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MODIFYING SALES SUMMARIES CAN AID FOREST PRODUCTS INDUSTRIES

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ABSTRACT

This Note illustrates how a sales summary can be modified to separately identify changes in sales realization caused by changes in market prices and by changes in the product mix sold. With this information, a sales summary can become a helpful record to gage effects of past production and marketing decisions.

INTRODUCTION

A typical sales summary prepared from accounting records of a wood products manufacturer presents numerous figures related to product sales. Monthly, year-to-date, and year-ending sales summaries are needed for managers to evaluate the financial status of operations, and to appraise effects of past product and marketing decisions.

The interpretation of sales statistics can, however, lead to problems. In accounting reports summarizing sales results, the results of the effects of marketing and production decisions become combined with the effects of shifting market prices. The purpose of this paper is to illustrate how a sales summary

can be modified to separately identify the variances (differences in the accounting sense) in sales realization caused by changes in market prices and by changes in the product mix sold.

Measuring Price Variance

The object of measuring variances in accounting systems is usually associated with operating statements in which actual costs are compared with past costs, budgets, or

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other standards. The results measured indicate the variance of actual costs from a set of standards. Price variances within the sales summary can be measured in the same manner. To illustrate how this can be accomplished, the "Prior-Period" average price for each product in table 1 is used as a standard to measure the variance of price for each corresponding product in the "Current-Period." These variances are identified for each product as a price variance. The average price variance for any group of products is then calculated in the same manner as the corresponding average price. That is, neither the figures of average price nor of variance are additive. Each product's average price must be weighed by the corresponding number of units sold to determine a gross price variance. The gross price variances are then added and the sum divided by the total number of units sold, as illustrated in table 2, by subtracting the "Current-Period" statistics from table 1.

"Average price" is used herein to mean the same as "average realization" which is the dollar amount per standard physical unit realized from sales of a product after actual transportation cost, discounts, and rebates are deducted.

Measuring Mix Variance

When the price variances are known, calculating mix variances due to changes in the product mix becomes relatively simple. The mix variance is calculated from the difference in the average price for each period for corresponding product groups minus the corresponding price variance. That is, the difference between the "Prior-Period" average price and the corresponding price for the "Current-Period" is the total variance due to price variances and product mix variance. The mix variance is then determined by subtracting the price variance from the total variance, as noted in table 3, by again using the statistics from table 1.

Table 1.—Sales summary modified by incorporating price and mix variances

Products	Modified sales summary						Variances	
	Prior-Period			Current-Period				
	Vol-ume	Average price	Total reali-zation	Vol-ume	Average price	Total reali-zation	Price[1]	Mix[2]
	M bf	$/M bf	Dol	M bf	$/M bf	Dol	$/M bf	$/M bf
No. 3 and better								
1 x 4	65	105.00	6,825	71	108.00	7,668	3.00	—
1 x 6	146	103.00	15,038	160	104.00	16,640	1.00	—
1 x 8	114	103.00	11,742	125	105.00	13,125	2.00	—
Combined	325	103.40	33,605	356	105.15	37,433	1.75	0
No. 4 common								
1 x 4	65	90.00	5,850	135	90.00	12,150	0	—
1 x 6	114	80.00	9,120	56	80.00	4,480	0	—
1 x 8	146	83.00	12,118	88	83.00	7,304	0	—
Combined	325	83.35	27,088	279	85.79	23,934	0	2.44
Total combined	650	93.37	60,693	635	96.64	61,367	0.96	2.29

[1]Difference in average realization for a product or group of products caused by changes in product prices between two different time periods.
[2]Difference in average realization between two time periods caused by change in product mix.

Products	Unit sales		Price variance		Gross price variance
	M bf		$/M bf		Dol
No. 3 and better					
1 x 4	71	x	3.00	=	213.00
1 x 6	160	x	1.00	=	160.00
1 x 8	125	x	2.00	=	250.00
Combined	356	x	11.75	=	623.00

1$1.75/M bf = $623.00 ÷ 356 M bf.

Interpreting Effects of Production Operations

Average unit prices for product sales from a "Prior-Period" are the only statistics needed to measure price and mix variances of a "Current-Period." However, using these variances to interpret the effects of production and marketing decisions has limitations. Sales statistics can only reflect changes in production practices to the extent that the product mix sold is representative of the product mix being produced.

Because of the variety of lag effects that may be caused by inventory and sales practices, special consideration must be given to the length of the accounting periods used for the "Prior-Period" and the "Current-Period". The two periods do not have to be the same length however, for a meaningful basis for interpretation, the representativeness of production as well as the timing to changes in log supplies, in sawing methods, and in other manufacturing practices must be considered.

In addition to the detailed sales information typically presented to the wood products manufacturer, interpretations of the final accounting results of past production and marketing decisions can be made more meaningful if variations of average realization statistics from product sales are analyzed. The sales summary then can become a highly useful record to gage the effects of past decisions on production and marketing.

Products	Average realization		Variance	
	Current-period(2)	Prior-period(1)	Price	Mix1
	$/M bf	$/M bf	$/M bf	$/M bf
No. 3 and better				
Combined	105.15 −	103.40 −	1.75 =	0.00
No. 4				
Combined	85.79 −	83.35 −	0.00 =	2.44
All products				
products	96.64 −	93.37 −	0.98 =	2.29

1Mix variance = average realization ((2)−(1)) price variance.