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# Answers

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**1 (a) Net present value evaluation of new confectionery investment**

Year	1	2	3	4	5
	\$000	\$000	\$000	\$000	\$000
Sales	3,605	8,488	11,474	16,884	
Variable cost	(2,019)	(5,093)	(6,884)	(10,299)	
Fixed costs	(1,030)	(1,910)	(3,060)	(4,277)	
Taxable cash flow	556	1,485	1,530	2,308	
Taxation		(167)	(446)	(459)	(692)
CA tax benefits		150	113	84	253
Working capital	(23)	(23)	(24)	820	
After-tax cash flows	533	1,445	1,173	2,753	(439)
Discount at 12%	0.893	0.797	0.712	0.636	0.567
Present values	476	1,152	835	1,751	(249)
	<b>\$000</b>				
Sum of present values	3,965				
Working capital	(750)				
Initial investment	(2,000)				
Net present value	1,215				

**Comment:**

The proposed investment in the new product is financially acceptable, as the NPV is positive.

**Examiner's note:**

Including capital allowance tax benefits by subtracting capital allowances, calculating tax liability and then adding back the capital allowances is also acceptable.

**Workings**

Year	1	2	3	4
Sales volume (boxes)	700,000	1,600,000	2,100,000	3,000,000
Inflated selling price (\$/box)	5.150	5.305	5.464	5.628
Sales (\$000/yr)	3,605	8,488	11,474	16,884

Year	1	2	3	4
Sales volume (boxes)	700,000	1,600,000	2,100,000	3,000,000
Variable cost (\$/box)	2.80	3.00	3.00	3.05
Inflated variable cost (\$/box)	2.884	3.183	3.278	3.433
Variable cost (\$000/yr)	2,019	5,093	6,884	10,299

Year	1	2	3	4
Sales volume (boxes)	700,000	1,600,000	2,100,000	3,000,000
Fixed costs (\$000)	1,000	1,800	2,800	3,800
Inflated fixed costs (\$000)	1,030	1,910	3,060	4,277

Year	1	2	3	4	Total
	\$	\$	\$	\$	\$
Capital allowance	500,000	375,000	281,250	843,750	2,000,000
Tax benefit (30%)	150,000	112,500	84,375	253,125	600,000

Year	0	1	2	3	4
	\$	\$	\$	\$	\$
Working capital	750,000	772,500	795,675	819,545	
Incremental		22,500	23,175	23,870	(819,545)

**(b) The proposal to use a four-year time horizon**

The finance director believes that cash flows are too uncertain after four years to be included in the net present value calculation, even though sales will continue beyond four years. While it is true that uncertainty increases with project life, cutting off the analysis after four years will underestimate the value of the investment to the extent that cash flows after the cut-off point are ignored. Furthermore, since the new confectionery line is expected to be popular, cash flows after year four could be substantial, increasing the extent of the undervaluation.

Artificially terminating the evaluation after four years has accelerated the recovery of working capital and has also led to a large balancing allowance. These increased cash flows, which arise in years four and five respectively, will overestimate the value of the investment.

### **The value of cash flows after the fourth year of operation**

The approach here should be to calculate the present value of the expected future cash flows beyond year four. If the before-tax cash flows are assumed to be constant and if the one-year delay in tax liabilities is ignored, the year four present value of future cash flows beyond year four can be estimated using a perpetuity approach. If inflation in year five is ignored, the year four present value of cash flows from year five onwards will be:

$$2,308,000 \times (1 - 0.3)/0.12 = \$13,463,000$$

$$\text{The year zero present value of these cash flows} = 13,463,000 \times 0.636 = \$8,562,468$$

If one year's inflation is included:

$$2,308,000 \times 1.03 \times (1 - 0.3)/0.12 = \$13,867,000$$

$$\text{The year zero present value of these cash flows} = 13,867,000 \times 0.636 = \$8,819,000$$

Although these calculations ignore the capital allowance tax benefits (which will decrease each year) and the incremental investment in working capital (which will increase slightly each year), the present value of cash flows after year four is still substantial.

- (c) Examiner note: only THREE ways of incorporating risk into investment appraisal were required to be discussed.**

### **Risk and uncertainty**

Risk in investment appraisal refers to the attachment of probabilities to the possible outcomes from an investment project and therefore represents a quantified assessment of the variability of expected returns. Uncertainty cannot be quantified by attaching probabilities and although the terms are often used interchangeably, the difference is important in investment appraisal.

### **Sensitivity analysis**

This assesses the sensitivity of project NPV to changes in project variables. It calculates the relative change in a project variable required to make the NPV zero, or the relative change in NPV for a fixed change in a project variable. Only one variable is considered at a time. When the sensitivities for each variable have been calculated, the key or critical variables can be identified. These show where assumptions may need to be checked and where managers could focus their attention in order to increase the likelihood that the project will deliver its calculated benefits. However, since sensitivity analysis does not incorporate probabilities, it cannot be described as a way of incorporating risk into investment appraisal, although it is often described as such.

### **Probability analysis**

This approach involves assigning probabilities to each outcome of an investment project, or assigning probabilities to different values of project variables. The range of net present values that can result from an investment project is then calculated, together with the joint probability of each outcome. The net present values and their joint probabilities can be used to calculate the mean or average NPV (the expected NPV or ENPV) which would arise if the investment project could be repeated a large number of times. Other useful information that could be provided by the probability analysis includes the worst outcome and its probability, the probability of a negative NPV, the best outcome and its probability, and the most likely outcome. Managers could then make a decision on the investment that took account more explicitly of its risk profile.

### **Risk-adjusted discount rate**

It appears to be intuitively correct to add a risk premium to the 'normal' discount rate to assess a project with greater than normal risk. The theoretical approach here would be to use the capital asset pricing model (CAPM) to determine a project-specific discount rate that reflected the systematic risk of an investment project. This can be achieved by selecting proxy companies whose business activities are the same as the proposed investment project: removing the effect of their financial risk by ungearing their equity betas to give an average asset beta; regearing the asset beta to give an equity beta reflecting the financial risk of the investing company; and using the CAPM to calculate a project-specific cost of equity for the investment project.

### **Adjusted payback**

Payback can be adjusted for risk, if uncertainty is considered to be the same as risk, by shortening the payback period. The logic here is that as uncertainty (risk) increases with the life of the investment project, shortening the payback period for a project that is relatively risky will require it to pay back sooner, putting the focus on cash flows that are more certain (less risky) because they are nearer in time.

Payback can also be adjusted for risk by discounting future cash flows with a risk-adjusted discount rate, i.e. by using the discounted payback method. The normal payback period target can be applied to the discounted cash flows, which will have decreased in value due to discounting, so that the overall effect is similar to reducing the payback period with undiscounted cash flows.

**2 (a) Cost of equity**

Geometric average dividend growth rate =  $(21.8/19.38)^{0.25} - 1 = 0.0298$  or 3%

Using the dividend growth model,  $k_e = 0.03 + ((21.8 \times 1.03)/250) = 0.03 + 0.09 = 12\%$

**Market values of equity and debt**

Market value of equity =  $V_e = 100m \times 2.50 = \$250$  million

Market value of bonds =  $V_d = 60m \times (104/100) = \$62.4$  million

Total market value of AQR Co =  $V_e + V_d = 250 + 62.4 = \$312.4$  million

**Current WACC calculation**

The current after-tax cost of debt is 7%

$WACC = ((k_e \times V_e) + (k_d(1 - T) \times V_d)/(V_e + V_d)) = ((12 \times 250m) + (7 \times 62.4m))/312.4m = 11\%$

The weighted average after-tax cost of capital before the new issue of bonds is 11%

**After-tax cost of debt of new bond issue**

After-tax interest rate =  $8 \times (1 - 0.3) = 5.6\%$  per year

Using linear interpolation:

Year	Cash flow	\$	5% Discount	PV (\$)	6% Discount	PV (\$)
0	Market value	(100)	1.000	(100.00)	1.000	(100.00)
1-10	Interest	5.6	7.722	43.24	7.360	41.22
10	Redemption	105	0.614	64.47	0.558	58.59
				<u>7.71</u>		<u>(0.19)</u>

After-tax cost of debt =  $5 + [(6 - 5) \times 7.71]/(7.71 + 0.19) = 5 + 0.98 = 5.98\%$  or 6%

**Examiner's note: other methods of calculating the after-tax cost of redeemable debt are acceptable.**

**Revised WACC calculation**

The market value of the new issue of bonds is \$40 million

The total market value of AQR Co increases to  $312.4 + 40 = \$352.4$  million

$WACC = ((12 \times 250m) + (7 \times 62.4m) + (6 \times 40))/352.4m = 10.4\%$

After the new issue of bonds, the weighted average after-tax cost of capital has decreased from 11% to 10.4% because the proportion of debt finance, which has a lower required rate of return than equity finance, has increased. Gearing on a market value basis has increased from 20% ( $62.4/312.4$ ) to 29% ( $102.4/352.4$ ).

The WACC calculation assumes that the cost of equity has not changed, when in reality the cost of equity might be expected to rise in response to the increase in financial risk caused by the new issue of debt. The share price of the company has also been assumed to be constant.

**(b) The factors that influence the market value of traded bonds are represented in the bond valuation model.**

**Amount of interest payment**

The market value of a traded bond will increase as the interest paid on the bond increases, since the reward offered for owning the bond becomes more attractive.

**Frequency of interest payments**

If interest payments are more frequent, say every six months rather than every year, then the present value of the interest payments increases and hence so does the market value.

**Redemption value**

If a higher value than par is offered on redemption, as is the case with the proposed bond issue of AQR Co, the reward offered for owning the bond increases and hence so does the market value.

**Period to redemption**

The market value of traded bonds is affected by the period to redemption, either because the capital payment becomes more distant in time or because the number of interest payments increases.

**Cost of debt**

The present value of future interest payments and the future redemption value are heavily influenced by the cost of debt, i.e. the rate of return required by bond investors. This rate of return is influenced by the perceived risk of a company, for example as evidenced by its credit rating. As the cost of debt increases, the market value of traded bonds decreases, and *vice versa*.

**Convertibility**

If traded bonds are convertible into ordinary shares, the market price will be influenced by the likelihood of the future conversion and the expected conversion value, which is dependent on the current share price, the future share price growth rate and the conversion ratio.

**(c) There is certainly a relationship between the weighted average cost of capital (WACC) and the market value of the company, since the market value can be expressed as the present value of future corporate cash flows, discounted by the WACC.**

### Marginal and average cost of debt

As for decreasing the WACC by issuing traded bonds, if the marginal cost of capital, in this case the cost of debt of the new bond issue, is less than the weighted average cost of capital (WACC), it would seem logical to expect the WACC to decrease. However, as noted in an earlier discussion, increasing gearing will increase financial risk and may lead to an increase in the cost of equity, offsetting the effect of the cheaper debt. The relationship between capital structure and WACC has been debated for many years.

### Traditional view of capital structure

In the traditional view of capital structure, there is a non-linear relationship between the cost of equity and financial risk, as measured by gearing. Equity investors are indifferent to the addition of small amounts of debt, so as a company gears up by replacing expensive equity with cheaper debt, the WACC initially decreases. Debt is cheaper than equity because of the relative positions of the two sources of finance in the creditor hierarchy (the traditional view of capital structure ignores taxation). As equity investors start to respond to increasing financial risk, however, the cost of equity begins to increase until a point is reached where WACC ceases to fall. This corresponds to an optimal capital structure, since at this point WACC is at a minimum and hence the market value of the company is at a maximum. After this point, the WACC starts to increase as the company continues to gear up, rising more quickly at very high levels of gearing due to the appearance of bankruptcy risk. Under the traditional view the finance director might be correct in his belief that issuing debt will decrease WACC, depending on the position of the company relative to its optimal capital structure.

### Miller and Modigliani

Miller and Modigliani showed that in a perfect capital market without corporate taxation, the replacement of expensive equity with cheaper debt did not lead to a decrease in the WACC, since the effect of adding in cheaper debt was exactly offset by the increase in the cost of equity, which had a linear relationship with financial risk, as represented by gearing. This meant that the market value of the company was independent of its capital structure (financial risk) and depended only on its business operations (business risk).

In their second paper on capital structure Miller and Modigliani showed that, if taxation were allowed (so that the after-tax cost of debt was considered, rather than the before-tax cost of debt), replacing equity with debt led to a linear decrease in the WACC, because of the tax shield on profits gained by interest payments being an allowable deduction in calculating tax liability. Under this contribution to capital structure theory, gearing up as much as possible would maximise the market value of the company and the finance director would be correct in his belief that issuing traded bonds would decrease the WACC of AQR Co.

### Market imperfections view

In reality, it was noted that companies do not gear up as much as possible because of the dangers of high gearing. Further market imperfections, relative to the idea of a perfect capital market in Miller and Modigliani's first paper on capital structure, included bankruptcy risk and the costs of financial distress at high levels of gearing. These reduced and finally reversed the tax shield effect noted by Miller and Modigliani, resulting in an optimal capital structure at the point where the WACC was at its lowest and the value of the company was at its highest.

### Pecking order theory

In practice it has been noticed that companies do not appear to base their financing decisions on the objective of achieving an optimal capital structure, but rather have a preference for sources of finance in the order of retained earnings, bank loans, ordinary debt, convertible debt and equity. A number of reasons have been suggested for this 'pecking order'.

## 3 (a) Financial Analysis

	2009	2010	2011
Growth in PBIT		-9%	-5%
Finance charges growth		10%	4%
Profit for the period growth		-13%	-7%
Interest coverage ratio (times)	6.1	5.0	4.6
Payout ratio	55%	64%	
Earnings per share (cents)	90.5	78.4	73.1
Price/earnings ratio (times)	5.6	5.9	5.7
Dividend per share (cents)	50	50	
Dividend yield (on opening price)	8.4%	9.8%	
Share price growth	-14.1%	-10.0%	-9.2%
Total shareholder return	-5.7%	-0.2%	
Gearing (before debt issue) (%)			47%
Gearing (after debt issue) (%)			93%

### Financial performance

It is clear that the recent financial performance of YNM Co has been poor. Net profit (operating profit) and earnings (profit after tax) have fallen each year, while finance charges (interest) have increased each year. The share price has also fallen each year.

However, there are several positive signs. YNM Co has not made losses in any of the last three years, even though profits have declined. The rates at which profit before interest and tax and profit for the period have decreased have fallen each year. While profit before interest and tax fell by 9% in 2010, it only fell by 5% in 2011. Similarly, while profit for the period fell by 13% in 2010, it fell by only 7% in 2011. The rate of growth of finance charges (interest) has also fallen, from 10% in 2010 to 4% in 2011. It may be that YNM Co has almost started on the path to recovery, which may be why the company is seeking further funding to support existing business operations.

#### **Financial position**

Financial risk has increased each year as interest cover has fallen, from 6.1 times in 2009 to a more worrying 4.6 times in 2011. This ratio has continued to move further away from the average value for similar companies of 10 times every year. The current gearing of 47% is higher than the average for similar companies, which is 40%. There are indications, therefore, that an increased commitment to fixed interest payments from issuing further debt may be dangerous for YNM Co.

#### **Shareholder wealth**

It would be easy to claim, by pointing to the continuing fall in the share price, that YNM Co has been decreasing, rather than increasing, shareholder wealth. The same conclusion might be reached by pointing to the negative total shareholder return in 2009 and 2010. In the difficult economic circumstances with which it has been doing battle, however, it could well be that YNM Co is doing better than its peers in arresting the decline in its financial performance. For example, it maintained the level of its dividend payment in 2009 and 2010, even though this caused the payout ratio to increase from 55% in 2009 to 64% in 2010.

#### **The two dividend choices**

If YNM Co pays the same dividend of \$9.5m in 2011, the payout ratio would be 68%, which is similar to the payout ratio in 2010. The dividend yield would be 11.0% ( $50/459$ ), which is quite high, and the total shareholder return would be 1.7% ( $((50 + 417 - 459)/459)$ ), the first positive figure for three years. However, paying a dividend of \$9.5m at a time when the company is considering raising \$50m of new finance may not be palatable to debt investors.

If YNM Co pays no dividend at all for 2011, shareholders will certainly be disappointed. The current share price is \$4.17 per share and given the cost of equity of 12%, the market is expecting an unchanged dividend, since  $50c/0.12 = \$4.17$ . Paying no dividend would therefore be very likely to lead to a further fall in the share price and increasing difficulty in raising further finance. The fall could be reduced or prevented, however, if YNM Co were to explain the reason for passing the dividend, for example by indicating how the cash savings were planned to be used by the company.

#### **Raising new debt finance**

The current financial position of YNM Co, particularly the low level of interest cover, makes it unlikely that a new issue of debt would be successful. If \$50m of debt were raised at the current interest rate of 8%, interest cover would fall to 2.7 times ( $25.3/(5.5 + 4)$ ) and gearing would increase to 93%. It is possible that a higher interest rate than 8% might be charged due to the high level of financial risk being displayed by YNM Co and this would decrease the interest coverage ratio further.

YNM Co would also need to consider whether to raise \$50m of short-term, medium-term or long-term debt finance, or a mix of debt of different maturities. As the debt is required to support existing business operations, a combination of overdraft finance and long-term debt (bank loan or bonds) could be considered. This would give YNM Co exposure to short-term variable interest rates and long-term fixed interest rates, which might be useful in managing interest rate risk.

Given the current financial position of YNM CO, however, other sources of finance than debt should also be considered, such as equity finance or sale and leaseback.

#### **Examiner's note:**

**This analysis and discussion is more than would be expected from a candidate under examination conditions.**

- (b) (i) YNM Co could raise \$50m of equity finance either through a rights issue of shares to existing shareholders, or through a placing or public offer of shares to new shareholders. New equity finance would have a beneficial effect on the gearing of the company. However, existing and new shareholders would need to be persuaded that YNM Co was a sound investment, that the decline in the company's performance was expected to be halted, and that profitability would increase in the near future.

If \$50m of equity were raised other than via a rights issue, there would be serious control implications for the current shareholders of YNM Co. Assuming that shares were issued at the current share price of \$4.17 per share, 12m new shares would be issued, a 63% increase on the current number of shares. Existing shareholders would own 61% of the company, rather than 100%.

Questions would also be asked about future dividend payments, as maintaining the current dividend per share would need a total dividend payment larger than the current distributable profit. If 12m new shares were issued, for example, the total dividend would be \$15.5m if the dividend per share were 50 cents.

- (ii) If YNM Co were able to use sale and leaseback in order to raise \$50 million, existing non-current assets such as buildings could be sold for cash and then leased back for the company's continuing use. Since the use would be long-term in nature, a finance lease would be appropriate. No information is provided about the nature of the non-current assets of YNM Co, so the feasibility of this possibility cannot be assessed, but sale and leaseback has been used in reality to raise much larger sums of money than \$50m.

- (c) A scrip (or share) dividend is an offer of shares in a company as an alternative to a cash dividend. It is offered *pro rata* to existing shareholdings.

From a company point of view, it has the advantage that, if taken up by shareholders, it will conserve cash, i.e. it will reduce the cash outflow from a company compared to a cash dividend. This is useful when liquidity is a problem, or when cash is needed to meet capital investment or other financing needs. Another advantage is that a scrip dividend will lead to a decrease in gearing, whether on a book value or a market value basis, because of the increase in issued shares. This decrease in gearing will increase debt capacity.

A disadvantage of a scrip dividend is that in future years, because the number of shares in issue has increased, the total cash dividend will increase, assuming the dividend per share is maintained or increased.

- 4 (a) (i) Movements in exchange rates can be related to changes in interest rates and to changes in inflation rates. The relationship between exchange rates and interest rates is called interest rate parity, while the relationship between exchange rates and inflation rates is called purchasing power parity.

Interest rate parity holds that the relationship between the spot exchange rate and the forward exchange rate between two currencies can be linked to the relative nominal interest rates of the two countries. The forward rate can be found by multiplying the spot rate by the ratio of the interest rates of the two countries. The currency of the country with the higher nominal interest rate will be forecast to weaken against the currency of the country with the lower nominal interest rate. Both the spot rate and the forward rate are available in the current foreign exchange market, and the forward rate can be guaranteed by using a forward contract.

Purchasing power parity holds that the current spot exchange rate and the future spot exchange rate between two currencies can be linked to the relative inflation rates of the two countries. The future spot rate is the spot rate that occurs at the end of a given period of time. The currency of the country with the higher inflation rate will be forecast to weaken against the currency of the country with the lower inflation rate. Purchasing power parity is based on the law of one price, which suggests that, in equilibrium, identical goods should sell for the same price in different countries, allowing for the exchange rate. Purchasing power parity holds in the longer term rather than the shorter term and so is often used to provide long-term forecasts of exchange rate movements, for example for use in investment appraisal.

- (ii) The costs of the two exchange rate hedges need to be compared at the same point in time, e.g. in six months' time.

**Forward market hedge**

Interest payment = 5,000,000 pesos

Six-month forward rate for buying pesos = 12.805 pesos per \$

Dollar cost of peso interest using forward market =  $5,000,000/12.805 = \$390,472$

**Money market hedge**

ZPS Co has a 5 million peso liability in six months and so needs to create a 5 million peso asset at the same point in time. The six-month peso deposit rate is  $7.5\%/2 = 3.75\%$ . The quantity of pesos to be deposited now is therefore  $5,000,000/1.0375 = 4,819,277$  pesos.

The quantity of dollars needed to purchase these pesos is  $4,819,277/12.500 = \$385,542$  and ZPS Co would borrow this quantity of dollars now. The six-month dollar borrowing rate =  $4.5\%/2 = 2.25\%$  and so in six months' time the debt will be  $385,542 \times 1.0225 = \$394,217$ . This is the dollar cost of the peso interest using a money market hedge.

Comparing the \$390,472 cost of the forward market hedge with the \$394,217 cost using a money market hedge, it is clear that the forward market should be used to hedge the peso interest payment as it is cheaper by \$3,745.

- (b) (i) Working capital policies can cover the level of investment in current assets, the way in which current assets are financed, and the procedures to follow in managing elements of working capital such as inventory, trade receivables, cash and trade payables. The twin objectives of working capital management are liquidity and profitability, and working capital policies support the achievement of these objectives. There are several factors that influence the formulation of working capital policies, as follows.

**Nature of the business**

The nature of the business influences the formulation of working capital policy because it influences the size of the elements of working capital. A manufacturing company, for example, may have high levels of inventory and trade receivables, a service company may have low levels of inventory and high levels of trade receivables, and a supermarket chain may have high levels of inventory and low levels of trade receivables.

**The operating cycle**

The length of the operating cycle, together with the desired level of investment in current assets, will determine the amount of working capital finance needed. Working capital policies will therefore be formulated so as to optimise as much as possible the length of the operating cycle and its components, which are the inventory conversion period, the receivables conversion period and payables deferral period.

**Terms of trade**

Since a company must compete with other companies to be successful, a key factor in the formulation of working capital policy will be the terms of trade offered by competitors. The terms of trade must be comparable with those of competitors

and the level of receivables will be determined by the credit period offered and the average credit period taken by customers.

**Risk appetite of company**

A risk-averse company will tend to operate with higher levels of inventory and receivables than a company which is more risk-seeking.

Similarly, a risk-averse company will seek to use long-term finance for permanent current assets and some of its fluctuating current assets (conservative policy), while a more risk-seeking company will seek to use short-term finance for fluctuating current assets as well as for a portion of the permanent current assets of the company (an aggressive policy).

**(ii) Early settlement discount**

Annual cost of components =  $120,000 \times 7.50 = \$900,000$  per year

Value of discount offered =  $900,000 \times 0.005 = \$4,500$

Current level of payables =  $900,000 \times 90/365 = \$221,918$

Revised level of payables =  $900,000 \times 30/365 = \$73,973$

(Alternatively,  $221,918 \times 1/3 = \$73,973$ )

Reduction in payables =  $221,918 - 73,973 = \$147,945$

(Alternatively,  $221,918 \times 2/3 = \$147,945$ , or  $900,000 \times 60/365 = \$147,945$ )

Annual cost of borrowing = 4.5% per year

Increase in financing cost by taking discount =  $147,945 \times 0.045 = \$6,657$

Since the increase in financing cost is \$2,157 greater than the discount offered, ZPS Co will not benefit financially by taking the early settlement discount.

**Bulk purchase discount**

Current number of orders =  $120,000/10,000 = 12$  orders

Current ordering cost =  $12 \times 200 = \$2,400$  per year

Current holding cost =  $(10,000/2) \times 1 = \$5,000$  per year

Annual cost of components = \$900,000 per year

Inventory cost under current policy =  $900,000 + 2,400 + 5,000 = \$907,400$  per year

To gain the bulk purchase discount, the order size must increase to 30,000 components

The number of orders will decrease to  $120,000/30,000 = 4$  orders per year

The revised ordering cost will be  $4 \times 200 = \$800$  per year

The revised holding cost will be  $(30,000/2) \times 2.2 = \$33,000$  per year

The annual cost of components will be  $120,000 \times 7.50 \times 0.964 = \$867,600$  per year

Inventory cost using discount =  $867,600 + 800 + 33,000 = \$901,400$  per year

ZPS Co will benefit financially if it takes the bulk discount offered by the supplier, as it saves \$6,000 per year in inventory costs or 0.66% of current inventory costs.

	<i>Marks</i>	<i>Marks</i>
<b>1 (a)</b> Inflated selling price per box	1	
Sales	1	
Inflated variable cost per box	1	
Variable cost	1	
Inflated fixed costs	1	
Tax payable	1	
Capital allowance tax benefits	1	
Balancing allowance	1	
Timing of tax payments or benefits	1	
Initial working capital investment	1	
Incremental working capital investment	1	
Working capital recovery	1	
Discount factors	1	
Net present value	1	
Comment on acceptability	1	
	<hr style="width: 100%;"/>	
	Maximum	13
<b>(b)</b> Comment on time horizon	1–2	
Calculation of PV of cash flows after year four	1–2	
Discussion of PV of cash flows after year four	1–2	
	<hr style="width: 100%;"/>	
	Maximum	5
<b>(c)</b> Discussion of three methods, 2–3 marks per method	Maximum	<u>7</u>
		<b><u>25</u></b>
<b>2 (a)</b> Calculation of historic dividend growth rate	1	
Calculation of cost of equity using DGM	2	
Calculation of market weights	1	
Calculation of pre-issue WACC	2	
Correct use of tax as regards new debt	1	
Setting up linear interpolation calculation	1	
Calculating after-tax cost of debt of new debt	1	
Calculation of post-issue WACC	2	
Comment	1	
	<hr style="width: 100%;"/>	
		12
<b>(b)</b> Amount of interest payment	1–2	
Frequency of interest payments	1–2	
Redemption value	1–2	
Period to redemption	1–2	
Cost of debt	1–2	
Convertibility	1–2	
	<hr style="width: 100%;"/>	
	Maximum	5
<b>(c)</b> Marginal and average cost of debt	1–2	
Traditional view of capital structure	1–2	
Miller and Modigliani 1 and 2	1–3	
Market imperfections view	1–2	
Pecking order theory	1–2	
Other relevant discussion	1–2	
	<hr style="width: 100%;"/>	
	Maximum	<u>8</u>
		<b><u>25</u></b>

	<i>Marks</i>	<i>Marks</i>
<b>3 (a)</b> Financial performance – analysis and comment	2–3	
Financial position – analysis and comment	1–2	
Comment on shareholder wealth	2–3	
Comment on dividend choices	3–4	
Comment on proposal to raise new debt	<u>2–3</u>	
	Maximum	13
<b>(b)</b> Discussion of equity finance	3–4	
Discussion of sale and leaseback	<u>2–3</u>	
	Maximum	6
<b>(c)</b> Explanation of scrip dividend	1–2	
Advantages of scrip dividend to company	2–3	
Disadvantages of scrip dividend to company	<u>2–3</u>	
	Maximum	<u>6</u>
		<b><u>25</u></b>
<b>4 (a) (i)</b> Explanation of interest rate parity	2–3	
Explanation of purchasing power parity	<u>2–3</u>	
	Maximum	5
<b>(ii)</b> Dollar cost of forward market hedge	1	
Calculation of six-month interest rates	1	
Use of correct spot rate	1	
Dollar cost of money market hedge	2	
Comparison of cost of hedges	<u>1</u>	
		6
<b>(b) (i)</b> Nature of the business	1–2	
Operating cycle	1–2	
Terms of trade	1–2	
Risk appetite	1–2	
Other relevant factors	<u>1–2</u>	
	Maximum	7
<b>(ii)</b> Value of early settlement discount offered	1	
Increase in financing cost	1	
Loss if early settlement discount taken	1	
Inventory cost under current ordering policy	1	
Revised holding and ordering costs	1	
Inventory cost if discount is taken	1	
Benefit if bulk purchase discount taken	<u>1</u>	
		<u>7</u>
		<b><u>25</u></b>