	0.352	0.335	6
7		0.482	0.452	0.425	0.400	0.376	0.354	0.333	0.314	0.296	0.279	7
8		0.434	0.404	0.376	0.351	0.327	0.305	0.285	0.266	0.249	0.233	8
9		0.391	0.361	0.333	0.308	0.284	0.263	0.243	0.225	0.209	0.194	9
10		0.352	0.322	0.295	0.270	0.247	0.227	0.208	0.191	0.176	0.162	10
11		0.317	0.287	0.261	0.237	0.215	0.195	0.178	0.162	0.148	0.135	11
12		0.286	0.257	0.231	0.208	0.187	0.168	0.152	0.137	0.124	0.112	12
13		0.258	0.229	0.204	0.182	0.163	0.145	0.130	0.116	0.104	0.093	13
14		0.232	0.205	0.181	0.160	0.141	0.125	0.111	0.099	0.088	0.078	14
15		0.209	0.183	0.160	0.140	0.123	0.108	0.095	0.084	0.074	0.065	15

Annuity Table

Present value of an annuity of 1 i.e. $\frac{1 - (1 + r)^{-n}}{r}$

Where r = discount rate
 n = number of periods

		<i>Discount rate (r)</i>									
<i>Periods</i>											
(n)	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	1
2	1.970	1.942	1.913	1.886	1.859	1.833	1.808	1.783	1.759	1.736	2
3	2.941	2.884	2.829	2.775	2.723	2.673	2.624	2.577	2.531	2.487	3
4	3.902	3.808	3.717	3.630	3.546	3.465	3.387	3.312	3.240	3.170	4
5	4.853	4.713	4.580	4.452	4.329	4.212	4.100	3.993	3.890	3.791	5
6	5.795	5.601	5.417	5.242	5.076	4.917	4.767	4.623	4.486	4.355	6
7	6.728	6.472	6.230	6.002	5.786	5.582	5.389	5.206	5.033	4.868	7
8	7.652	7.325	7.020	6.733	6.463	6.210	5.971	5.747	5.535	5.335	8
9	8.566	8.162	7.786	7.435	7.108	6.802	6.515	6.247	5.995	5.759	9
10	9.471	8.983	8.530	8.111	7.722	7.360	7.024	6.710	6.418	6.145	10
11	10.368	9.787	9.253	8.760	8.306	7.887	7.499	7.139	6.805	6.495	11
12	11.255	10.575	9.954	9.385	8.863	8.384	7.943	7.536	7.161	6.814	12
13	12.134	11.348	10.635	9.986	9.394	8.853	8.358	7.904	7.487	7.103	13
14	13.004	12.106	11.296	10.563	9.899	9.295	8.745	8.244	7.786	7.367	14
15	13.865	12.849	11.938	11.118	10.380	9.712	9.108	8.559	8.061	7.606	15
(n)	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	1
2	1.713	1.690	1.668	1.647	1.626	1.605	1.585	1.566	1.547	1.528	2
3	2.444	2.402	2.361	2.322	2.283	2.246	2.210	2.174	2.140	2.106	3
4	3.102	3.037	2.974	2.914	2.855	2.798	2.743	2.690	2.639	2.589	4
5	3.696	3.605	3.517	3.433	3.352	3.274	3.199	3.127	3.058	2.991	5
6	4.231	4.111	3.998	3.889	3.784	3.685	3.589	3.498	3.410	3.326	6
7	4.712	4.564	4.423	4.288	4.160	4.039	3.922	3.812	3.706	3.605	7
8	5.146	4.968	4.799	4.639	4.487	4.344	4.207	4.078	3.954	3.837	8
9	5.537	5.328	5.132	4.946	4.772	4.607	4.451	4.303	4.163	4.031	9
10	5.889	5.650	5.426	5.216	5.019	4.833	4.659	4.494	4.339	4.192	10
11	6.207	5.938	5.687	5.453	5.234	5.029	4.836	4.656	4.486	4.327	11
12	6.492	6.194	5.918	5.660	5.421	5.197	4.988	4.793	4.611	4.439	12
13	6.750	6.424	6.122	5.842	5.583	5.342	5.118	4.910	4.715	4.533	13
14	6.982	6.628	6.302	6.002	5.724	5.468	5.229	5.008	4.802	4.611	14
15	7.191	6.811	6.462	6.142	5.847	5.575	5.324	5.092	4.876	4.675	15

Standard normal distribution table

	0·00	0·01	0·02	0·03	0·04	0·05	0·06	0·07	0·08	0·09
0·0	0·0000	0·0040	0·0080	0·0120	0·0160	0·0199	0·0239	0·0279	0·0319	0·0359
0·1	0·0398	0·0438	0·0478	0·0517	0·0557	0·0596	0·0636	0·0675	0·0714	0·0753
0·2	0·0793	0·0832	0·0871	0·0910	0·0948	0·0987	0·1026	0·1064	0·1103	0·1141
0·3	0·1179	0·1217	0·1255	0·1293	0·1331	0·1368	0·1406	0·1443	0·1480	0·1517
0·4	0·1554	0·1591	0·1628	0·1664	0·1700	0·1736	0·1772	0·1808	0·1844	0·1879
0·5	0·1915	0·1950	0·1985	0·2019	0·2054	0·2088	0·2123	0·2157	0·2190	0·2224
0·6	0·2257	0·2291	0·2324	0·2357	0·2389	0·2422	0·2454	0·2486	0·2517	0·2549
0·7	0·2580	0·2611	0·2642	0·2673	0·2704	0·2734	0·2764	0·2794	0·2823	0·2852
0·8	0·2881	0·2910	0·2939	0·2967	0·2995	0·3023	0·3051	0·3078	0·3106	0·3133
0·9	0·3159	0·3186	0·3212	0·3238	0·3264	0·3289	0·3315	0·3340	0·3365	0·3389
1·0	0·3413	0·3438	0·3461	0·3485	0·3508	0·3531	0·3554	0·3577	0·3599	0·3621
1·1	0·3643	0·3665	0·3686	0·3708	0·3729	0·3749	0·3770	0·3790	0·3810	0·3830
1·2	0·3849	0·3869	0·3888	0·3907	0·3925	0·3944	0·3962	0·3980	0·3997	0·4015
1·3	0·4032	0·4049	0·4066	0·4082	0·4099	0·4115	0·4131	0·4147	0·4162	0·4177
1·4	0·4192	0·4207	0·4222	0·4236	0·4251	0·4265	0·4279	0·4292	0·4306	0·4319
1·5	0·4332	0·4345	0·4357	0·4370	0·4382	0·4394	0·4406	0·4418	0·4429	0·4441
1·6	0·4452	0·4463	0·4474	0·4484	0·4495	0·4505	0·4515	0·4525	0·4535	0·4545
1·7	0·4554	0·4564	0·4573	0·4582	0·4591	0·4599	0·4608	0·4616	0·4625	0·4633
1·8	0·4641	0·4649	0·4656	0·4664	0·4671	0·4678	0·4686	0·4693	0·4699	0·4706
1·9	0·4713	0·4719	0·4726	0·4732	0·4738	0·4744	0·4750	0·4756	0·4761	0·4767
2·0	0·4772	0·4778	0·4783	0·4788	0·4793	0·4798	0·4803	0·4808	0·4812	0·4817
2·1	0·4821	0·4826	0·4830	0·4834	0·4838	0·4842	0·4846	0·4850	0·4854	0·4857
2·2	0·4861	0·4864	0·4868	0·4871	0·4875	0·4878	0·4881	0·4884	0·4887	0·4890
2·3	0·4893	0·4896	0·4898	0·4901	0·4904	0·4906	0·4909	0·4911	0·4913	0·4916
2·4	0·4918	0·4920	0·4922	0·4925	0·4927	0·4929	0·4931	0·4932	0·4934	0·4936
2·5	0·4938	0·4940	0·4941	0·4943	0·4945	0·4946	0·4948	0·4949	0·4951	0·4952
2·6	0·4953	0·4955	0·4956	0·4957	0·4959	0·4960	0·4961	0·4962	0·4963	0·4964
2·7	0·4965	0·4966	0·4967	0·4968	0·4969	0·4970	0·4971	0·4972	0·4973	0·4974
2·8	0·4974	0·4975	0·4976	0·4977	0·4977	0·4978	0·4979	0·4979	0·4980	0·4981
2·9	0·4981	0·4982	0·4982	0·4983	0·4984	0·4984	0·4985	0·4985	0·4986	0·4986
3·0	0·4987	0·4987	0·4987	0·4988	0·4988	0·4989	0·4989	0·4989	0·4990	0·4990

This table can be used to calculate $N(d)$, the cumulative normal distribution functions needed for the Black-Scholes model of option pricing. If $d_i > 0$, add 0·5 to the relevant number above. If $d_i < 0$, subtract the relevant number above from 0·5.

End of Question Paper

Answers

- 1 (a) The foreign exchange exposure of the dollar payment due in four months can be hedged using the following derivative products:

Forward rate offered by Pecunia Bank;
 Exchange-traded futures contracts; and
 Exchange-traded options contracts

Using the forward rate

Payment in Swiss Francs = $US\$5,060,000/1.0677 = CHF4,739,159$

Using futures contract

Since a dollar payment needs to be made in four months' time, CMC Co needs to hedge against Swiss Francs weakening.

Hence, the company should go short and the six-month futures contract is undertaken. It is assumed that the basis differential will narrow in proportion to time.

Predicted futures rate = $1.0647 + [(1.0659 - 1.0647) \times 1/3] = 1.0651$

[Alternatively, can predict futures rate based on spot rate: $1.0635 + [(1.0659 - 1.0635) \times 4/6] = 1.0651$]

Expected payment = $US\$5,060,000/1.0651 = CHF4,750,728$

No. of contracts sold = $CHF4,750,728/CHF125,000 = \text{approx. } 38 \text{ contracts}$

Using options contracts

Since a dollar payment needs to be made in four months' time, CMC Co needs to hedge against Swiss Francs weakening.

Hence, the company should purchase six-month put options.

Exercise price US\$1.06/CHF1

Payment = $US\$5,060,000/1.06 = CHF4,773,585$

Buy $4,773,585/125,000 = 38.19$ put contracts, say 38 contracts

CHF payment = CHF4,750,000

Premium payable = $38 \times 125,000 \times 0.0216 = US\$102,600$

In CHF = $102,600/1.0635 = CHF96,474$

Amount not hedged = $US\$5,060,000 - (38 \times 125,000 \times 1.06) = US\$25,000$

Use forward contracts to hedge this = $US\$25,000/1.0677 = CHF23,415$

Total payment = $CHF4,750,000 + CHF96,474 + CHF23,415 = CHF4,869,889$

Exercise price US\$1.07/CHF1

Payment = $US\$5,060,000/1.07 = CHF4,728,972$

Buy $4,728,972/125,000 = 37.83$ put contracts, say 38 contracts (but this is an over-hedge)

CHF payment = CHF4,750,000

Premium payable = $38 \times 125,000 \times 0.0263 = US\$124,925$

In CHF = $124,925/1.0635 = CHF117,466$

Amount over-hedged = $US\$5,060,000 - (38 \times 125,000 \times 1.07) = US\$22,500$

Using forward contracts to show benefit of this = $US\$22,500/1.0677 = CHF21,073$

Total payment = $CHF4,750,000 + CHF117,466 - CHF21,073 = CHF4,846,393$

Advice

Forward contracts minimise the payment and option contracts would maximise the payment, with the payment arising from the futures contracts in between these two. With the option contracts, the exercise price of US\$1.07/CHF1 gives the lower cost. Although transaction costs are ignored, it should be noted that with exchange-traded futures contracts, margins are required and the contracts are marked-to-market daily.

It would therefore seem that the futures contracts and the option contract with an exercise price of US\$1.06/CHF1 should be rejected. The choice between forward contracts and the 1.07 options depends on CMC Co's attitude to risk. The forward rate is binding, whereas option contracts give the company the choice to let the option contract lapse if the CHF strengthens against the US\$. Observing the rates of inflation between the two countries and the exchange-traded derivatives this is likely to be the case, but it is not definite. Moreover, the option rates need to move in favour considerably before the option is beneficial to CMC Co, due to the high premium payable.

It would therefore seem that forward markets should be selected to minimise the amount of payment, but CMC Co should also bear in mind that the risk of default is higher with forward contracts compared with exchange-traded contracts.

(b)	CMC Co	Counterparty	Interest rate differential
Fixed rate	2.2%	3.8%	1.6%
Floating rate	Yield rate + 0.4%	Yield rate + 0.8%	0.4%

CMC Co has a comparative advantage in borrowing at the fixed rate and the counterparty has a comparative advantage in borrowing at the floating rate. Total possible benefit before Pecunia Bank's fee is 1.2%, which if shared equally results in a benefit of 0.6% each, for both CMC Co and the counterparty.

	CMC Co	Counterparty
CMC Co borrows at	2.2%	
Counterparty borrows at		Yield rate + 0.8%
Advantage	60 basis points	60 basis points
Net result	Yield rate – 0.2%	3.2%
SWAP		
Counterparty receives		Yield rate
CMC Co pays	Yield rate	
Counterparty pays		2.4%
CMC Co receives	2.4%	

After paying the 20 basis point fee, CMC Co will effectively pay interest at the yield curve rate and benefit by 40 basis points or 0.4%, and the counterparty will pay interest at 3.4% and benefit by 40 basis points or 0.4% as well.

[Note: Full marks will be given where the question is answered by estimating the arbitrage gain of 1.2% and deducting the fees of 0.4%, without constructing the above table]

(c) Annuity factor, 4 years, 2% = 3.808

Equal annual amounts repayable per year = CHF60,000,000/3.808 = CHF15,756,303

Macaulay duration

$(15,756,303 \times 0.980 \times 1 \text{ year} + 15,756,303 \times 0.961 \times 2 \text{ years} + 15,756,303 \times 0.942 \times 3 \text{ years} + 15,756,303 \times 0.924 \times 4 \text{ years}) / 60,000,000$
= 2.47 years

Modified duration = $2.47 / 1.02 = 2.42$ years

The equation linking modified duration (D), and the relationship between the change in interest rates (Δi) and change in price or value of a bond or loan (ΔP) is given as follows:

$$\Delta P = [-D \times \Delta i \times P]$$

(P is the current value of a loan or bond and is a constant)

The size of the modified duration will determine how much the value of a bond or loan will change when there is a change in interest rates. A higher modified duration means that the fluctuations in the value of a bond or loan will be greater, hence the value of 2.42 means that the value of the loan or bond will change by 2.42 times the change in interest rates multiplied by the original value of the bond or loan.

The relationship is only an approximation because duration assumes that the relationship between the change in interest rates and the corresponding change in the value of the bond or loan is linear. In fact, the relationship between interest rates and bond price is in the form of a curve which is convex to the origin (i.e. non-linear). Therefore duration can only provide a reasonable estimation of the change in the value of a bond or loan due to changes in interest rates, when those interest rate changes are small.

(d) MEMORANDUM

From:

To: The Board of Directors, CMC Co

Date: xx/xx/xxxx

Subject: Discussion of the proposal to manage foreign exchange and interest rate exposures, and the proposal to move operations to four branches and consequential agency issues

This memo discusses the proposal of whether or not CMC Co should undertake the management of foreign exchange and interest rate exposure, and the agency issues resulting from the proposal to locate branches internationally and how these issues may be mitigated. Each proposal will be considered in turn.

(i) Proposal one: Management of foreign exchange and interest rate exposure

The non-executive directors are correct if CMC Co is in a situation where markets are perfect and efficient, where information is freely available and where securities are priced correctly. In this circumstance, risk management or hedging would not add value and if shareholders hold well diversified portfolios, unsystematic risk will be largely eliminated. The position against hedging states that in such cases companies would not increase shareholder value by hedging or eliminating risk because there will be no further reduction in unsystematic risk. Furthermore, the cost of reducing any systematic risk will equal or be greater than the benefit derived from such risk reduction. Shareholders would not gain from risk management or hedging; in fact, if the costs exceed the benefits, then hedging may result in a reduction in shareholder value.

Risk management or hedging may result in increasing corporate (and therefore shareholder) value if market imperfections exist, and in these situations, reducing the volatility of a company's earnings will result in higher cash inflows. Proponents of hedging cite three main situations where reduction in volatility or risk may increase cash flows –

in situations: where the rate of tax is increasing; where a firm could face significant financial distress costs due to high volatility in earnings; and where stable earnings increases certainty and the ability to plan for the future, thus resulting in stable investment policies by the firm.

Active hedging may also reduce agency costs. For example, unlike shareholders, managers and employees of the company may not hold diversified portfolios. Hedging allows the risks faced by managers and employees to be reduced. Additionally, hedging may allow managers to be less concerned about market movements which are not within their control and instead allow them to focus on business issues over which they can exercise control. This seems to be what the purchasing director is contending. On the other hand, the finance director seems to be more interested in increasing his personal benefits and not necessarily in increasing the value of CMC Co.

A consistent hedging strategy or policy may be used as a signalling tool to reduce the conflict of interest between bondholders and shareholders, and thus reduce restrictive covenants.

It is also suggested that until recently CMC Co had no intention of hedging and communicated this in its annual report. It is likely that shareholders will therefore have created their own risk management policies. A strategic change in the policy may have a negative impact on the shareholders and the clientele impact of this will need to be taken into account.

The case of whether to hedge or not is not clear cut and CMC Co should consider all the above factors and be clear about why it is intending to change its strategy before coming to a conclusion. Any intended change in policy should be communicated to the shareholders. Shareholders can also benefit from risk management because the risk profile of the company may change, resulting in a reduced cost of capital.

(ii) Proposal two: International branches, agency issues and their mitigation

Principal-agent relationships can be observed within an organisation between different stakeholder groups. With the proposed branches located in different countries, the principal-agent relationship will be between the directors and senior management at CMC Co in Switzerland, and the managers of the individual branches. Agency issues can arise where the motivations of the branch managers, who are interested in the performance of their individual branches, diverge from the management at CMC Co headquarters, who are interested in the performance of the whole organisation.

These issues may arise because branch managers are not aware of, or appreciate the importance of, the key factors at corporate level. They may also arise because of differences in cultures and divergent backgrounds.

Mitigation mechanisms involve monitoring, compensation and communication policies. All of these mechanisms need to work in a complementary fashion in order to achieve goal congruence, much like the mechanisms in any principal-agent relationship.

Monitoring policies would involve ensuring that key aims and strategies are agreed between all parties before implementation, and results monitored to ensure adherence with the original agreements. Where there are differences, for example, due to external factors, new targets need to be agreed. Where deviations are noticed, these should be communicated quickly.

Compensation packages should ensure that reward is based on achievement of organisational value and therefore there is every incentive for the branch managers to act in the best interests of the corporation as a whole.

Communication should be two-way, in that branch managers should be made fully aware of the organisational objectives, and any changes to these, and how the branch contributes to these, in order to ensure their acceptance of the objectives. Furthermore, the management at CMC Co headquarters should be fully aware of cultural and educational differences in the countries where the branches are to be set up and fully plan for how organisational objectives may nevertheless be achieved within these differences.

(Note: Credit will be given for alternative, relevant approaches to the calculations, comments and suggestions/recommendations)

2 (a) All figures are in \$ million

Year	0	1	2	3	4
Sales revenue (inflated, 8% p.a.)		24.87	42.69	61.81	36.92
Costs (inflated, 4% p.a.)		(14.37)	(23.75)	(33.12)	(19.05)
Incremental profit		10.50	18.94	28.69	17.87
Tax (W1)		(0.50)	(3.39)	(5.44)	(3.47)
Working capital (W2)	(4.97)	(3.57)	(3.82)	4.98	7.38
Investment/sale of machinery	(38.00)				4.00
Cash flows	(42.97)	6.43	11.73	28.23	25.78
Discount factors (12%, W3)	1	0.893	0.797	0.712	0.636
Present values	(42.97)	5.74	9.35	20.10	16.40

Base case net present value is approximately \$8.62 million.

W1 All figures are in \$ million

Year	0	1	2	3	4
Incremental profit		10.50	18.94	28.69	17.87
Tax allowable depreciation		8.00	2.00	1.50	0.50
Taxable profit		2.50	16.94	27.19	17.37
Tax (20%)		0.50	3.39	5.44	3.47

W2 All figures are in \$ million

Year	0	1	2	3	4
Working capital (20% of sales revenue)		4.97	8.54	12.36	7.38
Working capital required/(released)	4.97	3.57	3.82	(4.98)	(7.38)

W3 Lintu Co asset beta = $1.5 \times \$128m / (\$128m + \$31.96m \times 0.8)$ approx. = 1.25
 All-equity financed discount rate = $2\% + 1.25 \times 8\% = 12\%$

Financing side effects

	\$'000
Issue costs $2/98 \times \$42,970,000$	(876.94)
Tax shield	
Annual tax relief = $(\$42,970,000 \times 60\% \times 0.015 \times 20\%)$ $+ (\$42,970,000 \times 40\% \times 0.04 \times 20\%)$ $= 77.35 + 137.50 = 214.85$	
The present value of the tax relief annuity = 214.85×3.63	779.91
Annual subsidy benefit $\$42,970,000 \times 60\% \times 0.025 \times 80\% = 515.64$	
The present value of the subsidy benefit annuity = 515.64×3.63	1,871.77
Total benefit of financing side effects	1,774.74

Financing the project entirely by debt would add just under \$1.78 million to the value of the project, or approximately, an additional 20% to the all-equity financed project.

The adjusted present value (APV) of the project is just under \$10.4 million and therefore it should be accepted.

Note: In calculating the present values of the tax shield and subsidy benefits, the annuity factor used is based on 4% to reflect the normal borrowing/default risk of the company.

Alternatively, 2% or 2.5% could be used depending on the assumptions made. Credit will be given where these are used to estimate the annuity factor, where the assumption is explained.

(b) Corrections made to the original net present value

The approach taken to exclude depreciation from the net present value computation is correct, but tax allowable depreciation needs to be taken away from profit estimates before tax is calculated, reducing the profits on which tax is payable.

Interest is not normally included in the net present value calculations. Instead, it is normally imputed within the cost of capital or discount rate. In this case, it is included in the financing side effects.

Cash flows are inflated and the nominal rate based on Lintu Co's all-equity financed rate is used (see below). Where different cash flows are subject to different rates of inflation, applying a real rate to non-inflated amounts would not give an accurate answer.

The impact of the working capital requirement is included in the estimate as, although all the working capital is recovered at the end of the project, the flows of working capital are subject to different discount rates when their present values are calculated.

Approach taken

The value of the project is initially assessed considering only the business risk involved in undertaking the project. The discount rate used is based on Lintu Co's asset beta which measures only the business risk of that company. Since Lintu Co is in the same line of business as the project, it is deemed appropriate to use its discount rate, instead of 11% which Burung Co uses normally.

The impact of debt financing and the subsidy benefit are then considered. In this way, Burung Co can assess the value created from its investment activity and then the additional value created from the manner in which the project is financed.

Assumptions made

It is assumed that all figures used are accurate and any estimates made are reasonable. Burung Co may want to consider undertaking a sensitivity analysis to assess this.

It is assumed that the initial working capital required will form part of the funds borrowed but that the subsequent working capital requirements will be available from the funds generated by the project. The validity of this assumption needs to be assessed since the working capital requirements at the start of years 2 and 3 are substantial.

It is assumed that Lintu Co's asset beta and all-equity financed discount rate represent the business risk of the project. The validity of this assumption also needs to be assessed. For example, Lintu Co's entire business may not be similar to the project, and it may undertake other lines of business. In this case, the asset beta would need to be adjusted so that just the project's business risk is considered.

(Note: Credit will be given for alternative, relevant explanations)

- 3 (a)** An acquisition creates synergy benefits when the value of the combined entity is more than the sum of the two companies' values. Synergies can be separated into three types: revenue synergies which result in higher revenues for the combined entity, higher return on equity and a longer period when the company is able to maintain competitive advantage; cost synergies which result mainly from reducing duplication of functions and related costs, and from taking advantage of economies of scale; financial synergies which result from financing aspects such as the transfer of funds between group companies to where it can be utilised best, or from increasing debt capacity.

In this scenario, the following synergy benefits may arise from the two companies coming together. Financial synergies may be available because Strand Co does not have the funds to innovate new products. On the other hand, Hav Co has cash reserves available. It may be possible to identify and quantify this synergy based on the projects which can be undertaken after the acquisition, but would have been rejected before, and their corresponding net present value. Furthermore, as the company increases in size, the debt capacity of the combined company may increase, giving it additional access to finance. Finally, the acquisition may result in a decrease in the cost of capital of the combined company.

Cost synergies may arise from the larger company being able to negotiate better terms and lower costs from their suppliers. And there may be duplication of functional areas such as in research and development and head office which could be reduced and costs saved. These types of synergies are easier to identify and quantify but would be more short-lived. Therefore, if the markets are going to be positive about the acquisition, Hav Co will need to show where more long-term synergies are coming from as well as these.

Revenue synergies are perhaps where the greatest potential for growth comes from but are also more difficult to identify, quantify and enact. Good post-acquisition planning is essential for these synergies to be realised but they can be substantial and long-lasting. In this case, Hav Co's management can help market Strand Co's products more effectively by using their sales and marketing talents resulting in higher revenues and longer competitive advantage. Research and development activity can be combined to create new products using the technologies in place in both companies, and possibly bringing innovative products to market quicker. The services of the scientists from Strand Co will be retained to drive innovation forward, but these need to be nurtured with care since they had complete autonomy when they were the owners of Strand Co.

The main challenge in ensuring long-lasting benefits is not only ensuring accurate identification of potential synergies but putting into place integration processes and systems to gain full benefit from them. This is probably the greater challenge for management, and, when poorly done, can result in failure to realise the full value of the acquisition. Hav Co needs to be aware of this and make adequate provisions for it.

(Note: Credit will be given for alternative relevant comments and suggestions)

(b) Maximum premium based on excess earnings method

Average pre-tax earnings: $(397 + 370 + 352)/3 = \$373.0\text{m}$

Average capital employed: $[(882 + 210 - 209) + (838 + 208 - 180) + (801 + 198 - 140)]/3 = \869.3m

Excess annual value/annual premium = $373\text{m} - (20\% \times \$869.3\text{m}) = \$199.1\text{m}$

After-tax annual premium = $\$199.1\text{m} \times 0.8 = \159.3m

PV of annual premium (assume perpetuity) = $\$159.3\text{m}/0.07 = \$2,275.7\text{m}$

According to this method, the maximum premium payable is \$2,275.7m in total.

Maximum premium based on price-to-earnings (PE) ratio method

Strand Co estimated PE ratio = $16.4 \times 1.10 = 18.0$

Strand Co profit after tax: $\$397\text{m} \times 0.8 = \317.6m

Hav Co profit after tax = $\$1,980\text{m} \times 0.8 = \$1,584.0\text{m}$

Hav Co, current value = $\$9.24 \times 2,400 \text{ shares} = \$22,176.0\text{m}$

Strand Co, current value = $\$317.6\text{m} \times 18.0 = \$5,716.8\text{m}$

Combined company value = $(\$1,584\text{m} + \$317.6\text{m} + \$140.0\text{m}) \times 14.5 = \$29,603.2\text{m}$

Maximum premium = $\$29,603.2\text{m} - (\$22,176.0\text{m} + \$5,716.8\text{m}) = \$1,710.4\text{m}$

- (c)** Strand Co, current value per share = $\$5,716.8\text{m}/1,200\text{m shares} = \4.76 per share

Maximum premium % based on PE ratio = $\$1,710.4\text{m}/\$5,716.8\text{m} \times 100\% = 29.9\%$

Maximum premium % based on excess earnings = $\$2,275.7\text{m}/\$5,716.8\text{m} \times 100\% = 39.8\%$

Cash offer: premium (%)

$(\$5.72 - \$4.76)/\$4.76 \times 100\% = 20.2\%$

Cash and share offer: premium (%)

1 Hav Co share for 2 Strand Co shares

Hav Co share price = \$9.24

Per Strand Co share = \$4.62

Cash payment per share = \$1.33

Total return = \$1.33 + \$4.62 = \$5.95

Premium percentage = $(\$5.95 - \$4.76) / \$4.76 \times 100\% = 25.0\%$

Cash and bond offer: premium (%)

Each share has a nominal value of \$0.25, therefore \$5 is $\$5 / \$0.25 = 20$ shares

Bond value = $\$100 / 20$ shares = \$5 per share

Cash payment = \$1.25 per share

Total = \$6.25 per share

Premium percentage = $(\$6.25 - \$4.76) / \$4.76 = 31.3\%$

On the basis of the calculations, the cash together with bond offer yields the highest return; in addition to the value calculated above, the bonds can be converted to 12 Hav Co shares, giving them a price per share of \$8.33 ($\$100/12$). This price is below Hav Co's current share price of \$9.24, and therefore the conversion option is already in-the-money. It is probable that the share price will increase in the 10-year period and therefore the value of the convertible bond should increase. A bond also earns a small coupon interest of \$3 per \$100 a year. The 31.3% return is the closest to the maximum premium based on the excess earnings method and more than the maximum premium based on the PE ratio method. It would seem that this payment option transfers more value to the owners of Strand Co than the value created based on the PE ratio method.

However, with this option Strand Co shareholders only receive an initial cash payment of \$1.25 per share compared to \$1.33 per share and \$5.72 per share for the other methods. This may make it the more attractive option for the Hav Co shareholders as well, and although their shareholding will be diluted most under this option, it will not happen for some time.

The cash and share offer gives a return in between the pure cash and the cash and bonds offers. Although the return is lower, Strand Co's shareholders become owners of Hav Co and have the option to sell their equity immediately. However, the share price may fall between now and when the payment for the acquisition is made. If this happens, then the return to Strand Co's shareholders will be lower.

The pure cash offer gives an immediate and definite return to Strand Co's shareholders, but is also the lowest offer and may also put a significant burden on Hav Co having to fund so much cash, possibly through increased debt.

It is likely that Strand Co's shareholder/managers, who will continue to work within Hav Co, will accept the mixed cash and bond offer. They, therefore, get to maximise their current return and also potentially gain when the bonds are converted into shares. Different impacts on shareholders' personal taxation situations due to the different payment methods might also influence the choice of method.

**Professional Level – Options Module, Advanced Financial Management
Advanced Financial Management**

Specimen Exam Marking Scheme

	<i>Marks available</i>	<i>Marks awarded</i>
1 (a) Calculation of payment using the forward rate	1	
Going short on futures and purchasing put options	2	
Predicted futures rate based on basis reduction	1	
Futures: expected payment and number of contracts	2	
Options calculation using either 1·06 or 1·07 rate	3	
Options calculation using the second rate (or explanation)	2	
Advice (1 to 2 marks per point)	<u>4–5</u>	
	Max	<u>15</u>
(b) Comparative advantage and recognition of benefit as a result	2	
Initial decision to borrow fixed by CMC Co and floating by counterparty	1	
Swap impact	2	
Net benefit after bank charges	<u>1</u>	
	<u>6</u>	
(c) Calculation of annual annuity amount	1	
Calculation of Macaulay duration	2	
Calculation of modified duration	1	
Explanation	<u>3</u>	
	<u>7</u>	
(d) (i) Discussion of efficient markets	2	
Discussion of inefficient markets and volatility	2	
Discussion of consistent strategy/impact of change	2	
Other relevant discussion or additional detail	<u>3</u>	
	<u>9</u>	
(ii) Discussion of the agency issues	3–4	
Discussion of mitigation strategies and policies	<u>4–6</u>	
	Max	<u>9</u>
Professional marks		
Memorandum format	1	
Structure and presentation of the memorandum	<u>3</u>	
	<u>4</u>	
	<u>50</u>	

	<i>Marks available</i>	<i>Marks awarded</i>
2 (a) Inflated incremental profit	2	
Taxation	2	
Working capital	2	
Estimate of discount rate	2	
Net present value	1	
Issue costs	1	
Tax shield benefit	2	
Subsidy benefit	1	
Adjusted present value and conclusion	2	
	<u>15</u>	
(b) Corrections made	4-5	
Approach taken	2-3	
Assumptions made	3-4	
	<u>10</u>	
	25	
3 (a) Distinguish between the different synergies	1-2	
Discuss possible financial synergy sources	2-3	
Discuss possible cost synergy sources	1-2	
Discuss possible revenue synergy sources	3-4	
Concluding comments	1-2	
	<u>9</u>	
	Max	
(b) Average earnings and capital employed	1	
After-tax annual premium	1	
PV of premium (excess earnings method)	1	
Hav Co and Strand Co values	1	
Combined company value	1	
Value created/premium (PE method)	1	
	<u>6</u>	
(c) Strand Co, value per share	1	
Cash offer premium (%)	1	
Cash and share offer premium (%)	2	
Cash and bond offer premium (%)	2	
Explanation and justification	4-5	
	<u>10</u>	
	Max	
	25	