# Assessing The Value Of Professional Practices 

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#### Abstract

This article describes a set of computer-based spreadsheet templates designed to assist in appraising professional practices. The templates were developed to increase the value and reduce the cost of doing such appraisals, essentially by comparing several complementary points of view, so as to reduce the amount of information that conventional appraisals throw away. The templates have been tested with more than twenty dental practices; and the experience suggests not only that they can be adapted for other small businesses, but also that they can serveas the basis for appraisingother small business services. In addition, while the templates attempt to overcome some of the shortcomings of typical methods of business appraisal, their use has highlighted some research questions that need to be addressed.


## INTRODUCTION

The project grew out of a search for better ways to serve small business clients, especially for ways to serve groups of small businesses that have common, unmet and challenging needs. One such need is to help buyers and sellers of small businesses negotiate. The need is large. Over three million small businesses (with a median net income of $\$ 200,000$ ) go up for sale in the United States every year (5). The development of this proposed appraisal approach was concentrated first on dental practices because dentists have expressed strong interest in valuation. For example, the number one topic of inquiry at the ADA (American Dental Association) Council on Dental Practice in recent years has been how to arrive at a fair market value and purchase terms. "More ADA members seek information on practice valuation than on any other subject." (1) This area is challenging because there is a great opportunity to improve the methods of appraising businesses, especially professional practices, and for preparing the sellers and buyers for the decisions involved.

## THE DESIGN OF VALUATION SERVICES

The design process began with the valuation literature of the dental profession. (For example, see reference 2) A design goal of reducing the time and cost of appraising a professional practice and to increase the usefulness of the resulting appraisals was set. The typical appraisal of a professional practice, using manual methods, costs clients between $\$ 1200$ and $\$ 4000$, about 1 percent of the price of the practice. Within a year, the goal was met. The set of computer-based spreadsheet templates described in this article took three work-months to develop and test. The templates not only reduced the time and cost of making appraisals by about 20 percent, but also
improved their quality. The outcome of each appraisal is more objective, logical, and repeatable regardless of who performs it. The greatest benefit, however, is that the templates now serve as a database for other services (discussed in the concluding section of the paper).

A major advantage of the spreadsheet templates is in reducing the effort of producing several estimates of appraised value. This is valuable because an appraisal should provide an objective estimate of the "bargaining zone" for the buyer and seller, not just a "point estimate". This zone is determined by the state of the practice and the objectives of the buyer and the seller.

To appreciate this advantage, consider the purchase negotiation process. In almost all such negotiations the buyer and seller both can be considered as having high and low bargaining points. The buyer might want to purchase the business for $\$ 150,000$, and would not pay more than $\$ 200,000$. The seller might want $\$ 250,000$, and would not take less than $\$ 175,000$. If the seller insists on $\$ 250,000$ there would be no sale to this buyer; and if the buyer insists on $\$ 150,000$, he would not get the business. The bargaining process should eventually lead them to an agreement, and the appraiser who provides a range of appraised values makes it easier for them to reach an agreement, (and also to earn a commission for facilitating the sale.)

The templates support this bargaining process by combining the results of several valuation methods using weighted averages, thus reducing the amount of information thrown away by conventional appraisals. Comparing the results of several valuation methods is especially helpful in situations where one method is more applicable than another.

But which methods should be used? The prime sources of advice on business valuation are the trade press and academic literature. The trade press abounds with (often eccentric) rules of thumb, often called "revenue multipliers". They are "quick and dirty" and easy to understand, but they throw away a great deal of information. Consider a typical professional practice with $\$ 300,000$ annual gross, $\$ 65,000$ net, $\$ 58,000$ worth of equipment, 1000 patients, and $\$ 150$ average annual charge per patient. The range of values is almost 200 percent for six rules of thumb commonly used to appraise professional practices.

1. The equipment plus the gross: $\$ 458,000$
2. Most recent year's gross: $\$ 300,000$
3. Four (or some other number) times the net: \$260,000
4. Seventy percent of a recent year's gross: \$210,000
5. Equipment plus the net: \$123,000
6. The equipment plus one-third last year's gross: \$158,000

The academic literature, on the other hand, concentrates on three groups of methods: capitalized earnings methods, asset summation methods, and market methods. Capitalized earnings methods look at income statements and are based on the idea that a buyer is interested in buying a stream of future income, while asset summation methods look primarily at balance sheets, and see the buyer as purchasing a bundle of functioning assets. Market methods rely on recent sales of enterprises similar to the one being appraised. While market methods are potentially the easiest to apply, they are seldom used for professional practices because the market is too thin. Thus the templates here result from selecting and modifying capitalized earnings and asset summation methods.

## Selecting Methods: A Metaphor

In selecting a set of methods, it is useful to think in terms of "triangulating" or arriving at a bargaining zone from different points of view. This situation can be likened to the story of the blind men studying an elephant. The one holding the tail thinks an elephant is a rope, while the one at the trunk thinks it is a snake. Another man holding a leg thinks it is a tree, while the one feeling the side thinks it is a wall.

This metaphor highlights the fact that while none of the methods ignores all the available information about a business, they are all shortsighted. The methods are like the efforts of the blind men because each method puts so much effort into estimating a small portion of the final price, and so little effort into estimating a large portion of it. The blind men holding the trunk or the tail are unlikely to be aware of where the bulk of the creature is, just as each method alone misses very important "off-sheet" factors.

Experience with valuing 15 professional practices indicates that asset summation is usually the most short-sighted. With it, 80 percent of the effort goes into adjusting the assets (these include leasehold improvements; professional equipment; office equipment and supplies; and accounts receivable, if they are to be transferred to the buyer). But these assets typically account for only 30 percent (and seldom more than 50 percent) of the final asking price of a well-run professional practice. The intangibles, on the other hand, account for 40 to 70 percent of the final asking price, depending on how well-managed the practice is. With asset summation, estimates of the intangible assets of a practice, which typically make up a large portion of the final price, are seldom precise. "Valuing a practice's intangible assets is more subjective than any other aspect of dental practice valuation." (4)

Despite their shortcomings, asset summation methods are sometimes the most appropriate. They are appropriate when a practice falls on hard times and must be sold by an estate, or the widow or widower of the professional. As soon as a professional ceases to practice, patients (or clients) begin migrating to other practices and the expected income stream - on which the intangibles are largely based-diminishes rapidly. Capitalized earnings methods are of little use in such cases.

But capitalized earnings methods are shortsighted as well. Earnings are capitalized by discounting net earnings (defined in several ways, as discussed below) by a capitalization rate to find the net worth of a practice. The primary advantage of these methods is that they focus on what buyers and banks are most interested in: earnings that can be used to retire the debt incurred to purchase a practice. But many buyers and sellers fail to understand concept of discounting, and therefore find it difficult to accept the resulting valuation. Moreover, it is often difficult to choose and substantiate a capitalization rate, a difficulty that is analogous to the subjectivity of valuing intangible assets.

## SPREADSHEET TEMPLATES FOR PRACTICE VALUATION

The spreadsheet templates described below attempt to overcome some of these disadvantages, as well as several shortcomings usually glossed over in text books and scholarly articles. For example, while it is common practice to adjust the balance sheet to reflect the value of assets to be sold, scholars rarely mention the importance of adjusting the income statement to reflect the types of expenses a buyer is likely to incur. Instead, the literature is largely devoted to projecting income into the future, and finding capitalization rates that adjust for risk and uncertainty. (See 7 for a recent summary.)

## Capitalized Earnings Methods

These methods are based on the premise that the fair market value of a practice is determined by the earnings that a buyer can expect to make from a purchased practice. Several capitalized earnings methods exist, reflecting different definitions of "earnings". The definition used in the templates ( Table 1) is based on the following logic: The buyer will use savings or borrowing, or both, to buy the practice. The earnings stream and its accompanying capitalization rate should reflect only what is being purchased, no more no less. First, the buyer is not buying gross income, because his expenses will be paid out of gross, and he is not investing in order to pay expenses. Instead, he is buying a stream of net income, but not the net income shown on the seller's income statements. The net income to be capitalized should therefore accurately reflect the circumstances of the buyer (or typical buyer), and must be calculated by adjusting the seller's income statements.

Table 1: Example Capitalized Earnings Calculation

| STEP 1: Project Revenue | Actual | Percent of Cross | Adjustment | Revised Value | Percent of Gross | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Production | 300,000 | 100.0 | 0 | 300,000 | 100.0 |  |
| A. Collections | 290,000 | 96.7 | 0 | 290,000 | 96.7 |  |
| STEP 2: Adjust Expenses 26.7 |  |  |  |  |  |  |
| Amortization | 1,000 | 0.3 | 0 | 1,000 | 0.3 |  |
| Advertising, mktg. | 1,000 | 0.3 | 0 | 1,000 | 0.3 |  |
| Depreciation | 7,400 | 2.5 | $(5,400)$ | 2,000 | 0.7 | 1 |
| Insurance | 6,000 | 2.0 | (2,000) | 4,000 | 1.3 | 2 |
| Interest | 7,000 | 2.3 | $(7,000)$ | 0 | 0.0 | 3 |
| Laboratory | 26,000 | 8.7 | $(4,000)$ | 30,000 | 10.0 | 4 |
| Office expense | 3,000 | 1.0 | , | 3,000 | 1.0 |  |
| Pension | 7,000 | 2.3 | 0 | 7,000 | 2.3 | 5 |
| Profess. services | 3,000 | 1.0 | 0 | 3,000 | 1.0 |  |
| Rent, mortgage | 6,000 | 2.0 | 2,400 | 8,400 | 2.8 | 6 |
| Repair, Mtce. | 5,000 | 1.7 | 0 | 5,000 | 1.7 |  |
| Salaries, Staff | 50,000 | 16.7 | 0 | 50,000 | 16.7 |  |
| Supplies, Prof. | 12,000 | 4.0 | 0 | 12,000 | 4.0 |  |
| Supplies, Office | 6,000 | 2.0 | 0 | 6,000 | 2.0 |  |
| Taxes | 10,000 | 3.3 | 0 | 10,000 | 3.3 |  |
| Utilities | 3,000 | 1.0 | 0 | 3,000 | 1.0 |  |
| Other | 3,600 | 1.2 | 0 | 3,600 | 1.2 |  |
| B. Total Expenses | \$157,000 | 52.3 | 0 | \$149,000 | 49.7 |  |
| C. Net Income(A-B) | \$133,000 | 44.3 |  | \$141,000 | 47.0 |  |
| STEP3: Estimate |  |  |  |  |  |  |
| D. Reasonable Salary of Buyer: |  |  |  | \$92,800 |  |  |
| E. Earnings above Reasonable Salary: (C-D) |  |  |  | \$48,200 |  |  |
| (To be Capitalized) |  |  |  |  |  |  |
| STEP 4: Estimate Capitalization Rate |  |  | \% |  |  |  |
| Current Risk Free Rate |  |  | 8.2 |  |  |  |
| + Premium for non-liquidity |  |  | 3.0 |  |  |  |
| + Premium for administrative burden |  |  | 2.0 |  |  |  |
| + Risk in the Profession (2-6\%) |  |  | 4.0 |  |  |  |
| + Risk-specific to this office (2-6\%) |  |  | 4.0 |  |  |  |
| F. Summed Capitalization Rate |  |  | 21.2 |  |  |  |
| STEP 5: Capitalize Net Earnings |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| H. Capitalization Rate |  |  |  | 0.212 |  |  |
| I. PRACTICE VALUE (G/H) |  |  |  | \$227,358 |  |  |

[^0]Table 1 illustrates typical adjustments, which are explained in notes at the bottom of the Table. In Step 1 future revenue ("collections") is typically estimated by taking a weighted average of collections from the three most recent years. This assumes that the buyer could maintain the practice at an average level of the past three years, a conservative, yet reasonable assumption.

In Step 2, expenses are adjusted to reflect what they are likely to be for a buyer, and are based on the appraiser's knowledge of how expenses arise, and how practices are managed. The "Percent of Gross" column assists in making these adjustments. Expenses are reduced that only provide a personal benefit to the seller (e.g., expenses to attend conventions and meetings, for a personal car, etc.) and they are adjusted to reflect the way a buyer would run the practice. To illustrate, the appraiser reduced the laboratory expenses of the seller in Table 1, realizing that the seller relied on laboratory services more than would a typical buyer.

These adjustments result in a projection of the income potentially available to the buyer. Step 3 designates a portion of the income as "reasonable salary" of the buyer. The difference between net income and reasonable salary, often called "excess income", is then capitalized divided by the capitalization rate - to compute an estimate of the value of the practice. These adjustments take about 70 percent of the effort, but they rarely influence the final asking price by more than 10 percent. The asking price is usually far more sensitive to the capitalization rate than it is to the adjustments of income and expense.

Since the capitalization rate is a return on investment provided by the excess income, it follows that it should reflect three things: (a) the buyer's cost of capital - what he would forego if he financed the purchase with savings or borrowing (or both); (b) the environment where the practice resides - the factors that provide patients; and (c) the way the practice is run-the practice factors that attract and serve the patients. This is a "systems approach" where the capitalization rate is based on the cost of the money, the system that generates the patients, and the system that serves them.

For the buyer's cost of capital, it is appropriate to use the current secure investment rate such as that for treasury bills or notes ( 8.2 percent in this example). This rate is then adjusted by three groups of factors:

1. Business illiquidity and administrative burden: The fact that the purchaser is buying something that he must manage and could not sell as quickly as financial instruments.
2. Practice environment: A rate to reflect factors such as market growth and quality (families and high income people), and the level of competitive pressure.
3. Practice management: Is the location and patient mix attractive, and does the present owner use good marketing and patient retention techniques and good operating methods?

These adjustments (in Step4) typically take the 8 or 9 percent return on secured investments into the neighborhood of 18 to 25 percent for a professional practice. This rate is often discussed in terms of the number of years of excess income the selling price represents. That is, a capitalization rate of 25 percent translates to four years, while a rate of 18 percent translates to about 5.55 years.

In Step 5, the excess earnings is divided by the capitalization rate to arrive at an estimate of the practice's selling price, which is also transferred to Table 3, along with the results of other valuation methods.

## Asset Summation Methods

With these methods, each major category of asset is valued separately, and then summed to arrive at the value of the practice. Sections A through C of Table 2 illustrate the calculations. The contribution of each category to the sum is shown in the right-hand side column, to illustrate the importance of balancing the effort that goes into each step against its impact on the total.

## Table 2: Example Asset Summation Calculations



Section A.1, Equipment and Furniture: Some appraisers ask equipment and furniture salesmen to visit a practice and appraise its furniture and equipment. The time and effort involved, however, is rarely worthwhile since the selling prices of professional practices are seldom sensitive to estimates of these assets. (It makes up less than 20 percent of the final value in our example). Other appraisers use straight-line depreciation of the original price or estimates of replacement value. The approach shown here seems more cost-effective than seeking estimates of replacement value, depreciation or market value, and consists of adding an estimate of the salvage value (usually 35 percent of the purchase price) to the undepreciated value of the equipment or furniture. Also, since many professions have lots of small instruments (eg. dental tools, surgical instruments, etc.), it is often best to ask the seller to place a fair market value on these as a group, rather than draw up an inventory of odds and ends. In summary, the approach attempts to balance speed, cost, and accuracy in appraising these assets.

Section A.2, Leasehold Improvements: The same reasoning used for equipment and furniture is applied to leasehold improvements.

Section A.3, Value of the Lease: The existing lease is compared with the prevailing market price for space similar to that of the practice. The number of years remaining on the lease is multiplied by the difference between the two to arrive at the amount saved or lost for those coming years.

Section B.1, Accounts Receivable: These are valued only if they are to be transferred to the buyer. Then, if they are significant, (say, $\$ 50,000$ or more), they are categorized by age and discounted by a factor that reflects their collectibility. Our example practice collects from insurance, has a patient payment plan, which are discounted by 95 percent, and aged receivables that are discounted according to their age.

Section B.2, Supplies: Some appraisers take an inventory at the time of sale, but this is awkward and time-consuming, compared to its impact as a proportion of the selling price, (typically less than 5 percent). Here the average inventory turnover is computed, and used to project the amount expected to be on hand at the time of sale.

Section C, Intangible Assets: Since professional practices seldom have trademarks, patents, or copyrights - the common intangibles of enterprises - the valuation of their intangible assets is more controversial. Intangible assets of such practices typically include goodwill, patient records, a covenant not to compete, telephone number and practice name, few of which have an objective cost of acquisition. Since these assets are crucial to the generation of income, the two common methods for valuing them - revenue multipliers and excess earnings methods - are based on the income statement.

Section C illustrates two revenue multiplier methods. When gross income is used, the appropriate multiplier is between 0.20 and 0.50 , and when net income is used, the multiplier is between 0.5 and 1.5. Although valuing intangible assets is quite subjective, it is quite important. In this example, intangibles make up more than 50 percent of the estimated practice value.

As mentioned above, asset summation is most appropriate for practices that are performing poorly (eg., because of death or disability of the professional). Since most of the value of such practices lie in their tangible assets, the intangibles are valued using small multipliers. Larger multipliers are used for well-managed practices; which typically brings the results of asset summation methods into line with those produced by capitalized earnings methods.

## Summarizing the Valuation Process

As shown in Table 3, the results of several methods-asset summation, capitalized earnings, (and various rules of thumb, if appropriate) - are combined using a weighting scheme. The reasoning behind the weightings is also given.

## Table 3. Valuation Summary

| Method | Appraisal <br> Value | Weight | Weighted |
| :--- | :---: | ---: | ---: |
| A. Capitalized Earnings | $\$ 227,358$ | 0.30 | $\$ 68,208$ |
| B. Asset Summation | $\$ 202,930$ | 0.70 | $\$ 142,051$ |
| C. Revenue Multipliers | $\$ 0$ | 0.00 | $\$ 0$ |
| D. Weighted Average of Methods |  |  | $\$ 210,259$ |
| E. Assessor's Adjustment |  |  | $\$ 1$ |

Assessor's Final Valuation

$\$ 210,260$

## Reasons for Weightings:

Weighting for Capitalized Earnings is 0.30 . Since the primary reason for purchasing a practice is income, Capitalized Earnings is usually given the heaviest weighting. But this practice has not been able to take full advantage of its assets, due to the owner's poor health. Consequently, the Asset Summation was given a higher weighting.

In this summary report, one can deal with problems that arise if different methods give widely different values. In this example, the appraised value produced by summing the assets is within $15 \%$ of the value produced by capitalizing the net earnings. In general the bettermanaged a practice is, the smaller the differences in appraised values produced by different methods. This tendency of poorly-managed practices to produce appraised values that differ widely, can be explained by considering asset turnover. A well-managed practice will have a higher proportion of intangible to tangible assets than will a poorly-managed one. Since intangibles come largely from earnings, the different methods will tend to agree. At the other extreme, practices that have lost their clients will have almost no earnings to capitalize and their appraised value will be based largely on their tangible assets.

## Checking the Appraisal

So far, two metaphorical "blind men" have produced an appraisal by analyzing the balance sheet and the income statement. Next, two other "blind men" inspect it: one takes a banker's viewpoint and produces a "purchase feasibility analysis", the other takes a manager's approach and produces a "performance indicator report".

The "banker", who plays the role of the person to whom the buyer must go to finance the purchase, wants to be sure that the buyer will be able to make enough from the business to pay back the loan.

The purchase feasibility analysis (Table 4) does not generate a new value for the practice; instead it checks whether a prospective buyer can purchase the practice at the appraised value and succeed financially. If the buyer cannot financially carry the practice while withdrawing a reasonable income from it, and retire the purchase debt in a reasonable time, then the practice cannot be sold at its appraised value. If this occurs, then the appraised value - the asking price - must be lowered.

## Table 4. Purchase Feasibility Analysis

| Description | Source | Amount |
| :--- | :--- | ---: |
| A.Appraised Value | Table 3 | 210,260 |
| B. Additional Capital Needed | Buyer | 24,883 |
| C. Capital Provided by Buyer | Buyer | 52,565 |
| D. Amount to Finance | A+B-C | 182,578 |
| E. Terms of Financing (years) | Typical |  |
| E. Prevailing Interest Rate | Typical | 10 |
| F. Expected Annual Payment | E, F, G | 32,313 |
| G. Expected Gross Collections | Table 1 | 290,000 |
| H. Expected Operating Expenses |  | Table 1 |
|  |  | 149,000 |
| I. Reasonable Salary for Buye | Table 1 | 92,800 |
| J. Income Remaining for Finance | G-H - I | 48,200 |
| K. Excess or Shortage in Cash Flow | J - F | 15,887 |

The appraised price can be adjusted to a "sales asking price" that can be expected to be approved by a buyer, his advisors (accountant and attorney), and to be accepted by a financial institution where the buyer may apply for a loan.

The analysis begins with appraised value. To this is added any investment that may be needed to refurbish the practice, and the operating capital needed to pay the bills until the accounts receivable begin coming in (row B). Since financial institutions typically expect a buyer to invest some of his own money, the capital to be provided (row C ) is subtracted from the capital needed to find the amount to be financed. Then the annual payment needed to retire the debt in a reasonable time (say, ten years) is computed (row F). The net income available to retire the debt is computed by subtracting the expected expenses and buyer's salary from the expected gross income (from Table 1). The excess or shortage is then computed to arrive at a "safety factor". If the safety factor is too low, it will be important to analyze several managerial performance indicators and to suggest how the practice could be better managed, to increase income or reduce expenses, or both. Otherwise, the purchase would be infeasible.

## The Performance Indicator Report

The fourth "blind man" takes a managerial approach and computes several performance indicators to determine how income could be improved, the assets better used, and expenses
reduced. Typical indicators includes the familiar balance sheet and income statement ratios for liquidity, profitability, leverage, and activity, augmented by indicators specific to professional practices. For example, is office overhead more than 60 percent of gross collections? Are collections less than 95 percent of billings? Are too many supplies kept on hand? The example in Table 5 is based on the appraiser's observation that the seller could increase the value of his practice by working more hours, improving his mix of services, and controlling his expenses better. The expected increased profit from these measures is computed in column $C$, and their expected impact on the selling price is in column $D$.

Table 5. Example Performance Indicator Report
$\left.\begin{array}{lccccc}\hline & \text { A } & \begin{array}{c}\text { B } \\ \text { Actual } \\ \text { Value }\end{array} & \begin{array}{c}\text { Cor for } \\ \text { Type of } \\ \text { Practice }\end{array} & \begin{array}{c}\text { Expected } \\ \text { Increase } \\ \text { Profit }\end{array} & \begin{array}{c}\text { Increased } \\ \text { Practice } \\ \text { Value }\end{array}\end{array} \begin{array}{c}\text { Percent } \\ \text { Increase }\end{array}\right]$

## SUMMARY AND SUGGESTIONS FOR FUTURE RESEARCH

These templates, based on the metaphor of four "blind men" who compare their results and "triangulate" to find bargaining zones to facilitate the sale of professional practices, provide good ways to learn about the management of professional practices. But the templates and the valuation services that they assist need further improvements.

Perhaps their major shortcoming is that professionals become interested in valuation at very few times in their careers - when they are buying or selling a practice. Few professionals think about the worth of their practices until it is too late to make changes that would enhance the worth of a practice. The expertise and insights from such service should be available to professionals earlier in their careers and for a longer time, so that they can improve their practices.

It is the rare professional who manages his or her practice so as to maximize its sales value. Moreover, the conventional methods of business appraisal give very little insight into what a professional can do to boost the value of the practice as he or she prepares it for sale (thus the need for the performance indicator report).

By the time a professional recognizes the importance of business valuation, he or she has typically made several irreversible decisions that have reduced the potential value of the
practice. One young dentist put it this way: "It is essential that the dentist be the manager of his dental office. That's one of the major problems confronting solo practitioners today. We had four years of college and four years of dental school, but we didn't have one business course. The idea of managing an office and not knowing anything about business is really a very poor way of sending dentists out into the cold, cruel world. When I say 'managing your office', that doesn't just mean the expenditure of money. It means how you make more money, how you market your practice, how to advertise, how to get your patients to refer other patients to you. The day of just expecting your practice to boom on referrals alone is gone." (6)

Since these templates grew out of a search for better ways to serve small business clients, thought needs to be given to the design of continuing education services that use the resulting data to help professionals improve the way they manage their practices.

A second question to be addressed concerns the subjectivity that creeps into crucial stages of each appraisal method. As mentioned above, intangible assets typically account for 50 to 70 percent of a practice's final asking price and yet are based on very little information about how assets are used. Similarly, the capitalization rate is a very long and very flexible "lever" whose influence is large but whose chosen value is often difficult to justify. In the example used here, for every one percent change in the capitalization rate, the appraised value changes by almost 5 percent;yet, many appraisers disagrecon these rates by several percentage points. More research is needed on the logic behind intangibles and capitalization rates.

A promising direction for this research lies in performance ratios such as those in Table 5, and is based on the realization that the common methods of business appraisal are based on financial statements, the realm of accounting. It seems likely that new business valuation methods based on performance indicators, including "off-sheet" factors, would overcome some of the "blindness" of the methods now commonly used.

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[^0]:    NOTES:

    1. Depreciation is established using IRS guidelines that do not necessarily reflect the rate at which equipment actually wears out and must be replaced. The replacement expense were set to reflect the amount that the buyer would have to set aside to keep his equipment up-to-date.
    2. Insurance costs for staff benefits and normal operations were retalned, but premin ma for personal beneflts were ellminated.
    3. Interest costs were deleted because they depend on the price and method of purchage. See Table 4.
    4. Lab. expenses were adjusted to $10 \%$ of Production, the national average because each professlonal's lab. expense is different.
    5. This figure was constdered non-elective and not adjusted because several employees are covered by the plan, and changing it might unduly encourage stalf turnover.
    6. The lease has two years to $n t h$, after which the rent for similar premises would likely be over $\$ 8,000$ a year.
