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Practical Alternative to Joint Cost Allocation: Current Sales Method Has Advantages

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A Practical Alternative to Joint Cost Allocation

Current Sales Method Has Advantages

By M. Frank Barton and J. David Spiceland

Some accountants believe that true joint product costs are not separable and to attempt an allocation of such is at best an arbitrary cost expedient of limited utility—especially in providing a basis for product pricing. Horngren [1982] argues that any method of allocating truly joint costs to various units produced is useful primarily for purposes of inventory costing and that such allocation is useless for cost-planning or control purposes. Similarly, Corcoran [1978] states that "for decision making purposes, one should avoid allocating joint costs; essentially this amounts to dividing the indivisible. If a man buys a cow, how much has he paid for its tenderloin and round steaks? How much for its bones? It does not matter that the local butcher can declare a selling price for each part of the cow. The decision was to invest in the cow: presumably the buyer envisioned that investment would earn a return by way of later sale of its components."

Study Objective

A review of accounting literature regarding joint product cost allocation indicates that most accountants have little regard for current methods used in allocating joint costs to joint products. The only benefit to be derived from joint cost allocation consistently identified is to serve the time period assumptions in preparing financial statements by providing a method of inventory costing which affect the income statement and balance sheet. If in fact, the allocation of joint product cost is an arbitrary cost expedient of limited utility as presently viewed, why not develop a cost allocation method that could serve management in pricing and selling components of the joint product bag? The "current sales method" may be just that.

Cost Methods

Joint-product costs are the costs of manufactured goods having non-trivial sales values that are simultaneously produced by a process or series of processes. Products of the process are not identifiable as different individual products until after a certain stage of production (split-off point), where the joint products become individually identifiable.

There are several commonly accepted methods of allocating joint-product costs of manufacturing processes where two or more relatively significant products are produced. Several of the methods are explained in the following paragraphs.

The market value method—also referred to as the sales value method, net realizable method, or relative sales realization method—allocates costs at the split-off point based on the ratios of the net realizable values of each product. The net realizable value is determined by subtracting separable processing costs from the gross market value of each product.

It is important to note that the market value method clearly allocates costs to various products based upon their respective contributions to sales volume. This procedure not only results in an arbitrary and indirect measurement of actual cost by product, but the method also is predicated on sales (demand) and not cost (supply) criteria.

The physical unit method allocates costs on the basis of physical units such as weight, volume, linear measure, atomic weight, heat units, and barrel gravity (in the petroleum industry). If allocated costs are based on physical units, even though there may be several bases for identifying a common physical count, the costs are often distorted in relation to the sales value of the different products. For example, the cost of a pound of pigs' feet would be the same as a similar portion of center cut cured ham. Also, the cost allocated to a gallon of tar based on volume would be the same as that allocated to a gallon of gasoline. To overcome this problem, many companies use a weighted-average method of allocating joint costs. Under this method the quantity of each product is multiplied by a pre-established weighting factor to take into consideration for each unit such things as size of the unit, difference in labor used, difficulty to manufacture, or any number of different variables.

Unlike the market value method, the physical unit method attempts the surrogate measurement of actual product costs based upon cost (supply) and no sales (demand) data. Unfortunately, there is little evidence to support a high correlation between the weight and volume of a particular petroleum product and its respective cost.

The replacement value method assumes, as an example, that the primary purpose of a refinery is the production of gasoline and that there is only one other product, fuel oil. Kerosene produced by a refinery could theoretically be converted by further

cracking processes to yield additional gasoline. The cost of kerosene is the cost of processing an additional volume of crude oil to replace the gasoline content of kerosene lost by not processing it to its maximum gasoline yield, less any operating costs saved by failure to process to the ultimate gasoline content. The cost to bring the kerosene to a marketable condition is added to this cost.

The theoretical shortcomings of the replacement value method are obvious. A high percentage of the total cost of production is allocated to gasoline during the initial cracking process. Thus, as additional production continues, primarily only incremental processing costs accrue to the ensuing products, e.g., kerosene, heating oil and residual oil used by the utilities. This process is not unique to the oil and gas industry.

Current Sales Method

Traditional methods of allocating joint product costs are considered by most accountants as being a necessary, however arbitrary cost expedient for financial reporting purposes. If this is an arbitrary cost expedient, why not use a method that would provide some benefits? Current methods of joint cost allocation have not allowed accounting to keep up with changing customer demands and the resulting changes in product mixes. A system of cost allocation that would load joint products according to their performance during each period of operation might be of benefit. Slow moving products would be loaded with a smaller share of the joint costs making them more attractive at the marketplace.

A joint cost allocation method that allocates higher cost to joint products experiencing high current demand is the *current sales method*. This method allows the assigning of joint costs according to shifts in relative demand within each operating period. The current sales method is illustrated in Exhibit II using the hypothetical data in Exhibit I to allocate an assumed joint cost of $100,000.

The current sales method allocates joint production costs simply by assigning current production costs by relative current *sales* of joint products (as opposed to sales value of units produced). For example, referring to Exhibit I, in 19X3 Product A will be assigned 200/350 of the joint costs. The ratio is determined by current demand rather than by current production as would be the case in the units of production method (20/100) or the market value method (100/290).

Exhibit II shows a comparison of the results of current sales method with

EXHIBIT I

Joint Product Production and Sales Data

Product (unit price)	19X1 units produced		19X2		19X3	
	produced	sold	produced	sold	produced	sold
A ($5)	20,000 ($100,000)	30,000 ($150,000)	30,000 ($150,000)	20,000 ($100,000)	20,000 ($100,000)	40,000 ($200,000)
B ($2)	50,000 ($100,000)	40,000 ($ 80,000)	40,000 ($ 80,000)	50,000 ($100,000)	50,000 ($100,000)	30,000 ($ 60,000)
C ($3)	30,000 ($ 90,000)	30,000 ($ 90,000)	30,000 ($ 90,000)	30,000 ($ 90,000)	30,000 ($ 90,000)	30,000 ($ 90,000)
TOTALS	100,000 ($290,000)	100,000 ($320,000)	100,000 ($320,000)	100,000 ($290,000)	100,000 ($290,000)	100,000 ($350,000)

EXHIBIT II

Comparison of Assignment of Joint Production Costs by Allocation Method (unit cost in parenthesis)

Product	Units of Production Method			Market Value Method			Current Sales Method		
	19X1	19X2	19X3	19X1	19X2	19X3	19X1	19X2	19X3
A	$20,000 ($1.00)	$30,000 ($1.00)	$20,000 ($1.00)	$34,483 ($1.72)	$46,875 ($1.56)	$34,483 ($1.72)	$46,875 ($2.35)	$34,483 ($1.13)	$57,143 ($2.85)
B	$50,000 ($1.00)	$40,000 ($1.00)	$50,000 ($1.00)	$34,483 ($ .69)	$25,000 ($ .63)	$34,483 ($ .69)	$25,000 ($ .50)	$34,483 ($ .86)	$17,143 ($ .34)
C	$30,000 ($1.00)	$30,000 ($1.00)	$30,000 ($1.00)	$31,034 ($1.03)	$28,125 ($ .94)	$31,034 ($1.03)	$28,125 ($ .94)	$31,034 ($1.03)	$25,714 ($ .86)

other methods. Note that the current sales method allocates shares of joint costs to faster-moving products. As demand changes over time, costs are shifted to products in relatively greater demand. Herein lies the method's most desirable characteristics.

Traditional methods of joint cost allocation offer little motivation for including cost considerations in pricing, planning, and control decisions. However, the current sales method assigns higher (lower) costs to faster (slower) moving products. Resulting cost data reflect relative demand for products, yielding better input for deciding appropriate pricing policies, determining production to meet demand, evaluating performance, and making other management decisions. Moreover, a higher proportion of production costs are matched against revenues under this method, providing tax savings as well as lower carrying costs for slower-moving inventory.

Summary and Conclusion

The current sales method of allocating joint production costs demonstrated in this article provides a viable alternative to traditional joint cost allocation methods. The method suggested serves to assign production costs in a manner which responds to shifts in demand from period to period. Benefits include better information for management decision-making, tax savings, and reduced inventory carrying costs for slow-moving inventory. It is concluded that the current sales method is a logical, practical approach to joint cost allocation which is particularly well-suited to the dynamic and unpredictable environment in which many industries operate. Ω

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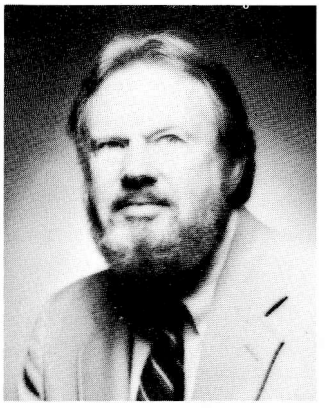

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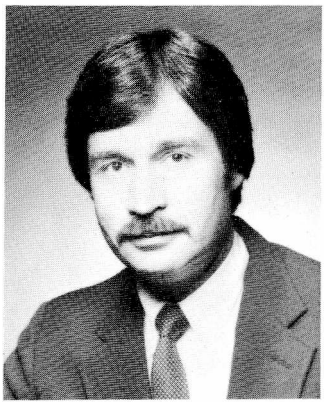

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