
Answers

Section A

1 A

Monetary value of return = $\$3.10 \times 1.197 = \3.71
 Current share price = $\$3.71 - \$0.21 = \$3.50$

2 B

3 C

4 A

The hedge needs to create a peso liability to match the 500,000 peso future income.
 6-month peso borrowing rate = $8/2 = 4\%$
 6-month dollar deposit rate = $3/2 = 1.5\%$
 Dollar value of money market hedge = $500,000 \times 1.015 / (1.04 \times 15) = \$32,532$ or $\$32,500$

5 B

6 C

7 C

Total cash flow (\$)	Joint probability	EV of cash flow (\$)
36,000	0.1125	4,050
14,000	0.0375	525
32,000	0.4500	14,400
10,000	0.1500	1,500
16,000	0.1875	3,000
(6,000)	0.0625	(375)
		<u>23,100</u>
	Less initial investment	(12,000)
	EV of the NPV	<u>11,100</u>

8 B

9 A

MV = $(7 \times 5.033) + (105 \times 0.547) = \92.67

10 D

11 D

12 A

13 B

Inventory = $15,000,000 \times 60/360 = \$2,500,000$
 Trade receivables = $27,000,000 \times 50/360 = \$3,750,000$
 Trade payables = $15,000,000 \times 45/360 = \$1,875,000$
 Net investment required = $2,500,000 + 3,750,000 - 1,875,000 = \$4,375,000$

14 C

15 D

16 C

17 A

Gearing = $[(4,000 \times 1.05) + 6,200 + (2,000 \times 0.8)] / (8,000 \times 2 \times 5) = 12,000 / 80,000 = 15\%$

18 B

19 D

Dividend growth rate = $100 \times ((33.6/32) - 1) = 5\%$
 MV = $33.6 / (0.13 - 0.05) = \$4.20$

20 D

Section B

1 (a) Cash balances at the end of each month:

	December	January	February	March	April
Sales (units)	1,200	1,250	1,300	1,400	1,500
Selling price (\$/unit)	800	800	840	840	
Sales (\$000)	<u>960</u>	<u>1,000</u>	<u>1,092</u>	<u>1,176</u>	
Month received	January	February	March	April	
	December	January	February	March	
Production (units)	1,250	1,300	1,400	1,500	
Raw materials (units)	2,500	2,600	2,800	3,000	
Raw materials (\$000)	500	520	560	600	
Month payable	January	February	March	April	
	December	January	February	March	
Production (units)	1,250	1,300	1,400	1,500	
Variable costs (\$000)	125	130	140	150	
Month payable	December	January	February	March	

Monthly cash balances:

	January \$000	February \$000	March \$000
Receivables	960	1,000	1,092
Loan			300
Income:	<u>960</u>	<u>1,000</u>	<u>1,392</u>
Raw materials	500	520	560
Variable costs	130	140	150
Machine			400
Expenditure:	<u>630</u>	<u>660</u>	<u>1,110</u>
Opening balance	40	370	710
Net cash flow	<u>330</u>	<u>340</u>	<u>282</u>
Closing balance	<u>370</u>	<u>710</u>	<u>992</u>

(b) Calculation of current ratio**Inventory at the end of the three-month period:**

This will be the finished goods for April sales of 1,500 units, which can be assumed to be valued at the cost of production of \$400 per unit for materials and \$100 per unit for variable overheads and wages. The value of the inventory is therefore $1,500 \times 500 = \$750,000$.

Trade receivables at the end of the three-month period:

These will be March sales of $1,400 \times 800 \times 1.05 = \$1,176,000$.

Cash balance at the end of the three-month period:

This was forecast to be \$992,000.

Trade payables at the end of the three-month period:

This will be the cash owed for March raw materials of \$600,000.

Forecast current ratio

Assuming that current liabilities consists of trade payables alone:

Current ratio = $(750,000 + 1,176,000 + 992,000)/600,000 = 4.9$ times

- (c) If Flit Co generates a short-term cash surplus, the cash may be needed again in the near future. In order to increase profitability, the short-term cash surplus could be invested, for example, in a bank deposit, however, the investment selected would normally not be expected to carry any risk of capital loss. Shares traded on a large stock market carry a significant risk of capital loss, and hence are rarely suitable for investing short-term cash surpluses.

- 2 (a) Average historical share price growth = $100 \times ((10.90/9.15)^{1/3} - 1) = 6\%$ per year

Future share price after 7 years = $10.90 \times 1.06^7 = \$16.39$ per share

Conversion value of each loan note = $16.39 \times 8 = \$131.12$

The investor is faced with the choice of redeeming the loan notes at their nominal value of \$100 or converting them into shares worth \$131.12. The rational choice is to maximise wealth by taking the conversion option.

Market value of each loan note = $(8 \times 5.033) + (131.12 \times 0.547) = 40.26 + 71.72 = \111.98

- (b) The average price/earnings ratio (P/E ratio) of listed companies similar to Par Co has been recently reported to be 12 times and the most recent earnings per share (EPS) of Par Co is 62 cents per share. The share price calculated using the P/E ratio method is therefore \$7.44 ($12 \times 62/100$).

One problem with using the P/E ratio valuation method relates to the selection of a suitable P/E ratio. The P/E ratio used here is an average P/E ratio of similar companies and Par Co is clearly not an average company, as evidenced by its year-end share price being \$10.90 per share, some 47% more than the calculated value of \$7.44. The business risk and financial risk of Par Co will not be exactly the same as the business risk and financial risk of the similar companies, for example, because of diversification of business operations and differing capital structures. Par Co may be a market leader or a rising star compared to similar companies.

The P/E ratio method is more suited to valuing the shares of unlisted companies, rather than listed companies such as Par Co. If the stock exchange on which its shares are traded is efficient, which is likely as it is a large stock exchange, the share price of Par Co will be a fair reflection of its value and its prospects. As a listed company, Par Co would in fact contribute to the average P/E ratio for its business sector, used in valuing similar unlisted companies.

Looking at the P/E ratio of Par Co, it can be seen that this is not constant, but has increased each year for four years, from 14.3 times in 2011 to 17.6 times in 2014. This raises questions about using a P/E ratio based on historical information as a way of valuing future activity.

Ideally, the P/E ratio method should use forecast maintainable earnings, but the calculated value of \$7.44 has used the historical EPS of 2014. As this was the lowest EPS over the four years, forecasting future maintainable earnings may be a problem here.

Workings

Year	2011	2012	2013	2014
Earnings per share (cents)	64	68	70	62
Year-end share price (\$)	9.15	9.88	10.49	10.90
P/E ratio (times)	14.3	14.5	15.0	17.6
Value of Par Co (\$m)	274.5	296.4	314.7	327.0

(Note: It is assumed that the number of ordinary shares has remained constant)

- 3 (a) The current dollar value of the future euro receipt = $\text{€}1,200,000/4.2080 = \$285,171$

If a forward contract is taken out, PZK Co can lock into the six-month forward exchange rate of 4.2606 euros per dollar.

Future dollar value using the forward contract = $\text{€}1,200,000/4.2606 = \$281,651$

Loss using the forward contract = $285,171 - 281,651 = \$3,520$

If PZK Co chooses not to hedge the future euro receipt, it will be able to exchange the euros for dollars at the future spot exchange rate prevailing when the payment is made. This future spot exchange rate may give a better or worse dollar value than using the six-month forward exchange rate. At the current time, PZK Co may prefer the certainty offered by the forward exchange contract to the uncertainty of leaving the future euro receipt unhedged. In addition, the forward exchange rate is an unbiased estimator of the future spot exchange rate.

- (b) The implied interest rate in the foreign country can be calculated using interest rate parity.

From the formulae sheet, $F_0 = S_0 \times (1 + i_c)/(1 + i_b)$

Hence $4.3132 = 4.2080 \times (1 + i_c)/1.04$

Rearranging, $(1 + i_c) = 4.3132 \times 1.04/4.2080 = 1.066$

The implied annual interest rate in the foreign country is 6.6%.

- (c) One of the simplest ways for PZK Co to avoiding exchange rate risk is to invoice in its home currency, which passes the exchange rate risk on to the foreign customer, who must effectively find the dollars with which to make the payment.

This strategy may not be commercially viable, however, since the company's foreign customers will not want to take on the exchange rate risk. They will instead transfer their business to those competitors of PZK Co who invoice in the foreign currency and who therefore shoulder the exchange rate risk.

If PZK Co is concerned about exchange rate risk, it will need to consider other hedging methods. For example, if the company regularly receives receipts and makes payments in euros, it could open a bank account denominated in euros.

4 (a) Revised draft evaluation of investment proposal

	1	2	3	4	5
	\$000	\$000	\$000	\$000	\$000
Sales revenue	2,475	2,714	4,413	4,775	
Variable costs	(1,097)	(1,323)	(2,084)	(2,370)	
Fixed costs	(155)	(159)	(164)	(169)	
Cash flow before tax	1,223	1,232	2,165	2,236	
TA depreciation	(450)	(338)	(253)	(759)	
Taxable profit	773	894	1,912	1,477	
Taxation		(170)	(197)	(421)	(325)
After-tax profit	773	724	1,715	1,056	(325)
TA depreciation	450	338	253	759	
After-tax cash flow	1,223	1,062	1,968	1,815	(325)
Discount at 12%	0.893	0.797	0.712	0.636	0.567
Present values	1,092	846	1,401	1,154	(184)
	\$000				
Present value of cash inflows	4,309				
Cost of machine	(1,800)				
NPV	2,509				

The revised draft evaluation of the investment proposal indicates that a positive net present value is expected to be produced. The investment project is therefore financially acceptable and accepting it will increase the wealth of the shareholders of Uftin Co.

Workings

Year	1	2	3	4
Sales (units/year)	95,000	100,000	150,000	150,000
Selling price (\$/unit)	25	25	26	27
Inflated by 4.2% (\$/unit)	26.05	27.14	29.42	31.83
Sales revenue (\$000/year)	2,475	2,714	4,413	4,775
Year	1	2	3	4
Sales (units/year)	95,000	100,000	150,000	150,000
Variable costs (\$/unit)	11	12	12	13
Inflated by 5% (\$/unit)	11.55	13.23	13.89	15.80
Variable costs (\$000/year)	1,097	1,323	2,084	2,370
Year	1	2	3	4
Fixed costs (\$000/year)	150	150	150	150
Inflated by 3% (\$000/year)	155	159	164	169
Year	1	2	3	4
Tax allowable depreciation (\$/year)	450,000	337,500	253,125	759,375
Tax benefits at 22% (\$/year)	99,000	74,250	55,688	167,063

Alternative calculation of after-tax cash flow

	1	2	3	4	5
	\$000	\$000	\$000	\$000	\$000
Sales revenue	2,475	2,714	4,413	4,775	
Variable costs	(1,097)	(1,323)	(2,084)	(2,370)	
Fixed costs	(155)	(159)	(164)	(169)	
Cash flow before tax	1,223	1,232	2,165	2,236	
Tax liability		(269)	(271)	(476)	(492)
TAD tax benefits		99	74	56	167
After-tax cash flow	1,223	1,062	1,968	1,816	(325)

(b) The following revisions to the original draft evaluation could be discussed.

Inflation

Only one year's inflation had been applied to sales revenue, variable costs and fixed costs in years 2, 3 and 4. The effect of inflation on cash flows is a cumulative one and in this case specific inflation was applied to each kind of cash flow.

Interest payments

These should not have been included in the draft evaluation because the financing effect is included in the discount rate. In a large company such as Uftin Co, the loan used as part of the financing of the investment is very small in comparison to existing finance and will not affect the weighted average cost of capital.

Tax allowable depreciation

A constant tax allowable depreciation allowance, equal to 25% of the initial investment, had been used in each year. However, the method which should have been used was 25% per year on a reducing balance basis, resulting in smaller allowances in years 2 and 3, and a balancing allowance in year 4. In addition, although tax allowable depreciation had been deducted in order to produce taxable profit, tax allowable depreciation had not been added back in order to produce after-tax cash flow.

Year 5 tax liability

This had been omitted in the draft evaluation, perhaps because a four-year period was being used as the basis for the evaluation. However, this year 5 cash flow needed to be included as it is a relevant cash flow, arising as a result of the decision to invest.

Examiner's Note: *Explanation of only TWO revisions was required.*

5 (a) Cost of equity

Using the capital asset pricing model, $K_e = 4 + (1.15 \times 6) = 10.9\%$

Cost of debt of loan notes

After-tax annual interest payment = $6 \times 0.75 = \$4.50$ per loan note.

Year	\$	5% discount	PV (\$)	4% discount	PV (\$)
0	(103.50)	1.000	(103.50)	1.000	(103.50)
1-6	4.50	5.076	22.84	5.242	23.59
6	106.00	0.746	79.08	0.790	83.74
			<u>(1.58)</u>		<u>3.83</u>

$K_d = 4 + [(1 \times 3.83)/(3.83 + 1.58)] = 4 + 0.7 = 4.7\%$ per year

Market values of equity and debt

Number of ordinary shares = $200\text{m}/0.5 = 400$ million shares

Market value of ordinary shares = $400\text{m} \times 5.85 = \$2,340$ million

Market value of loan notes = $200\text{m} \times 103.5/100 = \207 million

Total market value = $2,340 + 207 = \$2,547$ million

Market value WACC

$K_0 = ((10.9 \times 2,340) + (4.7 \times 207))/2,547 = 26,479/2,547 = 10.4\%$

Book value WACC

$K_0 = ((10.9 \times 850) + (4.7 \times 200))/1,050 = 10,205/1,050 = 9.7\%$

Comment

Market values of financial securities reflect current market conditions and current required rates of return. Market values should therefore always be used in calculating the weighted average cost of capital (WACC) when they are available. If book values are used, the WACC is likely to be understated, since the nominal values of ordinary shares are much less than their market values. The contribution of the cost of equity is reduced if book values are used, leading to a lower WACC, as evidenced by the book value WACC (9.7%) and the market value WACC (10.4%) of Tinep Co.

- (b) A rights issue raises equity finance by offering new shares to existing shareholders in proportion to the number of shares they currently hold. Existing shareholders have the right to be offered new shares (the pre-emptive right) before they are offered to new investors, hence the term 'rights issue'. There are a number of factors which Tinep Co should consider.

Issue price

Rights issues shares are offered at a discount to the market value. It can be difficult to judge what the amount of the discount should be.

Relative cost

Rights issues are cheaper than other methods of raising finance by issuing new equity, such as an initial public offer (IPO) or a placing, due to the lower transactions costs associated with rights issues.

Ownership and control

As the new shares are being offered to existing shareholders, there is no dilution of ownership and control, providing shareholders take up their rights.

Gearing and financial risk

Increasing the weighting of equity finance in the capital structure of Tinep Co can decrease its gearing and its financial risk. The shareholders of the company may see this as a positive move, depending on their individual risk preference positions.

**Fundamentals Level – Skills Module, Paper F9
Financial Management**

December 2014 Marking Scheme

	<i>Marks</i>	<i>Marks</i>
Section A		
1–20 Two marks per question		40
Section B		
1 (a) Monthly receivables	1	
Loan	0.5	
Raw materials	1	
Variable costs	1	
Machine	0.5	
Closing balances	<u>1</u>	
		5
(b) Closing finished goods inventory	0.5	
Closing trade receivables	0.5	
Closing trade payables	0.5	
Current ratio	<u>0.5</u>	
		2
(c) Temporary nature of short-term cash surplus	1	
Investment should have no risk of capital loss	1	
Shares are not suitable for investment	<u>1</u>	
		<u>3</u>
		<u>10</u>
2 (a) Average historical share price growth rate	1	
Future share price	1	
Conversion value	1	
Comment on conversion and redemption	1	
Market value of loan note	<u>1</u>	
		5
(b) Share price calculation using P/E ratio method	1	
Discussion of problems in using P/E ratio method	<u>4</u>	
		<u>5</u>
		<u>10</u>
3 (a) Current dollar value of euro receipt	1	
Forward contract value of euro receipt	0.5	
Loss using forward contract	0.5	
Explanation of preference for hedging	<u>2</u>	
		4
(b) Calculation of implied interest rate		2
(c) Recognition of risk transfer	1	
Commercial considerations	2	
Other relevant discussion	<u>1</u>	
		<u>4</u>
		<u>10</u>

	<i>Marks</i>	<i>Marks</i>
4 (a) Sales revenue	1	
Inflated sales revenue	1	
Inflated variable costs	1	
Inflated fixed costs	1	
Excluding interest payments	1	
Tax allowable depreciation	1	
Balancing allowance	1	
Tax liabilities	1	
Timing of taxation liabilities	1	
Net present value	1	
Comment on financial acceptability	<u>1</u>	
		11
(b) Explanation of first revision	1-3	
Explanation of second revision	<u>1-3</u>	
	Maximum	<u>4</u>
		<u>15</u>
5 (a) Cost of equity	1	
After-tax interest payment	1	
Setting up IRR calculation	1	
After-tax cost of debt of loan notes	1	
Market values	1	
Market value WACC	1	
Book value WACC	1	
Comment on difference	<u>2</u>	
		9
(b) Issue price	1-2	
Relative cost	1-2	
Ownership and control	1-2	
Gearing and financial risk	<u>1-2</u>	
	Maximum	<u>6</u>
		<u>15</u>