

## MARK PLAN AND EXAMINER'S COMMENTARY

The marking plan set out below was that used to mark this question. Markers were encouraged to use discretion and to award partial marks where a point was either not explained fully or made by implication. In many cases, more marks were available than could be awarded for each requirement. This allowed credit to be given for a variety of valid points which were made by candidates.

### General point about candidates' handwriting

As in previous papers, there were a number of instances in the scripts where the markers found it extremely difficult to read the candidates' handwriting. If a marker is unable to read what has been written then no marks can be awarded for the passage in question.

## QUESTION 1

**Total marks: 35**

### General comments

This question had easily the highest percentage mark on the paper. Overall, the candidates' performance was very good indeed.

This was a four-part question that tested the candidates' understanding of the investment decisions element of the syllabus. In the scenario a pharmaceutical company was considering the development of a new product and the possible takeover of a competitor. In part (1), for 18 marks, candidates were required to calculate the net present value of the proposed product development. They were given forecast life-cycle data for the new product and had to take account of non-relevant cash flows, inflation rates and corporation tax implications. Secondly, for five marks, they were required to calculate the sensitivity of that decision to the variable costs of the product. For a further six marks they were asked to outline how Shareholder Value Analysis (SVA) could be used when valuing a target company. Finally, for six marks, candidates were required to apply their understanding of agency theory to three specific elements of the scenario.

### 1.1

	Year to 31/3/16 £	Year to 31/3/17 £	Year to 31/3/18 £	Year to 31/3/19 £
Old equipment - Sale	70,000			
Tax due (W1)	(14,700)			
New equipment cost/sale	(1,150,000)			100,000
Tax relief on equipment (W2)	43,470	35,645	29,229	112,155
Sales (W3)			2,705,040	742,846
Variable costs (W4)			(1,251,862)	(240,400)
Rent	(80,000)	(80,000)	(80,000)	
Fixed costs (W5)		(164,800)	(169,744)	(174,836)
Taxation (W6)	16,800	51,408	(252,721)	(68,798)
Working capital (W7)	0	(267,800)	193,537	74,263
Net cash flow after taxation	(1,114,430)	(425,547)	1,173,479	545,230
8% factor	1.000	0.926	0.857	0.794
PV	(1,114,430)	(394,057)	1,005,672	432,913
<b>NPV</b>	<b>(69,902)</b>			

Ignore depreciation as it's not a cash flow.

Ignore HO costs as they are allocated – not incremental cash flows therefore

Ignore interest as it's part of the cost of capital

AP 525 produces a negative NPV and so should not be taken on as it would reduce shareholder wealth.

<u>Workings</u>				
	<b>Year to 31/3/16 £</b>	<b>Year to 31/3/17 £</b>	<b>Year to 31/3/18 £</b>	<b>Year to 31/3/19 £</b>
<u>W1</u>				
WDV b/f	0			
Balancing charge	70,000			
WDV/sale	<u>70,000</u>			
Tax (21% x balancing charge)	<u>14,700</u>			
<u>W2</u>				
Equipment purchase/WDV	1,150,000	943,000	773,260	634,073
WDA @ 18%/Bal.allowance	(207,000)	(169,740)	(139,187)	(534,073)
WDV/sale	<u>943,000</u>	<u>773,260</u>	<u>634,073</u>	<u>100,000</u>
Tax (21% x WDV/Bal.allowance)	<u>43,470</u>	<u>35,645</u>	<u>29,229</u>	<u>112,155</u>
<u>W3</u>				
Sales (March 2016 prices)			2,600,000	700,000
Inflate at 2% pa			x (1.02) <sup>2</sup>	x (1.02) <sup>3</sup>
“Money” sales income			<u>2,705,040</u>	<u>742,846</u>
<u>W4</u>				
Variable cost (March 2016 prices)			1,180,000	220,000
Inflate at 3% pa			x (1.03) <sup>2</sup>	x (1.03) <sup>3</sup>
“Money” variable cost			<u>1,251,862</u>	<u>240,400</u>
<u>W5</u>				
Fixed costs (March 2016 prices)		290,000	290,000	290,000
less: HO cost allocation		(130,000)	(130,000)	(130,000)
		160,000	160,000	160,000
Inflate at 3% pa		x1.03	x (1.03) <sup>2</sup>	x (1.03) <sup>3</sup>
“Money” fixed costs		<u>164,800</u>	<u>169,744</u>	<u>174,836</u>
<u>W6</u>				
Sales (W3)			2,705,040	742,846
Variable costs (W4)			(1,251,862)	(240,400)
Rent	(80,000)	(80,000)	(80,000)	
Fixed costs (W5)		(164,800)	(169,744)	(174,836)
Trading profit/(loss)	<u>(80,000)</u>	<u>(244,800)</u>	<u>1,203,434</u>	<u>327,610</u>
Tax reclaim/(payable) @ 21%	16,800	51,408	(252,721)	(68,798)
<u>W7</u>				
Total working capital	0	260,000	70,000	0
		x1.03	x (1.03) <sup>2</sup>	
“Money” total working capital	<u>0</u>	<u>267,800</u>	<u>74,263</u>	<u>0</u>
Incremental working capital	0	(267,800)	193,537	74,263

Part (1) was very well answered by most candidates. However, common errors noted were:

- No balancing charge calculated on the old equipment to be disposed of.
- Rental costs (fixed) were inflated and/or in arrears not in advance.
- Tax savings from negative cash flows in Year 0 and Year 1 were omitted.
- Working capital – did not net to zero, was applied to the wrong years, the inflation calculations were poor.

Also, many candidates lost marks for not explaining why depreciation, head office costs and interest charges were not relevant cash flows. 'Not relevant' was insufficient.

Total possible marks	18
Maximum full marks	18

**1.2**

PV of variable costs

	Year to 31/3/16 £	Year to 31/3/17 £	Year to 31/3/18 £	Year to 31/3/19 £
Variable costs			(1,251,862)	(240,400)
Taxation @ 21%			262,891	50,484
Net cash flow after taxation			(988,971)	(189,916)
8% factor			0.857	0.794
PV			(847,548)	(150,793)

Total PV of variable costs (£847,548 + £150,793) £(998,341)

% change in variable costs required  $\frac{\underline{\pounds(69,902)}}{\pounds(998,341)}$  7%

Thus, ignoring all other factors, variable costs would need to fall by 7% before NPV became positive and AP 525 was viable. This is a relatively small change required to make the NPV positive.

In part (2) the sensitivity calculations were generally fine. The most common errors were (a) using sales or contribution figures rather than variable costs and (b) missing out the effect of taxation in the calculations.

Total possible marks	5
Maximum full marks	5

**1.3**

With SVA a company's value is based on the PV of its future cash flows, so it is forward-looking. This is theoretically the most superior valuation method. SVA considers seven value drivers, which link to (or drive) company strategy:

1. Life of projected cash flows
2. Sales growth rate
3. Operating profit margin
4. Corporate tax rate
5. Investment in non-current assets
6. Investment in working capital
7. Cost of capital

Predictions are very difficult as cash flows are technically in perpetuity. Once a company's period of competitive advantage is over then its growth rate is much slower and a terminal (residual) value is calculated, based on its cash flows to perpetuity. This terminal value is often the major part of the overall value of the company.

Once the total value of the company has been calculated, based on the future cash flows and value drivers, then, to calculate the value of equity, it is necessary to add the value of any short-term investments held and deduct the market value of any debt held.

As in previous papers the candidates' understanding of SVA was generally poor. A disappointing number of them concentrated, wrongly, on NPV rather than PV and discussed SVA in regard to a project and not the valuation of a target company. Thus, many candidates didn't mention terminal value.

Total possible marks	6
Maximum full marks	6

<b>1.4</b>	
<u>Apply</u> agency theory to the question	
(a) A takeover - e.g. empire building by directors, making acquisitions which are not in the shareholders' best interest (negative NPV). Or, alternatively, a takeover might lead to the directors being made redundant, so they would avoid a takeover which would have been in the shareholders' best interest (positive NPV).	
(b)	
<ul style="list-style-type: none"> <li>• Debt levels – it's an all-debt financed equipment purchase here, but the directors are likely to be cautious over risk and may prefer lower levels of debt than would be at the optimal level (share price maximised) for the shareholders.</li> <li>• Time horizons – directors may take a short-term view of the firm as their performance is usually judged in the short-term. However, shareholder wealth is affected by the long-term performance of the company. Thus directors might turn down a possible investment that has short-term losses, but a long-term positive NPV. However, this wouldn't occur in the case of AP525 as it has a negative NPV.</li> </ul>	
Agency theory was generally answered well. The weakest area here was candidates' explanation of the conflicts that might arise in relation to short-term versus long-term performance appraisal in the context of the project. Too many used a takeover context instead.	
Total possible marks	9
Maximum full marks	6

**QUESTION 2****Total marks: 35****General comments**

This question had the lowest percentage mark on the paper. The majority of candidates achieved a “pass” standard in the question, however.

This was a six-part question that tested the candidates’ understanding of the financing options element of the syllabus and there was also a small section with an ethics element to it. It was based around a design company which was planning to restructure its balance sheet. This would be achieved by financing the redemption of long-term debt via a rights issue of ordinary shares. Part (1) of the question, for three marks, required candidates to calculate the current gearing levels of the company, using both book and market values. In part (2) for six marks, they were asked discuss the impact of a change in the company’s gearing levels on its share price. Candidates were expected to make reference to relevant theories and their calculations from part (1). Part (3) for nine marks required the candidates to calculate the theoretical ex-rights price (TERP) of the company and the impact of the proposed rights issue on the wealth of a shareholder holding 10,000 of the company’s shares. Part (4) – seven marks - tested candidates’ understanding of (a) the company’s P/E figure and (b) the impact of the debt redemption on the company’s earnings figure. Part (5), again for seven marks, required candidates to apply their understanding of dividend policy theory to the scenario. Finally, for three marks, part (6) required candidates to comment as an ICAEW Chartered Accountant on the ethical implications of issuing misleading information to shareholders.

**2.1**

<u>Long term finance</u>	<u>Book value (£m)</u>		<u>Market value (£m)</u>	
Ordinary share capital	96.0		326.4	
retained earnings (RE)	43.8		n/a	
Preference share capital (PSC)	28.0		50.4	
3.5% debentures	<u>160.0</u>		<u>168.0</u>	
	<u>327.8</u>		<u>544.8</u>	
Total fixed return capital (debs + PSC)	188.0		218.4	
Gearing %	<u>188.0</u>	57.4%	<u>218.4</u>	40.1%
	<u>327.8</u>		<u>544.8</u>	

Many candidates’ answers to part (1) were disappointingly weak. Typical errors were: (a) not including preference shares as debt (contra to the study manual and past questions) and (b) ignoring retained earnings in their book value calculations, but including it in their market value calculations.

Total possible marks	3
Maximum full marks	3

**2.2**

Main theories of gearing and market value - traditional view, M&M 1958 and 1963.  
The modern view is that the optimum gearing level (maximisation of company value) is a balance between the benefits of the tax shield and bankruptcy costs. The impact on OW’s WACC (and value) depends on where its optimum gearing level is.  
OW’s gearing (at book value) is over 57%, so rather high and this may depress OW’s market value. However, gearing (at market value) is 40%, i.e. much lower, and this may have a positive effect on the value of OW’s shares.  
Hard to say where OW’s gearing level is likely to be as there are no industry comparisons.  
If OW’s gearing level is currently above its optimal level, then a reduction in its gearing will have a positive effect on its share price and vice versa.

In part (2) many candidates only scored three marks by focussing just on the theory of gearing and company value. Those scoring higher marks noted that there was a lack of industry comparison available in the question and, better still, noted the importance of where the company is now in relation to its optimum gearing level.

Total possible marks	6
Maximum full marks	6

<b>2.3</b>			
Total funds needed for debenture redemption = $\text{£}160\text{m} \times 50\% \times 110.40/100$			£88.32m
	<b>Shares (m)</b>	<b>£m</b>	
Currently	192.0	£1.70	326.400
Rights issue (2 for 5)	76.8	£1.15	88.320
	<u>268.8</u>	<u>£1.5429</u>	<u>414.72</u>
TERP = £1.5429			
Value of a right = $\text{£}1.5429 - \text{£}1.15$			£0.3929
Current wealth		$10,000 \times \text{£}1.70$	17,000
<u>(a) Take up rights</u>			
Investment ex-rights		$10,000 \times 7/5 \times 1.5429$	£ 21,600
Cost of extra shares		$10,000 \times 2/5 \times \text{£}1.15$	£ (4,600) 17,000
<u>(b) Sell rights</u>			
Investment ex-rights		$10,000 \times 1.5429$	15,429
Sale or rights		$10,000 \times 2/5 \times \text{£}0.39$	<u>1,571</u> 17,000
<u>(c) Ignore rights</u>			
Investment ex-rights		$10,000 \times 1.5429$	15,429
In part (3) a significant number of candidates calculated a TERP in excess of the current market value – clearly this is wrong. This was mainly because they assumed that the par value of ordinary shares was £1 (not 50p) and insisted that the share price was £3.40, not £1.70, as given in the question. Many candidates didn't calculate the correct debenture redemption figure. Most candidates did well with the impact of the rights issue on the shareholder's wealth, but many calculated a large increase in wealth when it should be zero or a loss from doing nothing.			
Total possible marks			9
Maximum full marks			9

<b>2.4</b>			
OW's current earnings per share (EPS)	$\text{£}21.12\text{m}/192.0\text{m}$		£0.11
OW's current p/e ratio [or $\text{£}326.4\text{m}/\text{£}21.12\text{m} = 15.5$ for 2 marks]	$\text{£}1.70/\text{£}0.11$		15.5
		<b>£m</b>	
OW's current earnings		21.120	
plus: Interest saved (after tax)	$\text{£}160\text{m}/2 \times 3.5\% \times 79\%$	<u>2.212</u>	
OW's new earnings		<u>23.332</u>	
OW's new earnings per share (EPS)	$\text{£}23.332\text{m}/268.8\text{m}$		£0.0868
OW's MV/share post-rights	$\text{£}0.0868 \times 15.5$		£1.35
Thus if OW's P/E ratio remains unchanged post-rights, its market value will fall (from £1.70/share) by approx. £0.35/share (20.6%). This fall has been caused by a dilution in the EPS figure (the extra shares have outweighed the impact of the debenture interest saved). However the debenture redemption will cause a fall in gearing. This decline in gearing may prompt an increase in OW's p/e ratio (lower financial risk).			
Candidates' performance in part (4) was very variable indeed and was probably the weakest set of answers on the whole paper. Very few candidates adjusted the company's earnings figure for saved interest (less tax). A disappointing number calculated the P/E ratio, wrongly, as follows: $\text{£}1.70/\text{£}21.12\text{m}$ .			
Total possible marks			7
Maximum full marks			7

<b>2.5</b>	
Reference to main dividend policy theory:	
<u>M&amp;M theory</u> - share value is determined by future earnings and the level of risk. The amount of dividends paid will not affect shareholder wealth providing the retained earnings are invested in profitable investment opportunities (positive NPV's). Any loss in dividend income will be offset by gains in share price.	
<u>Traditional theory</u> - shareholders would prefer dividends today rather than dividends or capital gains in future. Cash now is more certain than in the future.	
<u>Supplementing these main theories:</u>	
<ul style="list-style-type: none"> <li>• Impact of signalling</li> <li>• Clientele effect</li> </ul>	
A change in dividend policy may have a negative impact on OW's share price. So it's important that if dividends are cut, then shareholders are given clear reasons for the change, i.e. communication with them is good.	
Part (5) was answered very well, as expected.	
Total possible marks	7
Maximum full marks	7

<b>2.6</b>	
The ICAEW provides ethical guidance that will ensure that recipients of corporate finance advice can rely on the <u>objectivity</u> and <u>integrity</u> of advice given to them by members. The other ethical principle at risk here is that of <u>professional behaviour</u> .	
Part (6), also, was answered well, but a high number of candidates included money laundering in their answers – not relevant here.	
Total possible marks	3
Maximum full marks	3

**QUESTION 3****Total marks: 30****General comments**

The average mark for this question was very good and most candidates demonstrated a good understanding of this area of the syllabus.

This was a four-part question which tested the candidates' understanding of the risk management element of the syllabus. In the scenario a construction company was investigating firstly how it might manage its exposure to foreign exchange rate risk and then whether a proposed interest rate swap on borrowed funds was worthwhile. Part (1a) for eight marks required candidates to calculate the sterling cost arising from a range of hedging techniques applied to a large Russian purchase contract. In part (1b) for nine marks, candidates were required to advise the company's board whether it should hedge the Russian (rouble) payments. Part (1c) for five marks required candidates to explain, with relevant workings, the concept of interest rate parity (IRP). In part (2), for eight marks, the company was planning to swap its borrowings from a fixed rate to a variable rate of interest and candidates were asked to provide workings for the board demonstrating how the swap would work and calculating the resultant annual interest payments.

<b>3.1(a)</b>			
<u>Forward contract</u>			
Payment in sterling would be	$\frac{R145.6m}{(78.81 + 0.55)}$	$\frac{R145.6m}{79.36}$	(£1,834,677)
<u>plus:</u> Arrangement fee	145.6 x £40		<u>(£5,824)</u>
			<b><u>(£1,840,501)</u></b>
<u>Money market hedge</u>			
Payment in sterling would be	$\frac{R145.6m}{[1 + (5.6\%/4)]}$	$\frac{R145.6m}{1.014}$	R143,589,740 lent
Converted at spot rate	$\frac{R143,589,740}{78.81}$		(£1,821,9743)
Borrowed at 3.6% p.a.	£1,821,974 x (3.6%/4)		<u>(£16,398)</u>
			<b><u>(£1,838,371)</u></b>
<u>OTC currency option</u>			
A call option would be used (i.e. at 79.85R/£)			
Payment in sterling would be	$\frac{R145.6m}{79.85}$		(£1,823,419)
<u>plus:</u> Option premium	145.6 x £90		<u>(£13,104)</u>
			<b><u>(£1,836,523)</u></b>
Most candidates' answers to part (1a) were very good, but the most common error noted was that a minority of candidates used the wrong approach with regard to the call option.			
Total possible marks			8
Maximum full marks			8

<b>3.1(b)</b>			
Sterling payment at spot rate		$\frac{R145.6m}{78.81}$	<b><u>(£1,847,481)</u></b>
Comparative payment at earlier dates	31/12/14	$\frac{R145.6m}{79.45}$	<b><u>(£1,832,599)</u></b>
	31/12/15	$\frac{R145.6m}{76.51}$	<b><u>(£1,903,019)</u></b>
A stronger £ gives the lowest payment and vice versa for a weaker £			
The FC discount suggests a weakening of the rouble, and it has weakened from December 2015 to February 2016, so maybe a trend.			
In order (lowest to highest cost)			
Option			(£1,836,523)
MMH			(£1,838,371)
FC			(£1,840,501)
Spot			(£1,847,481)
The option gives best outcome (it's slightly lower than the MMH & the FC). However, if the rouble continued to weaken then the sterling cost would fall further. For example, a 1% increase in the spot value of sterling over the next three months would then make this the lowest sterling payment $(145.6mR/(78.81 \times 1.01) = £1,829,146$ .			
Option gives flexibility (abandon, upside) unlike MMH or FC (fixed, binding, no upside/downside)			
Directors' attitude to risk is important.			
Other relevant points e.g. political uncertainty in Russia			
(1b) was not as good as hoped. Too many candidates discussed recent spot movements <u>OR</u> forward contract v MMH v option rather than both.			
Total possible marks			9
Maximum full marks			9

<b>3.1(c)</b>	
$\text{Avge. spot rate} \times \frac{1 + \text{Average rouble interest rate (3 mos.)}}{1 + \text{Average sterling interest rate (3 mos.)}} = \text{Fwd contract rate (3 mos.)}$	
The rouble interest rates are higher than those of sterling. Using the <u>interest rate parity (IRP)</u> equation above, the value of sterling against the rouble will rise. The rouble's loss of value is called a discount.	
Average UK rate 3.25% pa or 0.8125% per 3 mos.	
Average Russian rate 6.1% pa or 1.525% per 3 mos.	
Average spot = 84.715	
Forward = $84.715 \times 1.01525/1.008125 = 85.31$ i.e. a discount of 0.6	
Average discount given = 0.59 so IRP is working	
The concept of IRP was, in most cases, answered well, but many candidates used twelve-month rather than three-month figures. A minority of candidates didn't mention IRP and so scored zero.	
Total possible marks	5
Maximum full marks	5

3.2						
			TC		SSM	Difference
Fixed			5.2%		6.4%	1.2%
Variable			LIBOR + 1.2		LIBOR + 1.6	<u>0.4%</u>
Difference between differences						<u>0.8%</u>
This potential gain can be split evenly, i.e. 0.4% to each party. This means that TC would pay LIBOR + 0.8% (LIBOR + [1.2% - 0.4%]) and SSM would pay fixed 6.0% (6.4% - 0.4%).						
The interest rate swap would look like this:						
			TC		SSM	
Currently pays			(5.2%)		(LIBOR + 1.6)	
TC pays SSM			(LIBOR)		LIBOR	
SSM pays TC (balancing figure)			<u>4.4%</u>		<u>(4.4)</u>	
New net payment			<u>(LIBOR + 0.8)</u>		<u>(6.0%)</u>	
TC and SSM would both pay at less (0.4% in each case) than their available fixed and variable rates.						
			TC		SSM	
New net interest rate			<i>(LIBOR + 0.8)</i> <u>4.3% pa</u>		<u>6.0% pa</u>	
			£'000		£'000	
Interest on £18.5m pa			<u>(795.5)</u>		<u>(1,110.0)</u>	
<u>Alternatively</u>						
	£'000	Rate	£'000	£'000	Rate	£'000
Interest paid now	18,500	(5.2%)	(962.0)	18,500	(5.1%)	(943.5)
SSM pays TC		4.4%	814.0		(4.4%)	(814.0)
TC pays SSM		(3.5%)	<u>(647.5)</u>		3.5%	<u>647.5</u>
New interest payment			<u>(795.5)</u>			<u>(1,110.0)</u>
The interest rate swap was done very well and most candidates scored maximum marks here. The weakest area was with the initial overall saving on interest cost (0.8%), which a small percentage of candidates didn't calculate correctly.						
Total possible marks						8
Maximum full marks						8