# What is Your Quarry Worth?

## Different techniques yield varying degrees of accuracy when determining fair market value of a quarry.

By Mike Nowobilski

***Case Study A:*** *Earlier this year, my firm met with the owners of a quarry to discuss their efforts to sell a small rural sand and gravel pit. Associated assets included a small equipment fleet of older equipment. Viewing the sale as a once-in-a-lifetime opportunity, one of the major criteria they used in selecting a firm was its estimate of sales price. They estimated a sales price of $16 to $20 million. We thought $5 million was a much more realistic market value. Several factors contributed to this large gap in expectations. The owners had recently inherited the property. Two of the three owners live a long distance away in a large metropolitan area where both the demand and profits associated with mining properties are much greater. Accordingly, they appeared to be basing their estimate of value on the market where they lived.*

***Case Study B:*** *We received an inquiry from a small quarry owner who was interested in pursuing a sale of his quarry and asphalt plant. Cash flow was somewhat problematic due primarily to low sales volumes and profits. When asked if he had any idea of the business' market value, he responded that he needed $3 million. Apparently, this was the price of some recent equipment purchases, and the company desired to pay off its debt.*

Neither owner — true cases — had much of an idea as to their business' fair market value. Yet often the anticipated sales price is the predominant factor in an owner's (seller's) decision process. Purchase price is typically equally as important to the buyer, as no one wants to overpay. Successfully completing a sale requires a meeting of the minds on the issue of a quarry's or company's fair market value.

In contrast to these two examples, I recently met with a company's board of directors. The board was deciding whether to proceed with plans to sell several quarries. Setting a reasonable expectation as to sales price was a key factor in the board's decision. After obtaining an assessment of the business and an estimate of its fair market value, the board was able to make an informed decision.

The purpose of this article is to describe the methodology that can be used to derive an estimate of the fair market value of a quarry. By defining fair market value, examining typical valuation methods used in the aggregates industry, and applying these techniques to examples, you will be able to gain a better understanding of quarry valuations.

### Determining fair market value

Fair market value is defined as the "most probable" price that a property (quarry) should bring in a competitive and open market between a buyer and seller who are each acting prudently and knowledgeably. The price should not be affected by special or creative financing or sales concessions granted by either of the parties.

There are several accepted techniques that can be used to determine fair market value. Three of the more widely used techniques include the following approaches: asset based, market based, and income.

**Asset-based approach.** The basic premise of this approach is that, because a business is a bundle of assets, the value of a business is the cumulative value of its assets, including intangibles such as goodwill. Quarry assets to be valued using this approach typically include the estimated values of the inventory and any equipment and real estate (any owned surface and mineral properties) used in the business. If a stock transaction is anticipated, then the values of the working capital are added to the above and any debt is subtracted.

In my experience, the results of this approach are often lower than the value estimates calculated through the use of the other two techniques. Why? It seems there are several potential reasons. Many quarries are family-owned businesses that have been in operation for decades. Although they are profitable, their owners have elected to retain small equipment fleets of older equipment since they provide adequate service. Consequently, equipment values are relatively low. An obvious exception could be a quarry that has just made a large investment in new mobile equipment or processing plant. In this case, the reverse could be true.

**Market-based approach.** Many are familiar with the use of the sales comparison approach (comps). Comps are commonly used when selling houses, offices, agricultural property, or other fairly liquid real estate. The market-based approach for determining the value of a quarry is basically the same.

Market-based valuation methods can use multiples and/or capitalization rates that are extrapolated from publicly traded company data or transactions involving privately held

### Figure 1: Quarry Information (Assumed)

| | CASE A | CASE B |
|---|---|---|
| **Assets** | | |
| Equipment Value | $900,000 | $4,000,000 |
| Reserve Value | $1,250,000 | Leased |
| **Income Statement** | | |
| Volume | 600,000 | 300,000 |
| Sales Revenue | $3,300,000 | $1,275,000 |
| Cash Profit | $1,500,000 | $300,000 |

companies to derive the market value for a closely-held business. As with comps, the theory behind this method is that the market for privately owned businesses determines what price provides an acceptable return for a quarry's earnings stream. Multiples commonly used include sales revenues, earnings, or profits. Our firm maintains a database of publicly traded stocks and transaction multiples associated with several transactions that have occurred during the past five or six years.

Although relatively easy to apply, this approach does have limitations. One drawback is that it is typically applied to historical financial performance. Obviously, the past could be better than the future, as might be the case following the completion of a major highway building program within the market area. Conversely, the big project could be in the future and its impact not yet realized. Similarly, the quarry's ownership position with respect to its mineral reserve, owned or leased, and its life expectancy can materially impact value. Another potential drawback involves the selection of multiples. For example, values based on multiples of sales revenue do not take into account that a quarry's financial performance is very market specific, and profit margins vary from one market to another. Therefore, multiples based on profits are recommended.

**Income approach.** The income approach typically provides the most reliable estimate of fair market value as investors are actually purchasing future profits (more specifically cash flow). This approach uses discounted cash flow analysis to determine value. It is straightforward and widely used. It is based on a quarry's long-term plan (greater than 10 years in duration) that takes into account numerous variables such as:

- Sales and market forecast — Historical sales volumes and prices are considered as well as future demand forecasts.
- Mineral characteristics — Projected mine life, mineral deposit quality, depth of overburden, and processing requirements.
- Mine design and capitalization — Mine design, level of capitalization, and annual production capacities of a mine or quarry.

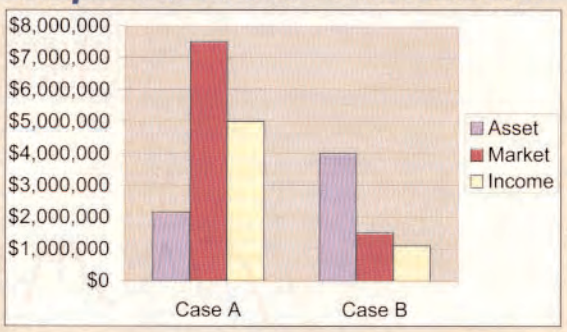
The plan's resultant pro forma financial statements include cash flow projections that are discounted to their present value at an appropriate discount rate. The discount rate (an investor's required returns) are based on perceived risk and the buyer's weighted average costs of capital.

*The income approach typically provides the best estimate of a quarry's fair market value, but it must be based on a credible development plan.*

As noted, the income approach typically provides the best estimate of a quarry's fair market value. It is important to note that it assumes the analysis employed a credible development plan (sales, costs, and capital) in order that the resultant pro forma earnings and cash flow projections can be viewed as being realistic. Otherwise the calculated value does not represent a reasonably accurate estimate of value. Furthermore, unless prospective buyers accept the plan as being reasonable and credible, it is fiction. This is important. There ultimately must be an agreement between a knowledgeable seller and buyer on the quarry's or company's fair market value.

**FIGURE 2**

**Comparison of Fair Market Values**




## What is this quarry worth?

Typically we will analyze a quarry using each of the three valuation approaches whenever determining fair market value. In order to demonstrate the valuation process we'll analyze two fictitious quarries. The fictitious data presented in Figure 1 is assumed to be representative of Case A's and Case B's quarries. Figure 1 indicates the assumed asset values, sales, and profits.

**Asset-based approach.** The value calculated for Case A's quarry is $2,150,000. Case B's value is calculated at $4,000,000. Note, there is no value assigned to the leased reserves in this example.

**Market-based approach.** For purposes of demonstrating the methodology of this approach, we've assumed that a multiple of 5x a quarry's cash profit is applicable. By doing the appropriate multiplication, values of $7.5 million and $1.5 million are calculated for the respective cases.

**Income approach.** For purposes of calculating the fair market value using the income approach, long-term pro forma financial models were built for the indicated sales and profit margins. (These models included several additional assumptions that were similarly applied to both quarries.) Using discounted cash flow analysis, we calculated theoretical values of $5 million and $1.1 million for the respective cases.

## Conclusion

So what are each quarry's fair market values? Figure 2 graphically summarizes the results derived for each of the three approaches.

Observe that in neither case does the asset-based approach seem to provide a good indication of fair market value. For Case B's quarry, there is reasonable agreement between the market-based approach and the income approach. For Case A, there is a significant discrepancy between the values derived through the market-based and income approaches. Assuming the income-based approach was thorough in its analysis, then arguably the income approach provides the best estimate of value.

When in the market to either buy or sell a quarry, a thorough analysis of these methods can help ensure that both parties understand and agree to the property's fair market value. ■

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