
Answers

Diploma in Financial Management Examination – Module B
Paper DB1 incorporating subject areas:
Financial Strategy
Risk Management

December 2002 Answers

Section A

1 A

	£
Original share (4 x £10.00)	40.00
Rights share (£10.00 x 0.80)	8.00
	<u>48.00</u>
Ex-rights price (£48.00/5)	9.60
Cost of acquiring rights share	8.00
	<u>1.60</u>
Value of rights per original share (£1.60/4)	<u>0.40</u>

- B** is original share price (£10.00) less rights price (£8.00) divided by original number of shares held.
- C** is the total value of the rights.
- D** is the ex-rights price (£9.60) divided by the number of original shares (4).

2 C

3 B

4 B

The weighted average cost of capital is:

Capital	Weight	Cost	Weighted cost
Ordinary shares	0.40	15	6.0
Loan capital	0.60	9	5.4
			<u>11.4</u>

- A** uses the nominal value of the shares and loan capital as weights and does not deduct the tax shield from the loan interest
- C** uses the nominal value of the share and loan capital as weights.
- D** uses the current market value of the shares and loan capital as weights but does not deduct the tax shield from the loan interest.

5 C

The net cash flows will be:

	£000	£000
Net profit		180
Stocks	(30)	
Debtors	(40)	
	<u>(70)</u>	
Less creditors	35	<u>(35)</u>
		<u>145</u>

- A** deducts depreciation and the increase in working capital
- B** adds the increase in working capital
- D** deducts depreciation and adds the increase in working capital.

6 A

7 B

		£m
Market capitalisation Demeter plc	20m x £10	200·0
Market capitalisation Semele plc	6m x £3	18·0
Savings		12·0
		<u>230·0</u>
Less cash outlay		2·0
		<u>228·0</u>
Market value per share following takeover	= £228m/22m = <u>£10·364</u>	

		£
Value of 3,000 shares in Semele plc at £3 per share		9,000
Offer price:		
1,000 shares at £10·364 + cash £1,000		11,364
Gain		<u>2,364</u>

- A** takes the pre-takeover price of the shares of Demeter plc in calculating the offer price [(1,000 x £10) + £1,000] – [3,000 x £3].
- C** does not deduct the cash outlay to shareholders in Semele plc in calculating the value of the combined business.
- D** ignores the cost savings in calculating the market value of the shares.

8 B

$$4·0 = X + 0·5(6 - X)$$

$$X = \underline{2·0}$$

$$Y = 2·0 + 2·0(6·0 - 2·0)$$

$$Y = \underline{10·0}$$

- A** is 2·0 x risk premium (6·0 – 2·0)
- C** is 2·0 x expected returns (6·0)
- D** is (2·0/0·5) x 4·0

9 D

	Year 0	1	2	3
Gamma				
Cash flows	(200)	120	60	80
Discount rate (10%)	1·0	0·909	0·826	0·751
	(200·00)	109·08	49·56	60·08
NPV	<u>18·72</u>			
	Year 0	1	2	3
Cash flows	(200)	120	60	80
Discount rate (16%)	1·0	0·862	0·743	0·641
	(200·00)	103·44	44·58	51·28
NPV	<u>(0·7)</u>			

10 D

11 C

12 C

- 13 B** ('Purchased' at 93.80 and sold at 93.40 for a loss of 40 ticks. 40 at £12.50 for 5 contracts = £2,500 loss)
- 14 C** (Borrowing commences in October/November. The September contracts will then no longer exist. As the borrowing period is six months the number of contracts needs to be doubled – $(£6/£0.5) \times 6/3 = 24$)
- 15 D** (Borrowing costs increased by £16,250 but the futures position produced a profit of £20,000. Therefore the hedge did not work perfectly but it reduced overall borrowing costs.)
- 16 C**
- 17 C** (There is a natural hedge for 25% of the overall value. As the tender is not certain the commitment inherent in a forward sale is not appropriate.)
- 18 D**
- 19 B**
- 20 D** (Option A is a European option and cannot be exercised early. Maghett has written option B and cannot therefore determine whether it is exercised. Outcomes with options are uncertain and there is no guarantee of any gain.)

Section B

1 (a) Expected net profit

	Existing policy		Proposed policy	
	£m	£m	£m	£m
Sales		25.0		30.0
Cost of sales (60% of sales)		15.0		18.0
Gross profit (40% of sales)		10.0		12.0
Less Variable overheads (30% of sales)	7.5		9.0	
Fixed overheads	1.2		1.2	
Discount allowed [2% x (80% x £30m)]	—	8.7	0.5	10.7
Net profit		<u>1.3</u>		<u>1.3</u>

(b) Working capital investment

	Existing policy		Proposed policy	
	£m	£m	£m	£m
Stocks				
(£15m x 3/12)		3.8		
(£18m x 3/12)				4.5
Trade debtors				
(£25m x 3/12)		6.3		
[(80% x £30m x 1/12) + (20% x £30m x 3/12)]				3.5
Cash		0.1		0.1
		<u>10.2</u>		<u>8.1</u>
Trade creditors				
(2/12 x £15m)	2.5			
(2/12 x £18m)			3.0	
Fixed overheads	0.1		0.1	
Variable overheads				
(30% x £25m x 1/12)	0.6			
(30% x £30m x 1/12)		3.2	0.8	3.9
		<u>7.0</u>		<u>4.2</u>

(c) The effect of introducing the discount policy will have no effect on net profit (when calculated to one decimal place). Although net profit to sales will decrease from 5.2% to 4.3%, the additional sales generated will ensure that total profit remains the same.

There is a significant decrease in the amount of working capital held. The increase in stocks will be more than offset by the decrease in trade debtors and increase in trade creditors. The forecasts do not take into account the fact that the reduction in working capital can release funds for more profitable purposes. If these funds can be put to profitable use, the discount policy may provide benefits to the business.

However, the information provided does not provide a compelling case for the introduction of a discount policy. Evidence of clear benefits should be available before a change in policy is implemented.

2 (a) (i) Net assets (liquidation) basis

$$\begin{aligned} \text{Value of an ordinary share (V}_o) &= \frac{\text{Net assets at realisable values}^*}{\text{No. of ordinary shares}} \\ &= \frac{\text{£130.7m}}{50\text{m}} \\ &= \underline{\underline{\text{£2.61}}} \end{aligned}$$

*The net assets are calculated as follows:

	£m	£m
Freehold land and buildings		104.2
Fixtures and fittings		3.5
Motor vehicles		0.4
Stock		58.0
Trade debtors		23.4
Cash		21.5
		<u>211.0</u>
Less: Creditors		
– falling due within one year	31.3	
– falling due beyond one year	49.0	80.3
		<u>130.7</u>

(ii) Dividend yield basis

$$\begin{aligned} V_o &= \frac{\text{Gross dividend per share}}{\text{Dividend yield}} \times 100 \\ &= \frac{(6.6 \times 100/90)}{2.2} \times 100 \\ &= \underline{\underline{\text{£3.33}}} \end{aligned}$$

(iii) Price/earnings ratio basis

$$\begin{aligned} V_o &= \frac{\text{P/E ratio} \times \text{net profit after taxation}}{\text{No. of ordinary shares}} \\ &= \frac{20.5 \times \text{£10.7m}}{50\text{m}} \\ &= \underline{\underline{\text{£4.39}}} \end{aligned}$$

- (b)** The liquidation basis will value the assets of the company on the basis of their net realisable values. This is the value that can be obtained on an orderly liquidation of the company. The figure obtained is likely to be a conservative value of the business for two reasons. Firstly, it fails to take account of the value of the business as a going concern. The value of the business as a whole is likely to be greater than the sum of the value of the individual parts. Secondly, net realisable value usually reflects the lower limit for the current values of assets. The value of an asset in use is usually higher than its net realisable value.

The dividend yield method has a number of problems associated with its use. It relies on information relating to a listed company with similar risk and growth characteristics as the company that is being valued, which can be difficult to obtain in practice. In addition, the valuation is dependent on dividend policies that are at the discretion of directors and which may vary significantly between companies within the same industry and also between listed and unlisted companies.

The price-earnings method also relies on the use of information relating to a listed company that has similar risk and growth characteristics as the company that is being valued. In addition, there may be differences in accounting policies, year-end dates or policies regarding directors' remuneration between the listed and unlisted company that will undermine this approach.

When comparing information relating to listed and unlisted companies, it is important to bear in mind that the latter's shares are less marketable. A discount may be applied to the share value that has been derived using listed company information to take account of this fact.

- (c)** The offer price is above the share value derived using the liquidation basis and dividend yield methods but below the value derived using the P/E ratio method.

The offer takes the form of shares in Leda plc. This may be less preferable to Minos plc than cash given the reasons cited for selling Perseus Ltd. There will be transaction costs incurred in selling these shares that must be taken into account. It is interesting to note that the shares of Leda plc are currently at their highest point for the year and there has been a wide range of share prices over the year. If the offer is accepted, Minos plc should take steps to ensure that it is unaffected by any fall in the share price of Leda plc between the acceptance of the offer and the receipt of the shares.

Leda plc has offered a price that is worthy of consideration. If negotiation is unlikely to improve the offer and there is little likelihood of better offers being received, Minos plc should accept the offer.

- 3 (a) Small businesses must overcome a variety of problems when seeking to raise finance. These include:
- a lack of financial skills that can hinder the development of a viable business plan which will give potential investors the confidence to commit funds to the business.
 - a lack of knowledge concerning the different types of finance available and their suitability for the business.
 - an inability to provide adequate security. The high level of security demanded by lenders can be a major hurdle to access to loan capital.
 - application processes that are time consuming, yet where the outcome is uncertain.
 - funding criteria that are too rigorous. For example, evidence of a profitable track record over a relatively long period may be required that many young businesses are unable to provide.

These problems can result in an undue reliance on short-term sources of finance, such as bank overdrafts to fund operations.

In addition to the difficulties identified, the cost of finance is often higher for small businesses than for large businesses because of the higher risks involved. However, not all of the problems of raising long-term finance are imposed externally. Many owners of small businesses are unwilling to issue equity shares to outsiders as it involves a dilution of ownership. In addition, some owners do not take out loans because, it is claimed, they do not believe in borrowing. There may also be a reluctance to rely on external financing because it may lead to restrictions on the owner's freedom of action in one way or another (for example, through loan covenants that restrict the level of dividends, equity stakes that permit representation on the Board of Directors and so on).

- (b) Although obtaining long-term finance can prove difficult, there are sources of long-term finance and other forms of assistance in connection with long-term financing that are aimed at the needs of the smaller business.

Venture capital is aimed at providing long-term finance to small and medium-size businesses that do not have access to the Stock Exchange. Venture capitalists provide equity and loan finance for different types of business situations including:

- Start-up capital to help provide the finance required to begin trading operations.
- Growth capital to help businesses to expand.
- Buy-in and buy-out capital to help management teams finance the purchase of an existing business.
- Share purchase capital to help to buy out an ownership interest in an existing business.
- Recovery capital to help finance the restructuring of a business that has experienced trading problems.

Venture capitalists are normally interested in investing a minimum of £100,000 in a business and often the sum invested is much higher. In practice, they demonstrate a clear preference for investing in growth businesses and management buy-ins/buy-outs rather than business start-ups. Start-ups tend to be risky and the set-up costs involved can be high in relation to the amount of finance required.

In addition to providing finance, venture capitalists may also provide advice or management expertise in running the business through a mentoring role or through representation on the Board of Directors.

Business angels are wealthy individuals that are prepared to take an equity stake in small businesses with growth potential. They usually invest between £10,000 and £100,000 in start-up businesses or businesses that are in the early stages of development. Business angels have often enjoyed a successful business career and so can provide considerable business and management experience in addition to their financial support. They fill an important gap in the market, as the amounts required by a small business may be too small to interest a venture capitalist.

The government provides valuable assistance to small businesses through the Small Firms Loan Guarantee Scheme. This scheme aims to help small firms with credible plans but which cannot obtain a loan through lack of security. The scheme guarantees loans from lending institutions made over a 2–10 year period to small businesses for sums of £5,000 to £100,000. This upper limit rises to £250,000 where a business has been trading for a minimum of two years. The government will guarantee up to 70% of the amount borrowed. This rises to 85% for businesses that have been trading for a minimum of two years.

Other forms of financial assistance from the government include grants and tax incentives for equity investors to invest in small businesses. Examples of the latter form of assistance include Enterprise Investment Schemes and Venture Capital Trusts. The government also provides information concerning the sources of finance available to small businesses.

(Examiner's note: Other approaches to answering this question would have been acceptable.)

Section C

- 4 (a) A Forward Rate Agreement (FRA) is an agreement to pay or receive an amount based on a notional principal sum and which is determined by the difference between an agreed interest rate and an actual interest rate. An FRA is, effectively, a form of forward contract.

An FRA enables a firm to protect interest rates on future deposits or future borrowings. If a firm wishes to protect the interest rate on a future deposit an appropriate FRA will provide it with compensation if interest rates fall but will require the firm to compensate the counter party (usually a bank) if interest rates rise. Note that the interest received on the future deposit will be received at the end of the deposit period, but the FRA is settled at the start of the deposit period. Hence the settlement is discounted to its value as at the start of the deposit period. Similarly protection for a future borrowing is settled at the start of the borrowing period and the settlement proceeds are discounted.

Burnett should take out the 3V9 FRA. This is an FRA which relates to a deposit starting in three months and terminating in nine months – hence the rate (to protect the downside of interest rates) is 7.10%. By entering into this FRA a change in the LIBOR rate compared to 7.10% will be compensated. As the movement on LIBOR, the interest rate used to determine the FRA, and the rate available to the firm on deposits do not usually change by exactly the same amount, the use of an FRA will rarely produce an exact hedge. Similarly as the discount rate used when determining the FRA cash flow is based on LIBOR, it is rare that the discounting process produces an exact compensation for the actual time value of money.

- (b) March – FRA Cash Flow

$$(0.0710 - 0.0500) \times \text{£}10,000,000 \times 183/365 / (1 + 0.05 \times 183/365)$$

$$\text{£}105,287.67 / 1.025068 = \text{£}102,712.82 \text{ received from FRA}$$

Amount available for investment $\text{£}10,102,712.82$.

$\text{£}10,102,712.82$ deposited for 183 days at 4.45%. This produces a total of $\text{£}10,102,712.82 \times (1 + 0.0445 \times 183/365) = \text{£}10,328,114.03$.

Burnett has achieved a return of about 6.54% per annum on the original funds of $\text{£}10,000,000$.

Without the FRA the return would have been $\text{£}10,000,000 \times (1 + 0.0445 \times 183/365) = \text{£}10,223,109.59$.

Using the FRA has helped to protect the final return. Without the FRA the investment would have produced only $\text{£}10.2$ million – an amount not quite sufficient for its needs.

The results can be summarised

With FRA

March –	Cash flow from FRA	£102,713
	Sale of Subsidiary	£10,000,000
	Amount Invested	£10,102,713
	Interest rate	4.45%
September –	Amount Available	£10,328,114
Without FRA	Amount Available	£10,223,110

5 (a) Borrowing in UK

Borrow at 8.50%.

Repayment in six months is £1,000,000 x (1 + 0.085/2) = £1,042,500.

Borrowing in Switzerland

Exchange Rates	Spot	2.40 – 2.45
	Premium	3 1
	6 Month Forward Rate	2.37 2.44

Borrow 2,450,000 SF and convert to Sterling at the rate of 2.45 SF = £1.

Borrow at 5.80%

Repayment in six months is SF2,450,000 x (1 + 0.058/2) = 2,521,050.

To cover repayment forward purchase 2,521,050 SF at the forward rate of 2.37. This gives a Sterling cost of 2,521,050/2.37 = £1,063,734.18.

Borrowing in Sterling is cheaper.

(b) Interest Rate Caps

An Interest Rate Cap is a specialised interest rate option product. It enables companies with floating rate borrowings to insure themselves against an increase in interest rates above a certain level, while preserving their ability to benefit from favourable movements in rates. It is therefore a portfolio of options.

When buying an Interest Rate Cap, the company agrees with its bank a maximum rate (the cap rate) for a notional loan. At each rollover date – usually every three or six months – the customer receives a payment from the bank if a market reference rate (e.g. LIBOR) is above the agreed cap rate. This ensures that the cap is not exceeded.

As with Interest Rate Options, the customer has to pay a premium. The premium depends on the cap rate, the length of the period covered by the cap and the expected volatility of interest rates. So the cost of providing interest rate protection is known at the outset, but the customer can still benefit from favourable moves in rates. While the cost of the cap is known at the start it can be in the form of an up-front payment, a series of payments or an increase in the interest rate. Some treasurers prefer the cost of the cap to be ‘hidden’ in the interest rate.

The key feature of Interest Rate Caps is the flexibility of the protection provided against interest rate volatility. By careful choice of the cap rate, a company can balance costs against the level of insurance.

Floors

A floor is structured in a similar way to a cap, but has the reverse effect. In fact, it achieves for the investor or lender who is receiving floating rate interest what a cap does for the borrower who pays it; while protecting the investor from a fall in interest rates below the floor, it allows him to benefit from any rise.

Collars

A collar is a cap and floor combined. It gives a company protection against rates rising above a certain level (the cap), and the ability to take advantage of a fall in rates, but only down to a certain level (the floor). So a company buying a collar will have a band of tolerance across a minimum and maximum cost of borrowing. If rates rise above the cap rate, it is compensated by the writer of the collar. If rates fall through the floor, it will compensate the other party.

In practice, when the premium for buying the cap equals the premium at which the writer will buy the floor from the company, no up-front payment will be made by either party. This will result in a zero cost collar. Any variation in the cap/floor rate will produce a net payment one way or the other.

Caps, floors and collars are all options. If a cap and a floor are at the same rate it is effectively the same as a swap – i.e. a forward.

(c) Without a Cap

	LIBOR %	LIBOR + 2.0% %	Total Payment £000's	Month of Payment
Now	8.00	10.00	500	6
6 Months	9.00	11.00	550	12
12 Months	10.50	12.50	625	18
18 Months	12.00	14.00	700	24
24 Months	7.20	9.20	460	30
30 Months	5.00	7.00	10,350	36

With a Cap at LIBOR of 8.90%

	LIBOR %	LIBOR + 2.5% %	Total Payment £000's	Month of Payment
Now	8.00	10.50	525	6
6 Months	8.90#	11.40	570	12
12 Months	8.90#	11.40	570	18
18 Months	8.90#	11.40	570	24
24 Months	7.20	9.70	485	30
30 Months	5.00	7.50	10,375	36

= Capped Rate

- 6 (a)** There are a variety of factors that have led to the introduction of the various frameworks, codes and systems of corporate governance. These include: a trend towards global investment; there have been a number of well publicised financial collapses; there are concerns about the standards of financial reporting; additionally there are concerns about potential insider dealing; concerns about institutions being run in the interests of their directors and executives rather than their shareholders and concerns about accountability to other stakeholders.
- (b)** The Cadbury report introduced a variety of recommendations aimed at improvements in corporate governance systems, such as at least three non-executive directors, importance that the board of directors meet on a regular basis, it suggested a split in the roles of chairman and chief executive. Additionally the annual report should include a statement about the organisation's ability to continue as a going concern and to report on the effectiveness of its internal controls. In the Greenbury report the two main recommendations were on the need for a remuneration committee responsible for setting remuneration for senior executives and for reporting of the remuneration policy and directors' remuneration.

The recommendations of the Hempel report included: identifying a senior non-executive director; the establishment of a remuneration committee and at the AGM shareholders should have the opportunity to vote separately on each issue rather than bundled proposals with related papers being sent to shareholders 20 working days before the AGM. There were also recommendations on Accountability and audit including stressing the importance of the audit committee. The Hempel committee also recommended a single combined set of recommendations that became the Combined Code. The Combined Code amends and combines recommendations from the Cadbury, Greenbury and Hempel committees and calls for such things as the: division of board responsibilities; separation of role of chairman and chief executive; one third of the board to be non-executive directors; the directors' report in the annual statement to include a statement about the organisation's ability to continue as a going concern and to report on the effectiveness of its internal controls; encourages dialogue between the company's board and its shareholders and that directors should maintain a sound system of internal control and review the system of controls at least annually.

The Turnbull report: main elements of which concerned the need for a robust system of internal control to safeguard the shareholders' investment and the company's assets and management should review control systems at least annually. Also risk management is the collective responsibility of the board of directors and the risks facing the business should be regularly evaluated and managed. OECD principles in the areas of the rights of shareholders, the equitable treatment of shareholders, the role of stakeholders, disclosure and transparency and the responsibilities of the board.

Each of the above have contributed to increasing the awareness of the importance of corporate governance systems and led to some improvements; however, some issues remain unresolved.

Diploma in Financial Management Examination – Module B
Paper DB1 incorporating subject areas:
Financial Strategy
Risk Management

December 2002 Marking Scheme

		Marks	
Section B			
1	(a) 1 mark sales, 2 marks discount, other expenses 1 mark each, 1 mark net profit		7
	(b) 1 mark cash, 2 marks other items		8
	(c) 4 marks comments, 1 mark decision		5
			<u>20</u>
2	(a) 3 marks per method		9
	(b) 2 marks per method		6
	(c) 4 marks comments, 1 mark decision		5
			<u>20</u>
3	(a) 2 marks per problem (max 8 marks)		8
	(b) 4 marks per source		12
			<u>20</u>
Section C			
4	(a) Explanation	3	
	Choice of FRA 3V9	2	
	Interest rate	2	7
		<u>7</u>	
	(b) (i) Basic calculations	2	
	Discounting	2	
	Timing	2	6
		<u>6</u>	
	(ii) Amount available for investing	2	
	Final value	1	
	No FRA	1	
	Comment	3	7
		<u>7</u>	13
			<u>20</u>

Penalise wrong choice of FRA and/or wrong interest for FRA only once IF utilised correctly
 Reward intentions

		Marks	
5	(a) UK		2
	Switz	1	
	Amount borrowed		
	Spot	1	
	Interest	1	
	Forward	2	5
	Advice	<hr style="width: 10px; margin-left: 0;"/>	<hr style="width: 10px; margin-left: 0;"/> 1 8
	(b) Description		4
	Uses	2	6
		<hr style="width: 10px; margin-left: 0;"/>	
	(c) 3 for each part 3 x 2		6
	2 off if wrong interest calculations		20
	2 off if LIBOR not used for cap etc		
6	(a) Explanation of factors: up to 2 marks each on merit Subject to a maximum of 4 x 2		8
	(b) Explanation as to what each of the successive frameworks, codes and systems of corporate governance have contributed to better corporate governance: up to 2 marks each on merit subject to a maximum of 6 x 2 marks		
	No marks for just listing by name without reference to contents.		12
			<hr style="width: 10px; margin-left: 0;"/> 20