

## Fundamentals of Management Accounting (C01)

Flexible Budgeting: Can flexible budgeting support planning and provide better information for measuring managers' performance?

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Budgeting is undertaken by most companies since it provides a basis for planning, control and performance measurement. While a single approved budget emerges at the end of the budget process, a number of draft budgets are often produced during that process. Some of these draft budgets will have considered different levels of sales since it is difficult to estimate future market demand. In order to produce draft budgets for different levels of demand, it is necessary to know how costs and revenues behave at different levels of activity. Are costs fixed, variable or semi-variable? Are sales prices affected by different levels of demand, changing economic factors etc? The information gathered during the budget process can also be used to provide better control information since it is highly unlikely that actual sales will be same as budget sales.

Flexible budgeting is not a new technique. Companies such as General Motors and Gillette were using this technique in the nineteen twenties and thirties. While flexible budgeting can require a considerable amount of analysis and calculations, companies in the pre-computer age must have considered that the benefits outweighed the costs. Today's accountants have it easy since they can use spreadsheets!

The best way of demonstrating flexible budgeting for planning and control is to consider an example. Chengdu Tea Company (CTC) imports green tea in bulk from China. The imported tea is manually graded in the UK by qualified staff into three types of tea: Classic, Superior and Premium. The tea is sold in 100 gram packets to specialist retail outlets in the UK. The following information was obtained for the next budget period:

- The average selling price for CTC's products is expected to be £5 per packet of tea.
- Direct material cost of each packet of tea is estimated to be £2 per packet. However, direct material costs will fall by 3% if CTC purchases more than 4,500 kilograms of tea due to quantity discounts. The quantity discounts will apply to all purchases made by CTC.
- The average time to produce the first 1,000 packets of teas is estimated to be 9 minutes per packet. The cumulative average cost per packet of tea is expected to fall by £0.005 for every 1,000 increase in production due to the impact of the learning effect. Direct labour is paid £8 per hour.

The assistant management accountant produced the following inflation adjusted analysis of CTC's operating expenses for the last three years:

	<b>30,000 Packets</b>	<b>36,000 Packets</b>	<b>39,000 Packets</b>
Operating Expenses	£59,000	£60,400	£60,800

The UK green tea market has grown significantly in the last couple of years and more growth is expected. However, it is difficult to estimate demand for the next budget period. The managing director recently asked the management accountant to prepare budgets at three different levels of demand: 42,000, 46,000 and 50,000 packets of tea. Table 1 contains the projected profit and loss accounts (income statements) for the three levels of demand prepared by the management accountant.

The sales figures are the simplest figures to calculate since the same average price is assumed for all products at the three levels of demand. Budget sales for each level of demand is:

- 42,000:  $42,000 \times \text{£}5$  i.e.  $\text{£}210,000$
- 46,000:  $46,000 \times \text{£}5$  i.e.  $\text{£}230,000$
- 50,000:  $50,000 \times \text{£}5$  i.e.  $\text{£}250,000$

The budget cost of materials for the first projected level of demand (42,000) is a simple calculation since the company doesn't qualify for any bulk discount as it would only purchase 4,200 kilograms ( $42,000 \times 100$  grams) of tea. However, the company will obtain bulk discount at the other two projected levels of demand since it would purchase more than 4,500 kilograms of tea e.g.  $46,000 \times 100$  grams / 1,000 grams i.e. 4,600 kilograms. Budget material cost for each level of demand is:

- 42,000:  $42,000 \times \text{£}2$  i.e.  $\text{£}84,000$
- 46,000:  $46,000 \times \text{£}2 \times 0.97$  i.e.  $\text{£}89,240$
- 50,000:  $50,000 \times \text{£}2 \times 0.97$  i.e.  $\text{£}97,000$

The budget average labour cost per packet of tea for the first 1,000 packets is expected to be  $\text{£}1.20$  i.e. 9 minutes / 60 minutes  $\times \text{£}8.00$  per hour. Cumulative average time per packet is expected to fall by  $\text{£}0.005$  each time production increases by 1,000. Budget labour cost for each level of demand is:

- 42,000:  $\text{£}1.20 - (41 \text{ increments (of 1,000)} \times \text{£}0.005) \times 42,000$  i.e.  $\text{£}41,790$
- 46,000:  $\text{£}1.20 - (45 \text{ increments (of 1,000)} \times \text{£}0.005) \times 46,000$  i.e.  $\text{£}44,850$
- 50,000:  $\text{£}1.20 - (49 \text{ increments (of 1,000)} \times \text{£}0.005) \times 50,000$  i.e.  $\text{£}47,750$

Operating expenses can be calculated by the High-Low Method. The High-Low Method is a simple statistical technique that uses the highest and lowest levels of activity to estimate fixed and variable costs. Variable costs are calculated in relation to the differences in cost and activity between the highest and the lowest levels of activity i.e.  $\text{£}1,800$  ( $\text{£}60,800 - \text{£}59,000$ ); 9,000 ( $39,000 - 30,000$ ). Variable cost is calculated as follows:  $\text{£}1,800 / 9,000$  i.e.  $\text{£}0.20$ . Total variable costs are then deducted from total costs at the highest or lowest level of activity to calculate fixed costs i.e.  $\text{£}60,800 - \text{£}7,800$  ( $39,000 \times \text{£}0.20$ ) or  $\text{£}59,000 - \text{£}6,000$  ( $30,000 \times \text{£}0.20$ ). Both calculations produce a figure of  $\text{£}53,000$  for fixed costs. While this method is unlikely to produce accurate figures for fixed and variable costs due to the impact (for example) of stepped fixed costs – fixed costs only remain constant within a range of activity – it will produce a reasonable figure for most analyses. Budget operating expenses for each level of demand is:

- 42,000:  $\text{£}53,000 + 42,000 \times \text{£}0.20$  i.e.  $\text{£}61,400$
- 46,000:  $\text{£}53,000 + 46,000 \times \text{£}0.20$  i.e.  $\text{£}62,200$
- 50,000:  $\text{£}53,000 + 50,000 \times \text{£}0.20$  i.e.  $\text{£}63,000$

Profits in most companies do not vary proportionally with sales since costs and revenues often have a non-linear relationship with sales. CTC's profits are expected to rise by £10,900 if demand increases from 42,000 to 46,000 and by £8,540 if demand rises from 46,000 to 50,000. The principal reason why CTC's profits increase more from 42,000 to 46,000 compared to 46,000 to 50,000 is the impact of the bulk purchase discount since it applies to all purchases.

Actual results for the next budget period were as follows:

- Sales quantity: 48,000 packets of tea
- Sales: £241,800
- Material costs: £95,040
- Labour costs: £45,500
- Operating expenses: £64,400

The level of demand used for the approved budget was 46,000 packets of tea.

Managers' performance is always measured in the first instance against the approved budget. However, the approved budget will not provide a meaningful evaluation of their performance when sales are significantly above or below the approved budget. When sales are higher than budget, costs are generally above budget. When sales are below budget, costs are generally below budget. The budget report in Table 2 consequently provides little information about performance since actual sales (48,000) are above budget (46,000). Perhaps all that can be said from this report is that managers appear to have performed well since actual profit is £3,150 greater than budget profit.

While the calculation of percentages can provide a better indication of performance since they are a relative measure, they are a simple measure since they do not take account of factors that affect costs and revenues at different levels of activity e.g. bulk discount, learning effect etc. In order to gain a better insight into performance at the actual level of activity, it is necessary to use the information obtained from the planning process to produce a flexible budget at the actual level of activity. The figures for the flexible budget (at the actual level of activity) in Table 3 are calculated as follows:

- Sales:  $48,000 \times £5$  i.e. £240,000
- Materials:  $48,000 \times £2.00 \times 0.97$  i.e. £93,120
- Labour:  $£1.20 \times (47 \text{ increments of } 1,000 \times £0.005) \times 48,000$  i.e. £46,320
- Operating expenses:  $£53,000 + (48,000 \times £0.20)$  i.e. £62,600

The budget report in Table 3 reveals a very different picture compared to Table 2. Profits are £1,100 less than expected! The revised budget report shows a series of favourable and unfavourable variances. The next step is to determine why these variances have occurred.

There is a natural human tendency to focus on unfavourable variances when reviewing performance. Use of the word 'control' in management accounting literature to describe the comparison of actual against budget is not helpful since it suggests 'Big brother is watching you'! However, the reasons for favourable variances must also be determined since unless managers find out why something

has gone well how can they maintain or improve this performance? Possible reasons for the variances in Table 3 are:

- Sales: Selling price higher than expected due to consumer demand; proportionally higher sales than expected of the highest priced product
- Materials: Material shortages driving up prices; weakening of the importing company's home currency
- Labour: Greater benefit than expected from the learning effect; wage increase awarded to staff lower than budgeted
- Operating expenses: Inflation higher than expected; review the application of the High-Low Method to estimate fixed and variable costs

After the causes of the variances have been determined, the next step is to take corrective action (if this is possible) in relation to adverse variances and seek to improve favourable variances.

While flexible budgeting supports planning and enables managers' performance to be better evaluated when actual demand differs significantly from expected demand, it must be underpinned by a reliable analysis of a company's cost and revenue behaviour. Always remember: garbage in, garbage out!

**Table 1: Planning**

<b>Chengdu Tea Company</b>	<b>42,000</b>	<b>46,000</b>	<b>50,000</b>
Sales	£210,000	£230,000	£250,000
Materials	£84,000	£89,240	£97,000
Labour	£41,790	£44,850	£47,750
Operating expenses	£61,400	£62,200	£63,000
Profit	£22,810	£33,710	£42,250

**Table 2: Approved Budget Versus Actual**

<b>Chengdu Tea Company</b>	<b>Budget</b>	<b>Actual</b>	<b>Variance</b>
Sales	£230,000	£241,800	£11,800
Materials	£89,240	£95,040	-£5,800
Labour	£44,850	£45,500	-£650
Operating expenses	£62,200	£64,400	-£2,200
Profit	£33,710	£36,860	£3,150

**Table 3: Flexible Budget Versus Actual**

<b>Chengdu Tea Company</b>	<b>Budget</b>	<b>Actual</b>	<b>Variance</b>
Sales	£240,000	£241,800	£1,800
Materials	£93,120	£95,040	-£1,920
Labour	£46,320	£45,500	£820
Operating expenses	£62,600	£64,400	-£1,800
Profit	£37,960	£36,860	-£1,100

**Question Practice. Test your knowledge with this question, the answer will be published in the next available issue of Velocity.**

Corporate Consulting Services uses flexible budgeting. The following information was obtained to produce the draft budgets for the next budget period:

- The average charge-out rate to clients for the company's consultants is expected to be £100 per hour. However, this rate will increase by 10% if the company's consultancy work exceeds 18,000 hours since the company will employ free-lance consultants for the additional work. The premium only applies to work in excess of 18,000 hours.
- Travel and subsistence expenses are expected to average £10 per chargeable consulting hour.
- The average annual salary of the 12 consultants employed by the company is £60,000 per annum. The consultants, who are employed on annual fixed contracts, are contracted to provide a maximum of 1,500 consultancy hours per annum.
- Free-lance consultants will be paid £60 per hour.

The following inflation adjusted analysis of office expenses was obtained for the last three years:

	<b>14,000 Hours</b>	<b>16,000 Hours</b>	<b>17,000 Hours</b>
Office Expenses	£720,000	£750,000	£780,000

The managing director has asked the management accountant to prepare budgets for three projected levels of activity:

	<b>17,000</b>	<b>18,000</b>	<b>19,000</b>
Sales			
Consultants			
Travel and subsistence			
Office expenses			
Profit / (loss)			

**Required**

- Prepare budgets for Corporate Consulting Services using the above budget template for the three projected levels of activity.
- Discuss the figures prepared for part (a).