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CUE STICKS AND SALSA: A STUDY OF VARIANCES

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I. INTRODUCTION

Many accounting students have difficulty with variance analysis. At least part of this difficulty may be caused by the typical presentation of variances in cost/managerial accounting textbooks. Some textbook coverage is disjointed, with brief coverage of flexible budget variances just prior to discussion of manufacturing costs variances. Then, in a much later chapter, sales-variance analysis is covered with little or no reference to the earlier coverage of flexible budget variances. Discussion of input mix and yield variances may be presented in appendices, if covered at all. In addition to disjointed presentations, textbook coverage of variances is often heavily formula driven with no alternative methodology being offered. Although some textbooks provide overview tables (and problems) showing the interrelationships of the variances covered within a particular chapter, comprehensive coverage of variances covered within the entire textbook is lacking. In other words, there is typically no discussion of how the variances covered in earlier chapters may be incorporated within the variances covered in the later chapters. Thus, many students fail to see the how the numerous variances are related as well as the similarities between the computational aspects of some of the variances.

This paper presents two problems that the author utilizes in his Senior/Graduate Level Advanced Cost/ Managerial Accounting course to help students better understand variance analysis. The problems allow students to see the “big picture” without being overly complex. While students are required to calculate all variances typically presented in Cost/Managerial textbooks, they are continuously reminded of the numerous similarities in the computational aspects of these variances. Furthermore, students learn, and understand, alternative methods for computing variances and presenting their solutions.

The first problem, the Kingsville Cue Manufacturing Company, is shown in Exhibit I. This problem requires students to calculate all of the traditional sales variances as well as all of the “flexible budget” variances. The second problem, the Kingsville Salsa Mix Company, presented in Exhibit II, involves calculation of materials mix and yield variances. Obviously, professors who choose to exclude coverage of these variances would not utilize this problem. A summary of the variances covered in these two problems is provided as Exhibit III.

Much of the remainder of this paper is devoted to a description of and rationalization for each requirement, a solution to each requirement including alternative approaches, and discussions of some of the similarities in the calculation of variances. For that reason, readers should first fully acquaint themselves with the requirements of the Kingsville Cue Manufacturing Company problem before continuing.

Traditional textbook coverage is not presented within this paper because the reader is assumed to be familiar with the coverage in whichever textbook they are currently using. The paper concludes by offering ways to increase or decrease the complexity of the problems and by discussing comments received from students who have completed the problems.

II. THE KINGSVILLE CUE MANUFACTURING COMPANY

The Kingsville Cue Manufacturing Company problem (Exhibit I) includes five parts. The first part requires students to make several detailed calculations to complete a table. Completion of this table allows students to observe that the collection of all the variances simply account for the total difference between the actual and static budget income. The table is similar to those usually included in textbook coverage of flexible budgeting. However, the Kingsville Cue Manufacturing Company table adds two additional columns for demonstrating the Sales Mix variance and also adds rows for variable and fixed operating expenses. Because accurate completion of this table is vital to assist students in completing and better understanding the remaining requirements, the author provides check figures and helps as necessary to assure successful completion of this part of the problem. While students may complete the table manually, the author encourages his students to use a spreadsheet package to complete the table so that they may clearly observe the computational similarities of each number and be better prepared to understand the differences. Students who are comfortable with using a spreadsheet package tend to use the copy command and then revise the formulas as needed. The completed table appears as follows:

	Actual \$	Flex. B. Variance	Actual Mix/ Budgeted \$	Mix Variance	Budg. Mix/ Budg. \$	Quantity Variance	Static Budget
Units	<u>110,000</u>	-	<u>110,000</u>	-	<u>110,000</u>	<u>10,000</u>	<u>100,000</u>
Sales	<u>12,001,000</u>	<u>341,000</u>	<u>11,660,000</u>	<u>660,000</u>	<u>11,000,000</u>	<u>1,000,000</u>	<u>10,000,000</u>
Materials	2,595,725	87,725	2,508,000	198,000	2,310,000	210,000	2,100,000
Labor	2,717,000	(33,000)	2,750,000	-	2,750,000	250,000	2,500,000
Variable Overhead	783,750	13,750	770,000	-	770,000	70,000	700,000
Variable Operating	<u>1,310,100</u>	<u>34,100</u>	<u>1,276,000</u>	<u>66,000</u>	<u>1,210,000</u>	<u>110,000</u>	<u>1,100,000</u>
Total Variable Costs	<u>7,406,575</u>	<u>102,575</u>	<u>7,304,000</u>	<u>264,000</u>	<u>7,040,000</u>	<u>640,000</u>	<u>6,400,000</u>
Contribution Margin	4,594,425	238,425	4,356,000	396,000	3,960,000	360,000	3,600,000
Fixed Costs	<u>3,200,000</u>	<u>200,000</u>	<u>3,000,000</u>	-	<u>3,000,000</u>	-	<u>3,000,000</u>
Income	<u>1,394,425</u>	<u>38,425</u>	<u>1,356,000</u>	<u>396,000</u>	<u>960,000</u>	<u>360,000</u>	<u>600,000</u>

Differences reflected in the three “variance” columns are normally discussed in some detail before students go on to the second part of the problem. For purposes of this paper, discussion of the differences is incorporated in the discussion of the calculations of the variances. Part Two of the Kingsville Cue Manufacturing Company problem requires students to detail the calculation of the variances. These solutions are presented in the order requested.

III. SALES VOLUME, SALES MIX, AND SALES QUANTITY VARIANCES

The Sales Volume Variance is equal to the difference of contribution margin between the flexible budget (based on actual sales mix) and the static budget (based on original budgeted sales mix). From the table, it is simply the difference between the contribution margins (and incomes) in the third column (actual mix at budgeted dollars) and the seventh column (the static budget). The Volume Variance may be broken down into a Mix Variance (column three less column five) and the Quantity Variance (column five less column seven). Some students calculate the respective weighted average contribution margins of \$39.60 per unit (actual) and \$36.00 per unit (budgeted) respectively. Using this information, the solution of the Volume Variance, Mix Variance, and Quantity Variance could be presented as:

	Quantity	Budgeted Cont. Margin	Totals
Flexible Budget	110,000	\$ 39.60	\$4,356,000
Static Budget	<u>100,000</u>	<u>36.00</u>	<u>3,600,000</u>
Differences	10,000	\$ 3.60	
times	<u>\$ 36.00</u>	<u>110,000</u>	
	<u>\$ 360,000</u>	<u>\$ 396,000</u>	<u>\$ 756,000</u>
	Quantity	Mix	Volume

This same format is used later in the detailed explanations of the flexible budget cost variances. The preceding amounts, of course, agree with those shown in the table solution to Part One of the problem. Students observe that all variable items (sales and all variable costs) increase by ten percent due to the “quantity” increasing by ten percent. Some students will explain the “mix” variance in a little more detail noting the \$6.00 (\$106.00-\$100.00) increase in the average budgeted sales price times 110,000 units equaling the \$660,000 sales difference, the variable operating expenses increase (\$66,000) for the 10% sales commissions based on the higher average price, and the change in the materials prices (\$198,000) is caused by the \$1.80 increase in the average budgeted cost of materials due to the change in sales mix. These differences account for the aforementioned \$3.60 per unit increase in average budgeted contribution margin. Another approach to presenting the Sales Mix variance may be offered. The approach is not necessarily simpler, but it may be offered as an alternative so students may better see the underlying cause of the mix variance:

	Actual Units	Units at Budg. Mix	Difference	C/M. Per/U.	
Good	55,000	66,000	-11,000	\$ 24.00	\$ (264,000)
Better	38,500	33,000	5,500	\$ 48.00	264,000
Best	<u>16,500</u>	<u>11,000</u>	5,500	\$ 72.00	<u>396,000</u>
	<u>110,000</u>	<u>110,000</u>			<u>\$ 396,000</u>

IV. SALES PRICE VARIANCE

The Sales Price Variance is the \$341,000 at the top of the Flexible Budget Variance column and is simply the difference between the actual sales (in the actual mix at the actual prices) and the budgeted sales (in the actual mix at the budgeted prices). Observe that the student is provided with the actual average selling price of \$109.10 and the average budgeted selling price based on the actual mix of \$106.00. The difference between these two averages, \$3.10, multiplied by the 110,000 units provides the \$341,000 directly. Students could also be required to calculate the sales price variance by multiplying the individual differences in actual and budgeted sales prices times the actual number of units sold, and then having them prove the mathematical equivalency of the two approaches.

V. MATERIALS VARIANCES

The total materials variance may be broken down between price and efficiency (quantity) differences. While most textbooks present these variances horizontally, the author typically presents the same details vertically with the actual quantity and prices on top using the same format as with the sales mix and quantity variances. Because

the calculations involve costs, positive differences reflect unfavorable variances while negative differences reflect favorable variances. The unfavorable material variance of \$87,725 shown in the table is explained as follows:

		Efficiency	Price	Total
Good	Actual	302,500	\$ 2.30	\$ 695,750
	Standard	<u>275,000</u>	<u>2.40</u>	<u>660,000</u>
	Difference	27,500	\$ (0.10)	
	times	<u>2.40</u>	<u>302,500</u>	
		<u>\$ 66,000</u>	<u>\$ (30,250)</u>	<u>\$ 35,750</u>
Better	Actual	211,750	\$ 4.50	\$ 952,875
	Standard	<u>192,500</u>	<u>4.80</u>	<u>924,000</u>
	Difference	19,250	\$ (0.30)	
	times	<u>4.80</u>	<u>211,750</u>	
		<u>\$ 92,400</u>	<u>\$ (63,525)</u>	<u>\$ 28,875</u>
Best	Actual	90,750	\$ 6.80	\$ 617,100
	Standard	<u>82,500</u>	<u>7.20</u>	<u>594,000</u>
	Difference	8,250	\$ (0.40)	
	times	<u>7.20</u>	<u>90,750</u>	
		<u>\$ 59,400</u>	<u>\$ (36,300)</u>	<u>\$ 23,100</u>
Total Flexible Budget Materials Variances		<u>\$ 217,800</u>	<u>\$ (130,075)</u>	<u>\$ 87,725</u>

VI. LABOR VARIANCES

Similar to the above materials variances, the labor variance may be presented using the same format. The \$33,000 favorable labor variance may be explained as follows:

		Efficiency	Price	Total
Labor	Actual	104,500	\$ 26.00	\$2,717,000
	Standard	<u>110,000</u>	<u>25.00</u>	<u>2,750,000</u>
	Difference	(5,500)	\$ 1.00	
	times	<u>25.00</u>	<u>104,500</u>	
		<u>\$ (137,500)</u>	<u>\$ 104,500</u>	<u>\$ (33,000)</u>

VII. VARIABLE OVERHEAD VARIANCES

When manufacturing overhead is allocated on the basis of direct labor hours, the variable overhead efficiency variance will be consistent with the labor efficiency variance. Thus, a quick way to calculate the variable overhead efficiency variance is

to multiply the labor efficiency variance by $7/25$ (the budgeted variable overhead per hour/the budgeted labor rate per hour). In this problem, the answer would be a favorable \$38,500 ($\$137,500 \times 7/25$). The table shows the total variable overhead variance is \$13,750 unfavorable. Thus, by addition, the variable overhead spending variance must be \$52,250 unfavorable. Similar to the materials and labor variances, the variable overhead variances can be shown as:

	Efficiency	Spending	Total V/O
Actual	104,500	\$ 7.50	\$ 783,750
Standard	<u>110,000</u>	<u>7.00</u>	<u>770,000</u>
Difference	(5,500)	\$ 0.50	
times	<u>\$ 7.00</u>	<u>104,500</u>	
	<u>\$ (38,500)</u>	<u>\$ 52,250</u>	<u>\$ 13,750</u>

VIII. FIXED OVERHEAD VARIANCES

The fixed overhead spending variance is typically the easiest of all variances to compute because both the actual amount and budgeted amount are known. The spending variance is simply a matter of subtracting. In the Kingsville Cue Manufacturing Company problem, the actual fixed overhead is \$2,150,000 and the budgeted fixed overhead is \$2,000,000. The difference of \$150,000 is the unfavorable fixed overhead spending variance.

The fixed overhead volume variance represents the under (over) applied fixed overhead and may be easily calculated by multiplying the budgeted fixed overhead by the percentage difference in the number of actual units sold and the original number of units originally predicted. If units produced exceed the original budget, the variance is favorable (more fixed overhead costs allocated than planned) and vice versa. Thus, the fixed overhead volume variance in this problem is \$200,000 favorable ($\$2,000,000 \times 10\%$). Because the volume variance in this problem would be closed to cost of goods sold (or gross margin), this variance does not reflect a difference in the actual income and the static budget income.

IX. OPERATING EXPENSE VARIANCES

In this problem, variable operating expenses were larger than anticipated because of higher sales commissions associated with higher sales prices. Because the sales commissions were ten percent of sales prices, the unfavorable variable operating expense variance of \$34,100 are equal to 10% of the favorable sales price variance of \$341,000. The fixed operating expense variance is similar to the fixed overhead spending variance because it is calculated by subtracting the budgeted fixed operating

expenses from the actual fixed operating expenses. In this problem, the unfavorable fixed operating expense spending variance is \$50,000 (\$1,050,000 less \$1,000,000).

The third part of the Kingsville Cue Manufacturing Company problem is straightforward and only requires the student to summarize parts one and two. As previously noted, the fixed overhead volume variance is the only variance that is not used in reconciling the difference between actual income and static budget income.

X. MARKET SIZE AND MARKET SHARE VARIANCES

The fourth part of the Kingsville Cue Manufacturing Company problem provides information about the budgeted market size (1,000,000 units) and the actual market size (880,000 units). Students are asked to compute the Market Size and Market Share variances. Kingsville Cue Manufacturing Company had budgeted 100,000 units (10% of the budgeted market) but sold 110,000 units (12.5% of the actual market). Textbook solutions are traditionally much more complex than necessary. For example, using the data from this problem, a typical solution for these variances would be:

Market share = Actual market size x (Actual market share – Budgeted market share) x Budgeted weighted average contribution margin per unit

$$880,000 \times (.125 - .10) \times \$36.00 = \$792,000 \text{ favorable}$$

Market size = (Actual market size – Budgeted market size) x Budgeted market share x Budgeted weighted average contribution margin per unit

$$(880,000 - 1,000,000) \times .10 \times \$36.00 = \$432,000 \text{ unfavorable}$$

Together, the market share and market size variances account for the \$360,000 favorable quantity variance. The author prefers to simplify the above presentations by focusing on the causes of each variance. For example, one manner of presenting the variance is:

Market share = (Actual sales in units – less 10% of actual market) x \$36.00
 (110,000 – 88,000) x \$36.00
 22,000 x \$36.00 = \$792,000 favorable

Market size = (10% of actual market – static budget units) x \$36.00
 (88,000 – 100,000) x \$36.00
 -12,000 x \$36.00 = \$432,000 unfavorable

Another way of presenting the variances is to note that the Market size variance is simply 12% (the decline in market size) times \$3,600,000 (the static budget contribution margin), or \$432,000 unfavorable. The Market share variance is 25% (the percentage increase in the market share, from 10% to 12.5 %) times \$3,168,000 (\$3,600,000 - \$432,000). Perhaps an even simpler presentation, representing a minor modification in the first approach shown before, is:

Actual units	110,000
Budgeted share of actual market (10% of 1,000,000)	88,000
Static budget units	100,000

The market share variance is simply the difference between the first two numbers times the budgeted contribution margin ($22,000 \times \$36.00 = \$792,000$ favorable). Likewise, the market size variance is the difference between the second and third numbers times the budgeted contribution margin ($-12,000 \times \$36.00 = \$432,000$ unfavorable).

Part five of the Kingsville Cue Manufacturing Company problem asks students to discuss computational similarities between the variances calculated for the Kingsville Cue Manufacturing Company and the calculations involved with strategic analysis of operating income (growth component, price-recovery component, and productivity component). While strategic analysis is not “variance analysis” per se, certainly the computations involved in the growth and price-recovery components, for example, are practically identical to the computations of the direct materials and direct labor efficiency and price variances. These similarities are mentioned again later in this paper when ways are considered to increase or decrease the complexity of the problems. Now, let us turn our attention to the requirements for the second problem, the Kingsville Salsa Mix Company.

XI. THE KINGSVILLE SALSA MIX COMPANY

The Kingsville Salsa Mix Company problem (Exhibit II) is a straightforward problem involving the calculation of the materials price and efficiency variances, then breaking down the materials efficiency variance into the materials mix and yield variances. The author utilizes the second problem primarily to provide alternative approaches to solving these types of problems and to demonstrate computational similarities with those used in the Kingsville Cue Manufacturing Company problem. Using the information in Exhibit II, the following three tables may be prepared:

	Gallons	Price per Gallon	Total
OUTPUT of 40,000 gallons, actual costs :			
Material X	26,000	\$ 0.820	\$ 21,320
Material Y	18,200	\$ 1.230	22,386
Material Z	<u>7,800</u>	<u>\$ 1.670</u>	<u>13,026</u>
Totals/Weighted Average	<u>52,000</u>	<u>\$ 1.091</u>	<u>\$ 56,732</u>

STANDARD input costs for 52,000 gallons (**actual mix**):

Material X	26,000	\$ 0.80	\$ 20,800
Material Y	18,200	\$ 1.20	21,840
Material Z	<u>7,800</u>	<u>\$ 1.60</u>	<u>12,480</u>
Totals/Weighted Average	<u>52,000</u>	<u>\$ 1.06</u>	<u>\$ 55,120</u>

STANDARD for 40,000 gallons of output:

Material X	30,000	\$ 0.80	\$ 24,000
Material Y	15,000	\$ 1.20	18,000
Material Z	<u>5,000</u>	<u>\$ 1.60</u>	<u>8,000</u>
Totals/Average	<u>50,000</u>	<u>\$ 1.00</u>	<u>\$ 50,000</u>

From the above tables, the price variance is the difference between the total actual costs and the standard input costs for the actual mix, $\$56,732 - \$55,120 = \$1,612$ unfavorable, and the efficiency variance is the difference between the standard cost of the actual input and the standard cost of the actual output, $\$55,120 - \$50,000 = \$5,120$ unfavorable. Observe that the total price variance may also be calculated by multiplying the actual input total by the difference in the actual and standard costs of the actual mix; 52,000 gallons times $(\$1.091 - \$1.060)$ or $52,000 \times \$0.031 = \$1,612$. Of course, the price variance may also be presented in the more traditional fashion by multiplying each of the inputs by the difference in price as follows:

	Gallons	Price Difference	Total
Material X	26,000	\$ 0.020	\$ 520
Material Y	18,200	\$ 0.030	546
Material Z	<u>7,800</u>	<u>\$ 0.070</u>	<u>546</u>
Totals/Weighted Average	<u>52,000</u>	<u>\$ 0.031</u>	<u>\$ 1,612</u>

The materials mix and yield variances may be calculated quite quickly by observing that the difference in the total input gallons and standard input gallons is 2,000 (52,000 – 50,000). Multiplying by the standard average cost per gallon of \$1.00

provides the yield variance of \$2,000 unfavorable. Then, by subtraction, the mix variance must be \$3,120 unfavorable (\$5,120 efficiency - \$2,000 yield). The mix variance may also be calculated by simply multiplying 52,000 by the difference in the average budgeted cost of the actual mix and the standard average budgeted costs; 52,000 times (\$1.06 - \$1.00), or $52,000 \times \$0.06 = \$3,120$ unfavorable. And, if so desired, the more complete approach that includes the individual causes of the mix variance may be demonstrated as:

	Actual Input	Total Units in Stand. Mix	Difference			
Material X	26,000	31,200	(5,200)	\$	0.80	\$ (4,160)
Material Y	18,200	15,600	2,600	\$	1.20	3,120
Material Z	<u>7,800</u>	<u>5,200</u>	2,600	\$	1.60	<u>4,160</u>
	<u>52,000</u>	<u>52,000</u>				<u>\$ 3,120</u>

The more detailed approach to the mix variance is identical to the illustration of the detailed sales mix variance in the Kingsville Cue Manufacturing Company problem, and the calculations of the overall materials price variance is the same as for the sales price variance in that problem. The yield variance, using the weighted average standard budgeted cost per gallon, may be calculated in the same manner as the materials efficiency variances as shown in the Kingsville Cue Manufacturing Company problem.

XII. CONCLUDING REMARKS

Obviously, all alternative approaches to derive the correct answer must be mathematically equivalent. For that reason, the author often demonstrates such mathematical equivalency when presenting alternative solutions. The Kingsville Cue Manufacturing Company problem can easily be revised to increase or decrease complexity. Students may be required to prove the mathematical equivalency of alternative methods and perhaps challenged to offer some of their own alternatives. More labor variances could be added by including additional classes (and costs) of labor for each of the three products, and by having each product exhibit different efficiency variances for both materials and labor. Students may be asked to provide logical explanations of possible causes of individual variances. Another requirement might be to label the “static budget” column as “last year’s” numbers and have students perform strategic profitability analysis. Complexity may be reduced for the Kingsville Cue Manufacturing Company by assuming only one product is produced, thus eliminating all computations and discussions of the Mix variances. The Kingsville Salsa Mix Company problem may either be expanded to include similar labor variances or may be completely eliminated.

Overall student response (solicited AFTER completion of the course and administration of final grades) to the Kingsville Cue Manufacturing Company and Kingsville Salsa Mix Company problems has been favorable. Many who had struggled through the coverage of the flexible budget and product cost variances have almost unanimously stated that they have gained a better understanding by revisiting the material. Most agree that the problems are a lot of work that they would prefer not to do, but the majority have indicated an appreciation for being exposed to the “big picture” of variance analysis. There have been mixed reactions to the incorporation of the alternative approaches demonstrated throughout this paper. Some students prefer to learn (memorize?) whatever approach is offered in their textbook and to “not be confused” by optional methods, even if they are easier to apply. Other students, especially those who are able to recognize the mathematical equivalencies of the methods, tend to prefer the easier approaches. The author believes that students should be exposed to a variety of approaches so they may be better equipped to solve problems that may be presented in a slightly different manner than the ones presented in a particular textbook.

EXHIBIT I

The Kingsville Cue Manufacturing Company (Manufacturer of Fine Pool Cues)

The Kingsville Cue Manufacturing Company manufactures three fine pool cues. The major difference between the cues is the quality of the raw material. Variable manufacturing overhead consists mostly of indirect materials and indirect labor and is applied to production based on standard labor hours. The following information applies to 2005:

<u>Product</u>	Sales Units		Sales Prices	
	Budget	Actual	Budget	Actual
Good	60,000	55,000	\$ 80.00	\$ 82.00
Better	30,000	38,500	\$120.00	\$123.00
Best	10,000	16,500	\$160.00	\$167.00
Totals/Average	100,000	110,000	\$ 100.00	\$109.10
The average <u>budgeted</u> sales price based on actual mix is				\$106.00

	<u>Budget</u>	<u>Actual</u>
Fixed Costs - Overhead	\$2,000,000	\$2,150,000
Fixed Costs - Operating Expenses	\$1,000,000	\$1,050,000
Total	\$3,000,000	\$3,200,000

	<u>Product</u>	<u>Costs per foot/hour</u>		<u>Feet/hours per unit</u>	
		<u>budget</u>	<u>actual</u>	<u>budget</u>	<u>actual</u>
Materials	Good	\$2.40	\$2.30	5.0	5.5
	Better	\$4.80	\$4.50	5.0	5.5
	Best	\$7.20	\$6.80	5.0	5.5
	All	Budgeted and actual \$3.00 per unit for a carrying problem			
Labor	All	\$25.00	\$26.00	1.0	0.95
Variable OVH	All	\$7.00	\$7.50	1.0	0.95
Variable Operating Expenses	Budgeted and actual 10% sales commission and \$1.00 per unit shipping				

Complete the following table.

	Actual \$	Flex. B. Variance	Actual Mix/ Budgeted \$	Mix Variance	Budg. Mix/ Budg. \$	Quantity Variance	Static Budget
Units	<u>110,000</u>		<u>110,000</u>		<u>110,000</u>	<u>10,000</u>	<u>100,000</u>
Sales							
Materials							
Labor							
Variable Overhead							
Variable Operating							
Total Variable Costs							
Contribution Margin							
Fixed Costs							
Income							

Assuming no beginning nor ending inventories of any kind, show the calculation of the following variances:

- Sales Volume Variance
- Sale Mix Variance
- Sales Quantity Variance
- Sales Price Variance
- Materials efficiency and price variances for each of the three materials and the total material variance
- Labor efficiency and price variances
- Variable Overhead efficiency and spending variances
- Fixed Overhead volume and spending variances
- Variable and Fixed Operating Expense variances

Use the above variances to reconcile the difference between the actual operating income and the static budget operating income. If any of the above variances are not used, explain why it is not used.

Assume that the total fine pool cue market was anticipated to be 1,000,000 units. The actual total market size was only 880,000 units. Explain the Kingsville Cue Manufacturing Company's Quantity Variance in terms of Market size and Market share.

Discuss any computational similarities between the above variances and the calculations involved in the strategic analysis of operating income (growth component, price-recovery component, and productivity component).

EXHIBIT II

The Kingsville Salsa Mix Company Manufacturer of Product SALSA

The Kingsville Salsa Mix Company produces product SALSA by heating three materials (X, Y, and Z). Normal evaporation loss is 20% of input, thus 1,000 gallons of input are anticipated to yield an output of 800 gallons.

STANDARDS for 800 gallons of SALSA:

	Gallons	Price per Gallon	Total
Material X	600	\$ 0.80	\$ 480
Material Y	300	\$ 1.20	360
Material Z	<u>100</u>	<u>\$ 1.60</u>	<u>160</u>
Totals/Weighted Average	<u>1,000</u>	<u>\$ 1.00</u>	<u>\$ 1,000</u>

OUTPUT of 40,000 gallons, actual costs:

Material X	26,000	\$ 0.82	\$ 21,320
Material Y	18,200	\$ 1.23	22,386
Material Z	<u>7,800</u>	<u>\$ 1.67</u>	<u>13,026</u>
Totals/Weighted Average	<u>52,000</u>	<u>\$ 1.091</u>	<u>\$ 56,732</u>

Use the above information to calculate the materials price and efficiency variances. Then, breakdown the efficiency variance into the mix and yield variances. Explain any computational similarities as compared to the calculations of any of those variances you calculated for the Kingsville Cue Manufacturing Company.

EXHIBIT III
Summary of Variances Included in the Problems

Kingsville Cue Manufacturing Company:

Flexible Budget Variance:

Sales Price

Manufacturing Cost Variances

Materials Efficiency

Materials Price

Labor Efficiency

Labor Price

Variable Overhead Efficiency

Variable Overhead Price

Fixed Overhead Spending

Fixed Overhead Volume (does not affect “profitability” in this problem)

Operating Expenses

Variable Spending (Sales Commission as % of Sales Price)

Fixed Spending

Sales Volume Variance:

Mix

Quantity

Market Size

Market Share

Kingsville Salsa Mix Company:

Price

Efficiency (or Quantity)

Mix

Yield

(Solutions documents available upon request from author.)