
Answers

Part 2 Examination – Paper 2.4
Financial Management and Control

December 2006 Answers

- 1 (a) (i) Number of ordinary shares = $1,000,000/0.5 = 2$ million
 Current dividend per share = $100 \times (300,000/2,000,000) = 15$ p
 Share price predicted by dividend growth model = $(15 \times 1.05)/(0.12 - 0.05) = 225$ p
- (ii) Market efficiency is usually taken to refer to the way in which ordinary share prices reflect information. Fama defined an efficient market as one in which share prices fully and fairly reflect all available information.
- A semi-strong form efficient market is one where share prices reflect all publicly available information, such as past share price movements, published company annual reports and analysts' reports in the financial press.
- A strong form efficient market is one where share prices reflect all information, whether publicly available or not. Share prices would reflect, for example, takeover decisions made at private board meetings.
- (iii) The share price predicted by the dividend growth model is 45p greater than the current share price of the company. However, the dividend growth model has used the proposed dividend of the company (15p), which may not yet have been made public. If the stock market is semi-strong form efficient and therefore unaware of the proposed dividend, the company's ordinary share price could be different to that predicted by the dividend growth model because the market expects a dividend which is different from the proposed dividend used in the model. Working backwards using the dividend growth model suggests that the market expects a dividend of 12p per share ($180 \times (0.12 - 0.05)/1.05$).
- In a strong form efficient market, the information about the proposed dividend will be known. The difference between the share price predicted by the dividend growth model and the current share price of the company may therefore be explained by different views of the expected dividend growth rate or the return required by ordinary shareholders. The market might expect a lower growth rate than the 5% expected by the directors, for example, or the return required by ordinary shareholders might have increased due to economic expectations or changing perceptions of risk. An increase in the required return to 13.75% would give a share price of £1.80 ($15 \times 1.05/(0.1375 - 0.05)$). Another explanation is that the market may not be fully efficient.

(b) (i) Calculation of NPV

Year	1	2	3	4
	£000	£000	£000	£000
Sales revenue	2,800	4,050	5,100	3,825
Variable costs	2,184	2,727	3,040	2,370
Contribution	616	1,323	2,060	1,455
Fixed costs	515	530	546	563
Taxable cash flow	101	793	1,514	892
Taxation	30	238	454	268
	71	555	1,060	624
Capital allowance tax benefits	60	45	34	25
After-tax cash flow	131	600	1,094	649
11% discount factors	0.901	0.812	0.731	0.659
Present values	118	487	800	428
		£000		
Sum of present values of future benefits		1,833		
Less initial investment		1,000		
Net present value		833		

Because the investment continues in operation after the four-year period, working capital is not recovered in the above calculation. It is possible to make an assumption concerning incremental investment in working capital to accommodate inflation, but no specific inflation rate for working capital is provided. An assumption of 3–4% inflation in working capital would be reasonable given the expected inflation in variable and fixed costs.

The NPV calculation uses the company's four-year evaluation period, but the terminal value of the investment at the end of this period could sensibly be considered. The remaining capital allowance tax benefit of £76,000 ($800 \times 30\% - 60 - 45 - 34 - 25$) could be taken at the end of year 5 (other assumptions are possible) giving a present value of $76 \times 0.593 = £45,100$. The after-tax cash flow (before capital allowance tax benefits) of £624,000 in year 4 could be assumed to continue for another four years (other assumptions are possible) giving a present value of $624 \times 3.102 \times 0.659 = £1,276,000$. These considerations would increase the net present value of the investment by 158% to £2,154,100.

Workings

Sales Revenue

Year	1	2	3	4
Sales volume (units)	70,000	90,000	100,000	75,000
Selling price (£/unit)	40	45	51	51
Sales revenue (£000/yr)	2,800	4,050	5,100	3,825

Variable costs

Year	1	2	3	4
Variable costs (£/unit)	30	28	27	27
Inflated cost (£/unit)	31.2	30.3	30.4	31.6
Sales volume (units)	70,000	90,000	100,000	75,000
Variable costs (£000/yr)	2,184	2,727	3,040	2,370

Fixed costs

Fixed costs (£/year)	500,000	500,000	500,000	500,000
Inflated cost (£/yr)	515,000	530,000	546,000	563,000

Capital allowance tax benefits

Year	Capital allowance	Tax benefit
1	£800,000 x 0.25 = £200,000	£200,000 x 0.3 = £60,000
2	£600,000 x 0.25 = £150,000	£150,000 x 0.3 = 45,000
3	£450,000 x 0.25 = £112,500	£112,500 x 0.3 = £33,750
4	£337,500 x 0.25 = £84,375	£84,375 x 0.3 = £25,312

(ii) Calculation of payback

Year	Cash flow £000	Cumulative cash flow £000
0	(1,000)	(1,000)
1	131	(869)
2	600	(269)
3	1,094	825
4	649	1,474

Payback period = 2 + (269/1,094) = 2 years 3 months

Calculation of discounted payback

Year	Discounted cash flow £000	Cumulative cash flow £000
0	(1,000)	(1,000)
1	118	(882)
2	487	(395)
3	800	405
4	428	833

Discounted payback period = 2 + (395/800) = 2 years 6 months

- (iii) The proposed investment has a positive net present value of £833,000 over four years of operation compared with an initial investment of £1 million and so is financially acceptable. The company has payback and discounted payback targets, but these are not a guide to project acceptability because of the shortcomings of payback as an investment appraisal method. The proposed investment fails to meet the payback target of two years, but meets the discounted payback target of three years. While discounted payback counters the criticism that payback ignores the time value of money, it still ignores cash flows outside of the discounted payback period and so cannot be recommended to evaluate other than conventional investments.

The net present value calculation could be improved in several ways. One obvious improvement would be the consideration of project cash flows beyond the four-year evaluation period used by Hendil plc. The company expects the new product range to sell for several years after the end of the evaluation period and if these sales are at a profit, the net present value would be higher than calculated. Another improvement would be more detailed information about the new product range, for which only average selling price and average variable cost data are provided. The basis for these averages is not stated and it is not known whether the products in the new range are substitutes or alternatives, or whether a constant product mix is being assumed. The basis for the changing annual sales volumes should also be explained.

The assumption of constant annual inflation for variable and fixed costs is questionable. The information provided implies that inflation may have been taken into account in forecasting selling prices, but the selling price growth rates are sequentially 12.5%, 13.3% and zero, and so some factor other than inflation has also been used in the selling price forecast. The net present value evaluation could be improved if the basis for the forecast was known and could be verified as reasonable.

(c) Interest cover

Average interest cover of similar companies = 6 times

Current interest cover = $624/156 = 4$ times

Annual interest on new debentures = $£1m \times 0.08 = £80,000$

Assuming no change to existing interest, increased annual interest = $80 + 156 = £236,000$

Interest cover after new debenture issue = $624/236 = 2.6$ times

This would not change significantly if profit before interest and tax were increased by the profit (after accounting depreciation) from the first year's sales of the proposed investment.

The current interest cover of Hendil plc (four times) is less than the average interest cover of similar companies (six times), suggesting that the financial risk of the company is higher than that of similar companies even before the new debt is issued. After the new issue, interest cover would fall to 2.6 times, a level that would be regarded with concern by both lenders and investors. Although the interest on the new debt might be overstated in our interest cover calculation (debt in the balance sheet accounts for only part of the interest in the profit and loss account, implying that the overdraft may have decreased substantially in the last year), it is likely that a new debt issue might be unwise.

Gearing (long-term debt/equity)

Average gearing (book value basis) of similar companies = 50%

Current gearing (book value basis) = 29%

Revised gearing (book value basis) = 54%

Average gearing (market value basis) of similar companies = 25%

Current gearing (market value basis) = 38%

Revised gearing (market value basis) = 65%

Two conclusions can be drawn from these gearing values. Firstly, the current gearing of Hendil plc is below the average gearing of similar companies on a book value basis, but higher than the average gearing of similar companies on a market value basis. Secondly, the revised gearing of Hendil plc after the new issue is slightly above the average gearing of similar companies on a book value basis, and more than double the average gearing of similar companies on a market value basis. Gearing based on market values is preferred in financial management.

Workings

Current gearing (book value basis) = $100 \times (1,200/4,100) = 29\%$

Revised book value of long-term debt = $1.2m + 1m = £2.2$ million

Revised gearing (book value basis) = $100 \times (2,200/4,100) = 54\%$

Market value of debt = $£1.2m \times 113/100 = £1,356,000$

Number of ordinary shares = $1,000,000/0.5 = 2$ million

Market value of ordinary shares = $2m \times 1.80 = £3.6$ million

Current gearing (market value basis) = $100 \times (1,356/3,600) = 38\%$

Market value of new debt issue = $£1$ million

Total market value of debt = $1,356 + 1,000 = £2,356,000$

Market value of ordinary shares = $2m \times 1.80 = £3.6$ million

Revised gearing (market value basis) = $100 \times (2,356/3,600) = 65\%$

The calculation of the revised gearing (market value basis) assumes that the ordinary share price and the market value of existing debt are unchanged. An alternative calculation could use a revised share price, for example $£2.22$ per share (see below), giving a lower gearing on a market value basis of $100 \times (2,356 / (2m \times 2.22)) = 53\%$.

Ordinary share price

Current ordinary share price = $£1.80$ per share

Current market value of company = $1.80 \times 2m = £3.6$ million

Net present value of investment = $£832,000$

If the market is efficient, the value of the company will increase by the NPV of the investment, although this assumes that the current average cost of capital of Hendil plc, which was used as the discount rate in the NPV analysis, would remain unchanged by the new debenture issue. This may not be true.

Revised market value = $3,600 + 832 = £4,432$ million

Revised ordinary share price = $4,432,000/2,000,000 = £2.22$ per share

Maturity

The proposed debenture has a maturity of 15 years but the life of the proposed investment is not clear. We know that it is more than four years, but we do not know how much more. We also do not know whether the new machinery can be used to produce other products, whether at the same time as the new product range or when the new product range is in the decline phase of its product life-cycle. The matching principle holds that maturity of finance should match the expected life of the assets financed.

Security

It has been suggested that the new debenture could be secured on existing assets of Hendil plc. This would be on fixed assets rather than current assets. Since the existing $£1.2$ million debenture is secured on fixed assets of the company, the most that might be available is $£1.05$ million of fixed assets. However, since debentures are secured on particular assets rather than on a given value of assets, there may be insufficient existing fixed assets to offer as security for the new debentures issue. The new machinery may be suitable to offer as security in order to make up the deficit.

2 (a) Calculation of Equivalent Annual Cost

Year	1	2	3
Servicing costs	10,000	14,000	19,600
Cleaning costs	5,000	6,250	7,813
Total costs	15,000	20,250	27,413
Discount factors	0.909	0.826	0.751
Present values of costs	13,635	16,727	20,587
Replacement cycle (years)	1	2	3
Cost of new vehicles	150,000	150,000	150,000
PV of Year 1 costs	13,635	13,635	13,635
PV of Year 2 costs		16,727	16,727
PV of Year 3 costs			20,587
Sum of PV of costs	163,635	180,362	200,949
Less PV of trade-in value	102,263	74,340	46,562
Net PV of cost of cycle	61,372	106,022	154,387
Annuity factor	0.909	1.736	2.487
Equivalent annual cost	67,516	61,073	62,078

Replacement after two years is recommended, since this replacement cycle has the lowest equivalent annual cost.

Examiner's Note

The above evaluation could have been carried out on a per car basis rather than on a fleet basis with the same conclusion being made.

Workings

Servicing costs

Year 1: $1,000 \times 10 = \text{£}10,000$
 Year 2: $10,000 \times 1.4 = \text{£}14,000$
 Year 3: $14,000 \times 1.4 = \text{£}19,600$

Cleaning costs

Year 1: $500 \times 10 = \text{£}5,000$
 Year 2: $5,000 \times 1.25 = \text{£}6,250$
 Year 3: $6,250 \times 1.25 = \text{£}7,813$

PV of trade-in values

Year 1: $11,250 \times 10 \times 0.909 = \text{£}102,263$
 Year 2: $9,000 \times 10 \times 0.826 = \text{£}74,340$
 Year 3: $6,200 \times 10 \times 0.751 = \text{£}46,562$

- (b) In order to invest in all projects with a positive net present value a company must be able to raise funds as and when it needs them: this is only possible in a perfect capital market. In practice capital markets are not perfect and the capital available for investment is likely to be limited or rationed. The causes of capital rationing may be external (hard capital rationing) or internal (soft capital rationing). Soft capital rationing is more common than hard capital rationing.

When a company cannot raise external finance even though it wishes to do so, this may be because providers of debt finance see the company as being too risky. In terms of financial risk, the company's gearing may be seen as too high, or its interest cover may be seen as too low. From a business risk point of view, lenders may be uncertain whether a company's future profits will be sufficient to meet increased future interest payments because its trading prospects are poor, or because they are seen as too variable.

When managers impose restrictions on the funds they are prepared to make available for capital investment, soft capital rationing is said to occur. One reason for soft capital rationing is that managers may not want to raise new external finance. For example, they may not wish to raise new debt finance because they believe it would be unwise to commit the company to meeting future interest payments given the current economic outlook. They may not wish to issue new equity because the finance needed is insufficient to justify the transaction costs of a new issue, or because they wish to avoid dilution of control. Another reason for soft capital rationing is that managers may prefer slower organic growth, where they can remain in control of the growth process, to the sudden growth arising from taking on one or more large investment projects.

A key reason for soft capital rationing is the desire by managers to make capital investments compete for funds, i.e. to create an internal market for investment funds. This competition for funds is likely to weed out weaker or marginal projects, thereby channelling funds to more robust investment projects with better chances of success and larger margins of safety, and reducing the risk and uncertainty associated with capital investment.

- (c) The net present value decision rule is to invest in all projects that have a positive net present value. By following this decision rule, managers will maximise the value of a company and therefore maximise the wealth of ordinary shareholders, which is

a primary objective of financial management. Even when capital is rationed, it is still essential to be able to offer advice on which capital investment projects should be selected in order to secure the maximum return for the investing company, i.e. the maximum overall net present value.

Single-period and multi-period capital rationing

Capital may be rationed in more than one period, i.e. not only in the current period at the start of an investment project (single-period rationing), but in future periods as well (multi-period capital rationing). Selecting the best projects for investment in order to maximise overall net present value when faced with multi-period capital rationing calls for the use of linear programming. Here, the available capital investments are expressed as an objective function, subject to a series of constraints. Only simple linear programming problems can be solved by hand, for example using the simplex method. More complex linear programming problems require the use of computers.

Project divisibility

The approach to solving single-period capital rationing problems depends on whether projects are divisible or not. A divisible project is one where a partial investment can be made in order to gain a pro rata net present value. For example, investing in a forest is a divisible project, since the amount of land purchased can be varied according to the funds available for investment (providing the seller agrees to a partial sale, of course). A non-divisible project is one where it is not possible to invest less than the full amount of capital. When building an oil refinery, for example, it is not possible to build only one part of the overall facility.

Where projects are divisible, the objective of maximising the net present value arising from invested funds can be achieved by ranking projects according to their profitability index and investing sequentially in order of decreasing profitability index, beginning with the highest, assuming that each project can be invested in only once, i.e. is non-repeatable. The profitability index can be defined as net present value divided by initial investment. Ranking projects by profitability index is an example of limiting factor analysis. Because projects are divisible, there will be no investment funds left over: when investment funds are insufficient to for the next ranked project, part of the project can be taken on because it is divisible.

When projects are non-divisible, the objective of maximising the net present value arising from invested funds can be achieved by calculating the net present value arising from different combinations of projects. With this approach, there will usually be some surplus funds remaining from the funds initially available.

The investment of surplus funds

When investigating combinations of non-divisible projects in order to find the combination giving rise to the highest net present value, any return from investing surplus funds is ignored. The net present value analysis has been based on the company's average cost of capital and it is unlikely that surplus funds can be invested in order to earn a return as high as this. Investment of surplus funds in, for example, the money markets would therefore be an investment project that would be rejected as having a negative net present value, or an internal rate of return less than the company's average cost of capital if using IRR to assess investments projects. However, it is good working capital management to ensure that liquid funds are invested to earn the highest available return, subject to any risk constraints, in order to increase overall profitability.

3 (a) Calculation of ratios

Stock days	2006:	$(3,000/9,300) \times 365 = 118$ days
	2005:	$(1,300/6,600) \times 365 = 72$ days
	Sector average:	90 days
Debtor days	2006:	$(3,800/15,600) \times 365 = 89$ days
	2005:	$(1,850/11,100) \times 365 = 61$ days
	Sector average:	60 days
Creditor days	2006:	$(2,870/9,300 \times 0.95) \times 365 = 119$ days
	2005:	$(1,600/6,600 \times 0.95) \times 365 = 93$ days
	Sector average:	80 days

In each case, the ratio in 2006 is higher than the ratio in 2005, indicating that deterioration has occurred in the management of stock, debtors and creditors in 2006.

Stock days have increased by 46 days or 64%, moving from below the sector average to 28 days – one month – more than it. Given the rapid increase in turnover (40%) in 2006, Anjo plc may be expecting a continuing increase in the future and may have built up stocks in preparation for this, i.e. stock levels reflect future sales rather than past sales. Accounting statements from several previous years and sales forecasts for the next period would help to clarify this point.

Debtor days have increased by 28 days or 46% in 2006 and are now 29 days above the sector average. It is possible that more generous credit terms have been offered in order to stimulate sales. The increased turnover does not appear to be due to offering lower prices, since both gross profit margin (40%) and net profit margin (34%) are unchanged.

In 2005, only management of creditors was a cause for concern, with Anjo plc taking 13 more days on average to settle liabilities with trade creditors than the sector. This has increased to 39 days more than the sector in 2006. This could lead to difficulties between the company and its suppliers if it is exceeding the credit periods they have specified. Anjo plc has no long-term debt and the balance sheet indicates an increased reliance on short-term finance, since cash has reduced by £780,000 or 87% and the overdraft has increased by £850,000 to £1 million.

Perhaps the company should investigate whether it is undercapitalised (overtrading). It is unusual for a company of this size to have no long-term debt.

- (b) Cash operating cycle (2005) = $72 + 61 - 93 = 40$ days
 Cash operating cycle (2006) = $118 + 89 - 119 = 88$ days
 The cash operating cycle or working capital cycle gives the average time it takes for the company to receive payment from debtors after it has paid its trade creditors. This represents the period of time for which debtors require financing. The cash operating cycle of Anjo plc has lengthened by 48 days in 2006 compared with 2005. This represents an increase in working capital requirement of approximately $\text{£}15,600,000 \times 48/365 = \text{£}2.05$ million.

- (c) The objectives of working capital management are liquidity and profitability, but there is a tension between these two objectives. Liquid funds, for example cash, earn no return and so will not increase profitability. Near-liquid funds, with short investment periods, earn a lower return than funds invested for a long period. Profitability is therefore decreased to the extent that liquid funds are needed.

The main reason that companies fail, though, is because they run out of cash and so good cash management is an essential part of good working capital management. Business solvency cannot be maintained if working capital management in the form of cash management is of a poor standard.

In order to balance the twin objectives of liquidity and profitability in terms of cash management, a company needs to decide on the optimum amount of cash to hold at any given time. There are several factors that can aid in determining the optimum cash balance.

First, it is important to note that cash management is a forward-looking activity, in that the optimum cash balance must reflect the expected need for cash in the next budget period, for example in the next month. The cash budget will indicate expected cash receipts over the next period, expected payments that need to be made, and any shortfall that is expected to arise due to the difference between receipts and payments. This is the transactions need for cash, since it is based on the amount of cash needed to meet future business transactions.

However, there may be a degree of uncertainty as to the timing of expected receipts. Debtors, for example, may not all pay on time and some may take extended credit, whether authorised or not. In order to guard against a possible shortfall of cash to meet future transactions, companies may keep a 'buffer stock' of cash by holding a cash reserve greater than called for by the transactions demand. This is the precautionary demand for cash and the optimum cash balance will reflect management's assessment of this demand.

Beyond this, a company may decide to hold additional cash in order to take advantage of any business opportunities that may arise, for example the possibility of taking over a rival company that has fallen on hard times. This is the speculative demand for cash and it may contribute to the optimum cash level for a given company, depending on that company's strategic plan.

(d)	£000
Current debtors =	3,800
Debtors under factor = $3,800 \times 0.7 =$	<u>2,660</u>
Reduction in debtors =	<u>1,140</u>
	£000
Finance cost saving = $1,140 \times 0.08 =$	91.2
Administration cost saving = $1,000 \times 0.02 =$	20.0
Interest on advance = $2,660 \times 0.8 \times 0.01 =$	(21.3)
Factor's annual fee = $15,600 \times 0.005 =$	<u>(78.0)</u>
Net benefit of accepting factor's offer	<u>11.9</u>

Although the terms of the factor's offer are financially acceptable, suggesting a net financial benefit of £11,900, this benefit is small compared with annual turnover of £15.6 million. Other benefits, such as the application of the factor's expertise to the debtor management of Anjo plc, might also be influential in the decision on whether to accept the offer.

- 4 (a) There are four types of standard cost, as follows.

Basic standard

This is a standard that remains unchanged for long periods of time. Because it remains unchanged, it allows efficiency trends over time to be identified. Because basic standards do not reflect current conditions, they are of limited use if current conditions differ significantly from those existing when the standard was set. They are therefore seldom used.

Ideal standard

This is a standard that reflects perfect performance and is the minimum cost that is possible under ideal operating conditions. Because ideal standards are unattainable, they are unlikely to be used in practice, since inability to achieve them is likely to have a demotivating effect on managers and employees.

Attainable standard

This standard allows for normal levels of wastage and operation, and represents a cost level achievable under reasonably efficient working. Attainable standards may be difficult to achieve, but they do not represent impossible targets for employees. An attainable standard is considered to represent the best target against which to compare current activity and is the preferred standard to use in planning, budgeting and cost control.

Current standard

This standard is one established for use over a short period of time and relates to current conditions. Drury does not consider this standard to be different from an attainable standard¹.

Ex ante and ex post standards

Ex ante standards are based on anticipated conditions and performance and are prepared prior to the operating period to which they relate. If operating conditions have changed significantly compared to the assumptions underlying ex ante standards, calculated variance may be less relevant and useful than desired. To combat this weakness, standards may be revised (ex post standards) to take account of changed operating conditions. The differences between ex ante and ex post standards are taken into account by calculating planning variances, while operational variances are prepared using ex post standards, leading to ex post variance analysis².

Students were only required to discuss three standards.

(b) The preparation of standard costs

A standard cost has two elements, namely a physical measure of a resource and a price per unit of resource. A standard cost for material, for example, consists of a specification of the kilograms of material required per unit of product, and a specification of the price paid per kilogram. When setting standards, both elements need to be determined.

Standard costing is best suited to operations which are repetitive, where the quantity of resource needed to produce a given quantity of output can be specified. It is therefore suited to manufacturing processes and the provision of repetitive services, such as the processing of loan applications in a financial institution.

Standard costs can be developed through the application of quantitative analysis, such as the engineering approach, which uses technical specifications or time and motion study, and the accounts analysis approach, which analyses past accounting information. Quantitative analysis of past accounting information through techniques such as the high-low method and regression analysis can provide a cost function that can be used in the preparation of a standard cost³.

The use of standard costs

Standard costs have many uses. They can be used to predict and forecast future costs for use in decision-making and budgeting. They can be used as a basis for controlling costs arising in actual operations through detailed variance analysis, that is, the comparison of actual results with standard costs. They can be used as a basis for measuring and assessing the performance of managers and employees. They can provide targets for motivating managers and employees to improve performance and meet organisational objectives. They can be used as a basis for profit measurement and stock valuation.

The review of standard costs

Currently attainable standards only remain relevant if they continue to relate to current circumstances, that is, if they are regularly reviewed to take account of any changes in operating methods and any changes in the economic and business environment. If changes are small and not significant, the standard may be left unchanged. If changes are more significant, management may consider using ex post variance analysis (see part (a) above) and reporting planning and operational variances to highlight differences that have arisen and to keep reported variances useful from a responsibility accounting perspective.

(c) When deciding whether to investigate a variance, the following factors should be considered.**The size of the variance**

Investigating large variances is likely to lead to large cost savings. Since 'large variance' is an imprecise term, a company can require that all variances above a given size should be investigated. This size threshold could be specified in percentage terms relative to the underlying cost, i.e. all variances of 5% or more should be investigated.

Whether the variance is favourable or adverse

This should not influence whether a variance is investigated. While it is natural to focus on adverse variances in order to bring actual profitability back into line with planned profitability, investigation of favourable variances can provide useful information. Budgetary slack may be discovered, or the budget may not be demanding enough to be motivating, or improvements in operating practices may have arisen.

Whether the cost is greater than the benefit

The expected cost of investigating a variance should not normally exceed the benefit arising from its explanation or correction, since this goes against the drive to increase profitability.

¹ Drury, C (2004) *Management and Cost Accounting*, sixth edition, pp.732–733

² Drury, C (2004) *Management and Cost Accounting*, sixth edition, p.795

³ Drury, C (2004) *Management and Cost Accounting*, sixth edition, pp.1038–1046

What has happened in the past

The historic pattern of variances should be considered and variances identified which are unusual compared to variances recorded in previous periods. Statistical control charts may be used for this purpose. Here, variations about the arithmetic mean are recorded and compared to control limits, set for example at plus and minus two standard deviations from the mean. Variances outside of the control limits are investigated. Statistical analysis of performance in previous periods can be used to determine the expected mean value and the standard deviation.

5 (a)	Flexed Budget (80,000 units)		Actual for period (80,000 units)		Variances for period £000
	£000	£000	£000	£000	
Sales		1,200		1,240.0	40.0 (F)
Variable costs					
Raw materials	600		632.4		32.4 (A)
Labour	140		115.2		24.8 (F)
Production overheads	120		128.0		8.0 (A)
		<u>860</u>		<u>875.6</u>	
Contribution		340		364.4	
Fixed costs					
Labour	50		50		nil
Production overheads	100		110		10.0 (A)
		<u>150</u>		<u>160.0</u>	
Gross profit		<u>190</u>		<u>204.4</u>	<u>14.4 (F)</u>

Workings

Sales:

Selling price per unit = $1,350,000/90,000 = £15.00$ per unit

Sales revenue at 80,000 units = $80,000 \times 15.00 = £1,200,000$

Raw materials:

Variable cost per unit = $(675,000 - 450,000)/(90,000 - 60,000) = £7.50$ per unit

Alternatively, $675,000/90,000 = £7.50$ per unit

Raw material cost at 80,000 units = $80,000 \times 7.50 = £600,000$

Labour:

Variable cost per unit = $(207,500 - 155,000)/(90,000 - 60,000) = £1.75$ per unit

Fixed cost = $207,500 - (90,000 \times 1.75) = 207,500 - 157,500 = £50,000$

Variable labour cost at 80,000 units = $80,000 \times 1.75 = £140,000$

Production overhead:

Variable cost per unit = $(235,000 - 190,000)/(90,000 - 60,000) = £1.50$ per unit

Fixed cost = $235,000 - (90,000 \times 1.50) = £100,000$

Variable production overhead cost at 80,000 units = $80,000 \times 1.50 = £120,000$

- (b) Overhead absorption rate = $112,500/22,500 = £5$ per labour hour
 Overhead efficiency variance = $5 \times (16,000 - 22,000) = £30,000$ (F)

The fixed production overhead efficiency variance measures the difference between the standard fixed production overhead cost of the actual output and the fixed production overhead absorbed on the actual hours worked. It arises because of the efficiency or inefficiency of workers in producing the actual output, as measured by the difference between the standard labour hours and the actual labour hours for the actual output. Here, the efficiency of the workforce was higher than expected.

- (c) Organisations formulate plans in order to achieve their objectives. Corporate or strategic planning is concerned with determining the direction in which the organisation is expected to move and with setting objectives to support this. Achievement of longer-term objectives is supported in the shorter term by the budgetary planning process, which gives rise to the short-term financial plan known as a budget. Annual budgets, therefore, are the means by which organisations implement their long-term or strategic plan.

Budgetary planning requires the identification of the principal budget factor, which is the limiting factor as far as the organisation's activities are concerned. This limiting factor is usually sales volume in commercial organisations and so budget preparation would begin with formulating the sales budget. Where some other factor is limiting the organisation's activities, such as production capacity, achievement of strategic plans may call for financial investment in new machinery in order to remove this limiting factor.

Once the principal budget factor and its associated budget have been prepared, functional budgets and the master budget can be prepared. In a large organisation the preparation of these budgets will require planning and co-ordination between different aspects or areas of the business, since otherwise the budget might contain elements that are unrealistic or not achievable.

In supporting planning and co-ordination, the budgetary planning process also supports communication between different areas of the organisation. Each area will become aware of the long-term objectives of the organisation, the role that it is expected to play in achieving those objectives in the short-term through the annual budget, and the way in which different areas of the organisation need to work together during the budget period.

While annual budgets give structure and direction to organisational activity, regular monitoring of actual performance is needed in order to determine whether planned performance is being achieved. The detailed comparison of planned with actual performance can indicate where the organisation needs to take action in order to ensure that the annual budget is achieved. By achieving the annual budget, the organisation will be meeting its long-term objectives. Although it is possible that changes in the environment of the organisation may mean that some elements of the budget are no longer appropriate, the budgetary control process can accommodate these environmental changes by amending the budget in order to support the continuing achievement of organisational objectives.

Another way in which budgetary planning and control can help organisations to achieve their objectives is by motivating employees to achieve those objectives. This motivation can arise through participation in the budgetary planning process, through setting budget targets which have a motivational effect on employees, through employee satisfaction at meeting periodic budget targets, and by using performance against budget as the basis for employee rewards. An organisation will also expect that managers do not perform poorly in the organisational areas for which they are responsible, since this undermines the achievement of both short-term and long-term organisational objectives, and managerial performance can be evaluated against agreed budget targets in order to identify such managers.

Part 2 Examination – Paper 2.4
Financial Management and Control

December 2006 Marking Scheme

	Marks	Marks
1 (a) (i) Number of ordinary shares	1	
Proposed dividend per share	1	
Share price predicted by dividend growth model	<u>2</u>	
		4
(ii) Explanation of market efficiency	2	
Explanation of semi-strong form efficiency	2	
Explanation of strong form efficiency	<u>2</u>	
		6
(iii) Discussion of share prices		4
(b) (i) Sales revenue	1	
Inflated variable costs per unit	1	
Total annual variable costs	1	
Inflated annual fixed costs	2	
Omission of accounting depreciation	1	
Tax liability	1	
Timing of tax liability	1	
Capital allowance tax benefits	2	
Working capital	1–2	
Discount factors	1	
Present values	1	
Net present value	1	
Consideration of terminal value	<u>2</u>	
	Maximum	14
(ii) Calculation of payback	2	
Calculation of discounted payback	<u>2</u>	
		4
(iii) Acceptability of proposed investment	2	
Ways to improve NPV calculation	<u>4</u>	
		6
(c) Calculation of current interest cover	1	
Calculation of revised interest cover	2	
Calculation of current gearing	2	
Calculation of revised gearing	2	
Calculation of revised ordinary share price	1–2	
Relevant discussion	<u>6–8</u>	
	Maximum	<u>12</u>
		50

	Marks	Marks
2 (a) Servicing costs	1	
Cleaning costs	1	
Present values of total costs	1	
Present values of trade-in values	2	
Net present values of costs of each cycle	3	
Annuity factors	1	
Equivalent annual costs	2	
Recommendation	1	
	<hr/>	12
(b) Causes of capital rationing		4
(c) Single-period and multi-period capital rationing	3-4	
Project divisibility	3-4	
Investment of surplus funds	2-3	
	<hr/>	9
	Maximum	<hr/> 25
3 (a) Ratio calculations	3	
Comment	3	
	<hr/>	6
(b) Calculation of cash operating cycle	2	
Significance of cash operating cycle	2	
	<hr/>	4
(c) Working capital and business solvency	3-4	
Factors influencing optimum cash level	4-5	
	<hr/>	7
(d) New level of debtors	1	
Finance saving	1	
Administration cost savings	1	
Interest on advance from factor	2	
Factor annual fee	1	
Net benefit of factor's offer	1	
Conclusion and discussion	1	
	<hr/>	8
		<hr/> 25
4 (a) Basic standard	1	
Ideal standard	2	
Attainable standard	2	
Current standard	1	
	<hr/>	6
(b) The preparation of standard costs	4-5	
The use of standard costs	4-5	
The review of standard costs	4-5	
	<hr/>	13
(c) Up to 2 marks for each detailed point made		6
		<hr/> 25

	Marks	Marks
5 (a) Flexed sales revenue	1	
Flexed variable raw material costs	1	
Flexed variable labour costs	1	
Budgeted fixed labour costs	1	
Flexed production overhead costs	1	
Budgeted fixed production overhead costs	1	
Contribution	1	
Variances	<u>3</u>	
		10
(b) Calculation of overhead absorption rate	1	
Calculation of fixed overhead efficiency variance	2	
Explanation of efficiency variance	<u>1</u>	
		4
(c) Up to 2 marks for each detailed point made		<u>11</u>
		25