17.60 (50 min) Sales variance analysis

Big Sky Airlines has only one product, which is passenger miles of air transportation services. That simplifies the sales variance analysis considerably.

(1) Contribution-margin budget variance:

$$\text{Contribution-margin budget variance} = \left(\text{Actual total contribution margin} - \text{Budgeted total contribution margin}\right)$$

Applying the formula yields the following results:

Contribution-margin budget variance = ($.22)(43,000,000)–($.20)(40,000,000) = $1,460,000 F

(2) Contribution-margin variance:

$$\text{Contribution-margin variance} = \left(\text{Actual unit contribution margin} - \text{Budgeted unit contribution margin}\right) \times \text{Actual sales volume}$$

Applying the formula:

Contribution-margin variance = ($.22–.20) × 43,000,000 = $860,000 F

17.60 (continued)

(3) Contribution-margin sales-volume variance:

$$\begin{pmatrix}\text{Contribution-margin}\\ \text{sales-volume}\\ \text{variance}\end{pmatrix} = \left(\begin{pmatrix}\text{Actual unit}\\ \text{sales volume}\end{pmatrix} - \begin{pmatrix}\text{Budgeted unit}\\ \text{sales volume}\end{pmatrix}\right) \times \begin{pmatrix}\text{Budgeted}\\ \text{contribution margin}\end{pmatrix}$$

Applying the formula yields the following calculation:

Contribution-margin sales-volume variance = (43,000,000–40,000,000) × $.20 = $600,000 F

(4) Sales-mix and sales-quantity variances: Since the company provides only a single product, there is no sales-mix variance, and the sales-quantity variance is the same as the sales-volume variance, $600,000 F.

(5) Contribution-margin market-size variance:

$$\begin{pmatrix}\text{Contribution-margin}\\ \text{market-size}\\ \text{variance}\end{pmatrix} = \begin{pmatrix}\text{Budgeted}\\ \text{weighted-average}\\ \text{unit contribution}\\ \text{margin}\end{pmatrix} \times \left(\begin{pmatrix}\text{Actual total}\\ \text{market unit}\\ \text{sales volume}\end{pmatrix} - \begin{pmatrix}\text{Budgeted total}\\ \text{market unit}\\ \text{sales volume}\end{pmatrix}\right) \times \begin{pmatrix}\text{Budgeted}\\ \text{market-share}\\ \text{proportion}\end{pmatrix}$$

Applying the formula:

Contribution-margin market-size variance = $.20* × (107,000,000–100,000,000) × .40

= $560,000 F

***Since there is only one product, the budgeted weighted-average unit contribution margin is equal to the budgeted unit contribution margin.**

(6) Contribution-margin market-share variance:

$$\begin{pmatrix}\text{Contribution-margin}\\ \text{market-share}\\ \text{variance}\end{pmatrix} = \begin{pmatrix}\text{Budgeted}\\ \text{weighted-average}\\ \text{unit contribution}\\ \text{margin}\end{pmatrix} \times \left(\begin{pmatrix}\text{Actual}\\ \text{market-share}\\ \text{proportion}\end{pmatrix} - \begin{pmatrix}\text{Budgeted}\\ \text{market-share}\\ \text{proportion}\end{pmatrix}\right) \times \begin{pmatrix}\text{Actual total}\\ \text{market unit}\\ \text{sales volume}\end{pmatrix}$$

Applying the formula yields the following calculation:

Contribution-margin market-share variance = $.20 × [(43/107)–.40] × 107,000,000

= $40,000 F

17.60 (continued)

Summary of variance analysis (not required):

CONTRIBUTION-MARGIN SALES VARIANCE ANALYSIS:
Big Sky Airlines