

FAIR VALUE™

Reprinted from Volume XXII, Number 1

Spring/Summer 2017

THE FOREST AND THE TREE

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Once upon a time there was a scientist. He lived and worked in a large laboratory, conducting experiments with various chemicals and compounds. The scientist loved his work and never went outside of his laboratory.

During his free time, the scientist enjoyed reading books. He especially loved books about trees. He could imagine a tree in his mind, however, because there were no windows in his laboratory and he never went outside of his laboratory, the scientist had never seen a tree. One day he realized that because he was a scientist, he could *make* a tree.

He worked day and night on his tree, starting, demolishing, and starting over again. After many months, he finally finished his tree. It was not made of wood and upon close inspection did not look quite like a tree, however, the scientist was very happy with it. It was an impressive tree - about thirty feet tall. Every day at noon, the scientist would sit under his tree with a sandwich and read one of his books about trees. Every night the scientist would go to sleep under his tree, gazing up at the branches and leaves he had made.

One day a forester came to visit the scientist. He could not help noticing the scientist's tree as it was the largest thing in the laboratory. "That is quite a tree," he said to the scientist.

"Thank you," the scientist replied. "I made it myself for there is nothing in this world I love more than trees."

The forester was puzzled. "Do you not know," he told the scientist, "there is a great forest just outside the door of your laboratory? A forest of real trees? Hundreds of trees, stretching as far as the eye can see? Trees much taller than your tree - fifty, one hundred, even one hundred and fifty feet tall?"

The scientist could not believe what he was hearing. "But I already have my own tree - can't you see?"

"Yes, and it is a fine tree," said the forester, lying a bit. "But do the leaves on your tree turn orange, red, and gold in the fall, then flutter to the ground, then come back again as green leaves in the spring?"



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"Oh, yes!" said the scientist, "for I have read about these things." And the scientist showed the forester large bins of metal leaves the scientist had made - orange, red, and gold. "Every October," the scientist said, "I climb the tree and replace the green leaves with the orange, red and gold leaves. Then in November, I climb the tree again and detach the orange, red, and gold leaves, letting them fall to the ground so that I can rake them. Then in April, I climb the tree again and reattach all of the green leaves."

"Oh," said the forester. He was quiet for a time. "But there is no wind in your laboratory. How can the leaves on your tree rustle in the wind?"

"I have thought of that too!" said the scientist excitedly. Running to a corner of his laboratory, he wheeled out

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a large fan and pointed it up at the tree. He asked the forester to move away from the tree and then turned on the fan. The tree began to shake violently and a tremendous noise filled the laboratory. The forester covered his ears. He felt as if he were inside a dryer full of empty beer cans. A few of the leaves and branches blew off the tree, clanging off the hard concrete floor of the laboratory. The scientist turned off the fan.

The forester was quiet for some time as he waited for his ears to stop ringing. "Well, that is quite a rustle," he lied again. "But wouldn't you like to come outside with me and see the forest?"

"Why should I?" said the scientist. "I have my own tree right here."

The forester wanted to tell the scientist that the trees in the forest were real trees and were much better than the scientist's tree. But the forester also did not want to hurt the scientist's feelings as he could see the scientist loved and was very proud of his tree. The forester decided it was best to let the scientist be happy with his tree.

The Moral of the Story. So what do trees have to do with business valuation? As it turns out, plenty. The above story is nothing more than an illustration of the dangers of relying exclusively on the income approach while ignoring overwhelming amounts of reliable evidence under the market approach, particularly when the valuation of a controlling interest in a private company is the issue.

Case Study. Let's flesh out the parable and engage the scientist and the forester on the same valuation project. Assume the project is the value of a 100% controlling interest in a service business. This service business is in an industry with tens of thousands of participants, although only five of these participants are publicly-traded. Acquisition activity has been very strong in this industry for many years and is expected to continue in the future. This consolidation has permeated all levels of the industry, from a large number of acquisitions made annually by the five public companies, all the way down to many of the smallest companies in the industry being acquired. The subject company previously engaged an investment bank to explore capital-raising options (including the possible sale of all or some part of the company) as well as identify potential acquisition targets. Based on the investment bank's advice, the subject company made an acquisition of a smaller company in this industry two years ago. The Company also spoke with potential acquirors, although the

company remained independent at the present.

Agreement. The company has \$1,000,000 in annual revenues and profit margins that are equal to the industry average profit margins. Because the company is a service business, both the scientist and the forester agree that the cost approach is inapplicable as virtually all of the value of companies in this industry is intangible in nature, an element that is not captured in the cost approach. The scientist and the forester also agree that the guideline public company method under the market approach is not applicable as there is no way to reasonably compare the much smaller private company to the five much larger publicly-traded companies in the industry.

Disagreement. At this point in the valuation analysis, the scientist and the forester diverge. The scientist relies solely on an income approach. Under the income approach, the scientist determines a capitalization rate based on rates of return of thousands of publicly-traded companies on the New York Stock Exchange, American Stock Exchange, and NASDAQ, and then adds an additional premium due to the additional risk of the privately-held company being valued. The scientist divides the company's normalized profit by the capitalization rate to calculate a preliminary value for the company. The scientist then subtracts a discount for lack of marketability to derive a value of **\$300,000** for this company.

The forester also uses an income approach, however, after analyzing the abundance of transaction data in the industry, he determines that a hypothetical willing buyer and willing seller would place all of the weight on the market approach. Within the market approach, the forester has several items to consider, including: (1) reported transaction data on hundreds of companies in this industry, (2) transaction information provided by investment bankers and business brokers on acquisition multiples in the industry, and (3) transaction data on the actual acquisition made by the company itself just two years ago. Utilizing this data, the forester calculates a value of **\$1,000,000** for this company. The forester does not need to apply any discount for lack of marketability as this factor is already included in the transaction data he considered.

The scientist and the forester are now at trial, each defending his selected methodology. There are three key philosophical differences between the scientist and the forester.

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Issue 1: Investors Buy Profits Only.

Scientist: It is a well accepted fact in business valuation that investors only buy profit as that is the only thing that can reimburse an investor for the purchase price. As such, an income approach is the only acceptable methodology as it measures the return to a buyer based on the annual profit expected to be received each year. Market approaches, particularly those based on revenue multiples, cannot measure this return to a buyer and are therefore unacceptable.

Forester: It is true that profitability may be an important issue considered by the buyer, however, it may not be the exclusive issue and capitalizing normalized profit may not be the only way a buyer analyzes this issue. In many industries, particularly those where acquisition activity is evident, buyers may be more interested in the level of revenues at a target company. This is because the buyer already knows its cost structure and can accurately estimate the post-acquisition level of profits on the acquired revenues. Furthermore, there is evidence of numerous acquisitions of companies with little or no profits, proving that some factor other than profit was driving the value of the company.

Scientific Contradiction. Banister Financial was involved in a case where a scientist was adamant about the theory that investors buy profits only. This scientist would not accept any market approaches as he believed that profits were the only measure of value and the income approach was the only available method to capture the impact of profits on value. To bolster his low value under the income approach, the scientist cited in his report an excerpt from an industry publication that stated that companies with less than \$3 million in revenues cannot earn any adjusted profits as a standalone business and lack the ability to build sustainable profits.

Then, not ten pages later in his report, the scientist noted the existence of hundreds of actual transactions of companies with less than \$3 million in annual revenues where consideration was paid by a buyer. Under the scientist's investors-buy-profits-only theory, these transactions simply are not possible, yet they nonetheless exist. Let's follow the scientist's logic to its dead-end conclusion:

1. Companies in this industry with revenues of \$3 million or less cannot have any current profit or any expectation of profits. As such,

the adjusted net profit of these companies is zero.

2. Under the income approach, the value of these companies has to be zero as zero net profit divided by any capitalization rate equals zero value.
3. The income approach is the only available method to value these companies due to the fact that investors buy profits only.
4. No one would pay anything for companies in this industry with revenues of \$3 million or less as there is no profit at these companies and these companies have no value under the income approach.

And yet the scientist cited evidence of hundreds of companies in this industry with revenues of \$3 million or less that were bought and sold! This is uncontroverted proof that buyers and sellers in the real world use some methodology other than the income approach for these transactions. Too clever by half, the scientist disproved his own theory within his own report - we did not even have to introduce any outside evidence to demonstrate the fatal flaw in his logic.

Price to Revenue Multiple. Assume that the scientist calculates a \$1,000,000 potential value using observed price to revenue multiples from the industry. The scientist excludes this potential value due to the fact that it does not corroborate the \$300,000 value determined by the scientist under his income approach. This indicates an inherent bias by the scientist. Put simply, from the perspective of the scientist, the income approach is king and all other methods must bow down to it. If the value under a market approach is equal to the value under the income approach, then it is fine to include the value under the market approach. If, however, the value under the market approach is different from the value under the income approach, the market approach has to be wrong and must be excluded. This type of methodology bias is not accepted business valuation practice. To see a more detailed discussion of this issue, please refer to "The Selective Expert" article found in the valuation article library at Banister Financial's website at www.businessvalue.com.

But don't just take our word for it. Also consider what Shannon Pratt, FASA, CFA, says about the market

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approach in his *Market Approach to Valuing Businesses*:

The market approach is a pragmatic way to value businesses, essentially by comparison to the prices at which other similar businesses or business interests changed hands in arm's-length transactions. It is favored by the Internal Revenue Service in Revenue Ruling 59-60 and is widely used by buyers, sellers, investment bankers, business brokers, and business appraisers.

The market approach to valuation is relevant because it uses observable factual evidence of actual sales of other properties to derive indications of value...The market approach is especially relevant if the standard of value is fair market value.

Revenue Ruling 59-60 strongly advocates the guideline public company method within the market approach...When Revenue Ruling 59-60 was written in 1959, none of the private company transaction databases that we use today existed. The emergence of these private company transaction databases in recent years makes the use of sales data for entire companies, including many small companies, a viable method within the market approach.

Good market comparisons can be the most compelling evidence of the value of a business or a business interest. These comparisons allow us to make informed pricing decisions for purchases and sales and to present convincing empirical evidence of value for other purposes.

These (and similar) comments about the market approach have been believed and followed by business appraisers since the beginning of the profession. They have been followed by judges and courts and validated by countless real-world transactions. None of this matters to the scientist, however. For the scientist, the income approach is paramount as investors buy profit only - there simply is no other possibility.

Statistical Analysis. In many cases, it can be shown that a price to revenue multiple is a more stable and accurate predictor of value than an earnings-based multiple such as price to EBITDA (earnings before income taxes, interest expense, depreciation and amortization). The statistical measure known as the coefficient of variation measures the degree to which a number of data points are dispersed around the mean. Think of it as fitting a line to a series of

dots on a graph. The location of the line is based on the cumulative shortest distance between each dot to the line. A graph with a series of dots that is tightly grouped will have a lower cumulative distance between those dots to the line and therefore a lower coefficient of variation. A graph with a series of dots that is scattered widely will have a greater cumulative distance between those dots to the line and therefore a higher coefficient of variation. A lower coefficient of variation signals a more stable relationship between the dots (i.e., each individual multiple) and the mean (i.e., the average multiple).

In a recent valuation engagement, we calculated the coefficient of variation for an industry with over one hundred transactions. Our analysis showed that the price to revenue multiple was over three times more reliable than the price to EBITDA multiple. There could be a number of reasons for this result. One possibility is that the EBITDA figures provided in the transaction data were not uniformly accurate. This appeared to be the case as our analysis of the EBITDA margins of the transaction companies indicated a wide range, literally from 0% to 100%. A 100% EBITDA margin is an impossibility as it implies that a company has no operating expenses. Because the EBITDA was not reported accurately in each transaction, the reliability of the price to EBITDA multiple is compromised. This inaccuracy, however, has no bearing on the reliability of the revenue figure or the use of a price to revenue multiple.

Dangers of Relying on an Earnings-Based Multiple.

In “‘Just one thing’: The most reliable variable for use in the market approach,” (September 2004 issue of *Shannon Pratt's Business Valuation Update*), author Franz Ross analyzes 780 transactions of companies with revenues between \$1 million and \$30 million across six broad industry codes and, by calculating the coefficient of variation, concludes that gross profit is the most reliable fundamental variable in determining the value of a company. The gross profit figure is not available for a service company as in our example (since a service company is not selling a product), however, Mr. Ross' warnings about the use of earnings-based measures still apply:

Use of a multiplier that is not earnings-driven provides a better check on value than using an earnings-driven multiplier.

One of the advantages of gross profit as an indicator is that this data point is more easily

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calculated than discretionary earnings. Gross profit is a “user friendly” means of comparison. There is also less likelihood of either subject data or market data being manipulated than in an earnings-driven comparison [note: the same can be said about revenues].

The calculation of a correlation coefficient provides important information regarding the reliability of a market value estimate. Appraisers should incorporate this analysis into their reports.

Issue 2: We Don’t Know Enough About the Comparable Transactions.

Scientist: You cannot use the market transaction data because we don’t have enough information or detail to be sure these companies are truly comparable to the company we are valuing. Some of the transaction companies are bigger than the subject company. Some of the transactions are smaller than the subject company. The profit figures for the transaction companies are not accurate. We don’t know exactly what the transaction companies do. Some of these transactions are too old.

Forester: It is true we can always use more information than what is provided. It is also true we will never have exact matches in the transaction data to the company being valued. Scientists, however, set the bar so high in their selection process that no transaction companies can possibly get over it. These scientists are making a subjective judgment that the data in the market approach is too unreliable to use as compared to the data the scientist uses in the income approach. This begs the question: Which data is more reliable and comparable - the data in the income approach or the data in the market approach?

Theory versus Realty. The income approach promulgated by the scientist has so many theoretical assumptions that the compounded aspect of these assumptions drives the value indicated under this method further and further from reality. By contrast, although the data in the market approach is not perfect, it nonetheless reflects actual transactions in the company’s industry and therefore may be far closer to reality than the data used in the income approach. Let’s look at the key differences between the two methods:

1. The income approach is derived from rates of return of thousands of publicly-traded companies, all of which we know with

certainty are vastly different from the small private company being valued. The scientist complains that one transaction company has only half the revenues of the subject company being valued. Another transaction company has a slightly different service offering than the subject company. So what? At least they are small private companies *in the same industry*. The income approach, by contrast, is based entirely on rates of return of thousands of publicly-traded companies on the New York Stock Exchange, American Stock Exchange, and NASDAQ. We know with certainty that all of these companies are vastly different from the company we are trying to value. Yet the scientist is willing to accept that Wal-Mart, Walt Disney, Microsoft, Coca-Cola, Exxon, General Motors, 3M, Procter & Gamble, Boeing, etc. are more comparable to the small privately-held service company at issue here than the hundreds of transactions listed in the company’s industry. To use our tree analogy, we are trying to value an oak tree here and the forest we have consists of a variety of trees: oak, pine, maple, etc. It is true we may not have a forest of identical oak trees but at least it is a forest of *trees*. The scientist, by contrast, in relying solely on the income approach, is willing to use a conglomeration of toasters, jet skis, lawn mowers, ping-pong tables, treadmills, wheelchairs, refrigerators, umbrellas, and trampolines to value the oak tree.

2. The income approach is based on *minority* interests in these public companies. By contrast, a 100% *controlling* interest in the subject company is the issue in our valuation. This creates a mis-match between the income approach and the company being valued, possibly requiring some subjective adjustment to correct (which magnifies the potential for error under the income approach).
3. The income approach is based on *marketable* securities. By contrast, the subject company being valued is a *non-marketable*, privately-held entity. There is no comparable public

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market for this company. This creates *another* mis-match between the income approach and the company being valued, possibly requiring *another* subjective adjustment to correct (which further compounds the potential for error under the income approach).

Based on this mis-match, many scientists deduct a discount for lack of marketability from their value under the income approach. They do this under the premise that the 100% controlling interest in the private company being valued is less marketable than the publicly-traded stocks upon which the rate of return is determined. There is no objective support for this discount for lack of marketability, however. It is very different from the numerous studies that have been done in support of a discount for lack of marketability on a minority interest in a private company. The application of a discount for lack of marketability for a 100% controlling interest valued under the income approach is another example of the compound effect of multiple theories and still greater separation from reality. By contrast, no adjustment for lack of marketability is necessary using the transaction companies as any marketability attributes are already incorporated into the actual sale price.

4. The income approach championed by the scientist relies on rates of return for publicly-traded companies. These rates of return are based on the entire public company, including all assets and liabilities of the public company. As such, no adjustment for cash is necessary when determining the value of the private company using the income approach. Said another way, the income approach assumes that the company's cash is sold along with the rest of the company.

Contrast this to the typical situation with the sale of a private company. The transaction data in the market approach is classified between asset and stock sales. Most of the transactions in most industries are indicated as asset sales as this is the more preferable form to the buyer. A discussion of this issue

is beyond the scope of this article, however, in an asset sale, cash is almost always not included in the sale. That is to say, the seller retains the cash in the business and the buyer does not purchase the cash in the business (this practice also has the advantage of making common sense). This requires the cash amount to be added to the indicated value under the market approach. This reflects what actually happens in the real world.

As seen above, the income approach utilizes the theoretical, non-reality option every time. It is a minority/marketable method trying to value a control/non-marketable entity. It relies solely on huge publicly-traded companies that have no resemblance whatsoever to the small private company being valued. It includes cash in its value when in the vast majority of cases no cash is going to be sold. It requires the application of a discount for lack of marketability for which there is no objective support. And the income approach is the better option? The mis-matched theory and subjective and unsupported assumptions inherent in the income approach may move the opinion of value under this method so far from reality as to be unrecognizable. The market approach, by contrast, follows reality every time, a far better reflection of what actually happens in an industry.

Issue 3: Sellers Can Sell Only to Financial Buyers, Not Synergistic Buyers.

Scientist: The transaction data represents synergistic buyers who are paying an investment value for the company. This is not fair market value because fair market value can consist only of financial buyers - that is, buyers who are purchasing the company based on its financial returns (profits) only. Synergistic buyers are paying an artificially higher price for the company because the company provides a unique benefit to that buyer. Synergistic buyers do not qualify as the hypothetical willing buyer under the definition of fair market value.

Forester: The hypothetical willing buyer under the definition of fair market value can be any buyer. The exclusion of the synergistic buyer from this class of potential buyers is arbitrary and illogical, particularly in a consolidating industry.

Common sense. Again we need to default to common sense. The scientist is making his old argument that

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investors buy profits only and only the income approach can capture this. We have already seen how this theory holds up in the face of real world evidence.

Suppose you are the owner/seller of the company in our hypothetical. In considering the sale of the company, there is one financial buyer who uses the income approach and is willing to pay you \$300,000 for your company. There are five synergistic buyers (in this consolidating industry with hundreds of reported transactions) who acknowledge the validity and reality of the market approach and are willing to pay you \$1,000,000 for your company. Acting as your investment banker, the scientist counsels that you can sell only to the financial buyer for \$300,000 and you have to reject the \$1,000,000 offers from the other potential buyers because they are synergistic buyers. Here is yet another illustration of the illogical result when theory trumps reality.

Let's let Shannon Pratt weigh in again, this time from *Valuing Small Businesses and Professional Practices*:

There is general agreement that the definition [of fair market value] implies that the parties have the ability - as well as the willingness - to buy or sell. The "market" in this definition can be thought of as *all the potential buyers and sellers of like businesses or professional practices (emphasis added)*.

[It is incorrect to assume] that the concept of fair market value precludes identifying *groups* of willing participants. Quite the contrary, the valuer should be able to identify categories of willing purchasers. Furthermore, the analyst cannot ignore the *seller*.

It can be true that an isolated transaction that is strategically motivated might result in an entirely different value than what a "hypothetical buyer" might pay under a fair market value standard. However, if there are a meaningful number of transactions occurring in an industry, it is far more likely that the synergistic buyers have defined the fair market value of companies in these industries. Of course the hypothetical willing seller is going to sell at this price and the hypothetical willing buyer must pay this price if he wants to purchase the company. A more detailed discussion of this issue can be found at "In Defense of the Merged and Acquired Companies Valuation Method" in the valuation article library at www.businessvalue.com.

Summary. Do not be fooled by the scientist's Frankenstein tree. Remember, the scientist lives in a laboratory and not in the real world. The scientist has only an idea of what a tree is from books - he has never seen one and refuses to acknowledge their existence outside of his laboratory. His concept of a tree is just that - a concept. It is theory, not reality. In far too many cases we have seen scientists who subjectively set the bar so high for the market approach that no comparable transaction can possibly qualify. These scientists are typically trying to justify their much lower value under the income approach by ignoring the real world. There are especially clever scientists out there who have spent a long time in their laboratory studying and admiring their tree. When these scientists are asked a difficult question about their illogical rejection of the market approach, they produce numerous Excel spreadsheets full of meaningless calculations and proceed to answer in great and convincing detail any question other than the one asked.

These scientists are trying to re-write standard valuation practice and methodology that has been accepted and used for decades. In effect, these scientists are eliminating two out of the three legs of the valuation stool (market and cost), leaving the income approach as the sole survivor. The scientist's valuation kingdom in which the market approach must always bow to the income approach is an artificial hierarchy invented by the scientist to manufacture a desired result. To be sure, in some cases there is a much smaller forest or even a desert outside the laboratory and the artificial tree is all we have. But there are many cases where vast timberlands exist outside of the laboratory and the proliferation of the market approach and increasing sources of such data means that new trees are growing every day.

At the end of the day, the valuation conclusion has to make common sense. We know the scientist does not believe in the forest but his belief is irrelevant. For that matter, the forester's belief in the forest is also irrelevant. **The only question is: Does the owner/willing seller believe in the forest?** Or, said another way, would the owner sell his company at the much lower value under the income approach in the face of what are sometimes hundreds of verifiable transactions in the same industry that indicate much higher values? Fortunately, one does not have to be a business appraiser, arbitrator, or a judge to know the answer to this question. A sane and rational mind is all that is required. ♦

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