

CURRENT ISSUES IN THE VALUATION OF PURCHASED IPR&D

Dennis M. Mandell and Robert F. Reilly

INTRODUCTION

The valuation of in-process research and development (IPR&D) purchased in a business combination remains a complicated analysis. There are fewer acquisitions of technology companies (including hardware/software, internet, and dot-com companies) today than there were in the 1990s. And, the acquisition prices paid for technology companies today are lower than they were in the 1990s. Nonetheless, consolidation is still taking place in many technology industries. However, that consolidation is now motivated by economic survival strategies and not by investors' irrational exuberance.

Technology company business combinations are accounted for using the purchase accounting provisions of Financial Accounting Standards Board (FASB) Statement of Financial Accounting Standards 141 (SFAS 141). Even technology company business combinations consummated at lower pricing multiples often result in the recognition of intangible IPR&D. This is because technology companies typically own little in the way of tangible assets. And, even financially distressed technology companies have R&D projects in progress at any point in time.

Since the market correction of the Internet and dot-com company prices in 2000, many technology companies filed for bankruptcy protection. While many technology companies ultimately failed in the last few years, many others have reorganized and are now emerging from bankruptcy proceedings. These reorganized companies adopt the fresh start reporting provisions of American Institute of Certified Public Accountants (AICPA) Statement of Position 90-7 (SOP 90-7). Similar to purchase accounting provisions, SOP 90-7 provides for the recognition of IPR&D for the reorganized companies.

This article will discuss the current issues in the valuation and accounting of purchased IPR&D. We will define IPR&D and explain the merger and acquisition (M&A) circumstances in which IPR&D is recognized. We will describe and illustrate the generally accepted IPR&D valuation methods. In the late 1990s, the accounting for IPR&D caused the Securities and Exchange Commission (SEC) to investigate the purchase price allocation (PPA) of numerous technology company acquisitions. Based on these investigations, the SEC ultimately issued professional guidance with regard to IPR&D valuation. Finally,

we will discuss (1) the current relevance of IPR&D to a technology company PPA and (2) the current status of the SEC and FASB considerations regarding purchased IPR&D.

ACCOUNTING FOR R&D COSTS RELATED TO BUSINESS COMBINATIONS

SFAS 2, issued October 1974, remains the current GAAP for financial accounting and reporting of research and development (R&D) costs. The objectives of SFAS 2 are (1) to reduce the number of alternative accounting and (2) reporting practices and to provide useful financial information about R&D costs.

SFAS 2 provides the following definitions of R&D:

“Even technology company business combinations consummated at lower pricing multiples often result in the recognition of intangible IPR&D.”

- Research is a planned search or critical investigation aimed at discovery of new knowledge. Research is performed with the expectation that such knowledge will be useful (1) in developing a new product or service or a new process or technique or (2) in bringing about a significant improvement to an existing product or process.
- Development is the translation of research findings or other knowledge into a plan or design (1) for a new product or process or (2) for a significant improvement to an existing product or process (whether intended for sale or use).

SFAS 2 contains the following professional guidance regarding the accounting for R&D expenditures:

- The costs of purchased intangibles (1) for use in R&D activities and (2) with alternative future uses (in research and development projects or otherwise) are capitalized and amortized as intangible assets in accordance with APB Opinion 17. In 2001, APB Opinion 17 was superceded by SFAS 142.
- The costs of purchased intangibles for a particular research and development project (1) that have no alternative future uses (in other research and development projects or

otherwise) and (2) that have no separate economic values are research and development costs at the time the costs are incurred.

- All research and development costs encompassed by SFAS 2 are charged to expense when incurred.

FASB Interpretation 4 (FIN 4), issued in February 1975, explains the application of SFAS 2 to the cost of tangible and intangible assets used in R&D activities of an enterprise when those assets are acquired in a business combination. FIN 4 contains the following professional guidance under the heading "Interpretation:"

- The intent of paragraph 34 of SFAS 2 is that the PPA to the identifiable assets of an acquired enterprise will be made in accordance with APB Opinion 16. In 2001, APB Opinion 16 was superseded by SFAS 141.
- Costs are assigned to all identifiable tangible and intangible assets, including (1) assets resulting from research and development activities of the acquired enterprise or (2) assets used in the R&D activities of the combined enterprise.
- The costs assigned under APB Opinion 16 (now SFAS 141) are determined from the amount paid by the acquiring enterprise and not from the original cost to the acquired enterprise.
- Costs assigned to assets (1) that will be used in a particular R&D project and (2) that have no alternative future use should be charged to expense on the date of consummation of the business combination (i.e., the M&A transaction).

There are three ways in which R&D costs are incurred by a business enterprise:

1. the purchase of R&D from other business entities,
2. the conducting of R&D for other business entities under a contractual arrangement, and
3. the conducting of R&D activities for the benefit of the reporting business enterprise.

The accounting for R&D expenditures depends upon the nature of the cost. R&D costs incurred in the ordinary course of operations consist of materials, equipment, facilities, personnel, and indirect costs that are attributed to R&D activities. These costs are expensed in the period in which they are incurred, unless they have alternative future uses. Examples of such current period R&D costs include:

1. laboratory research to discover new knowledge;
2. formulation and design of product/service alternatives;

- a. testing for product/service alternatives and
- b. modification of products/services or processes;
3. preproduction prototypes and models:
 - a. tools, dies, etc., for new technology and
 - b. pilot plants not capable of commercial production; and
4. engineering activity until the product/service is ready for manufacture/delivery.

Examples of activities that are not considered to be current period R&D costs include:

1. engineering during an early phase of commercial production;
2. quality control for commercial production;
3. troubleshooting during a commercial production breakdown;
4. routine, ongoing efforts to improve products;
5. adaptation of existing capacity for a specific customer or other requirements;
6. seasonal design changes to products;
7. routine design of tools, dies, etc.; and
8. design, construction, startup, etc. of equipment except that used solely for R&D.

In many cases, operating companies will pay other companies to perform R&D activities on their behalf. There is a fundamental GAAP premise that a financial reporting result cannot be obtained indirectly if it would not have been permitted if accomplished directly. Thus, if a cost incurred is essentially for R&D activities that could (hypothetically) have been performed by the subject reporting entity, then those costs should be expensed as incurred. On the other hand, if a payment is made to acquire intangible assets for use in R&D activities, and if those intangible assets have other uses, then the expenditure is capitalized—and accounted for under the provisions of SFAS 142.

When R&D costs are incurred as a result of contractual arrangements, the nature of the agreement dictates the accounting treatment of the R&D costs. The key determinant is the transfer of the risk associated with the R&D expenditures. If a company (1) receives payment from another company to perform R&D and (2) is obligated to repay those payments regardless of the outcome, then a liability should be recorded. In that case, the R&D costs should be expensed as incurred. In order to conclude that a liability does not exist, the transfer of the R&D financial risk should be substantive.

The valuation of purchased IPR&D arises in an M&A transaction recorded under the SFAS 141 PPA rules. Accordingly, a brief review of the purchase accounting for business combinations is appropriate. Under SFAS 141, purchase accounting for a business combination is straightforward: the purchase price

is allocated to tangible and identifiable intangible assets and to liabilities assumed, based on fair values. Any excess purchase price over the fair value of the net assets acquired is designated as "goodwill." If the total fair value of the acquired net assets exceeds the total purchase price, the "negative goodwill" is offset against the allocated fair value of certain assets, with any residual immediately taken into earnings.

Under SFAS 142, goodwill (which often represents a major component of the technology company purchase price) is recorded and maintained semipermanently as an asset on the balance sheet. SFAS 142 requires efforts to be made to separately identify other intangibles (such as customer lists) that, under prior GAAP, were often included in goodwill. Under SFAS 142, there are specific requirements to test the goodwill for impairment on a regular basis. When impairment is detected, goodwill should be written down, with the expense included in the results of current operations.

SFAS 141 purchase accounting rules require a determination of the fair value (1) of each of the acquired company's identifiable tangible and intangible assets and (2) of each of its liabilities. The determination of these fair values is an important component of purchase accounting. The following list summarizes the SFAS 141 guidance regarding the estimation of fair value for various assets and liabilities.

1. Marketable securities—at fair values for publicly listed securities that are held for sale.
2. Receivables—at present values of amounts to be received determined by using current interest rates, less allowances for uncollectible accounts.
3. Inventories:
 - a. Finished goods and merchandise inventors—at estimated selling prices less (1) the costs of disposal and (2) a normal profit.
 - b. Work-in-process inventories—at estimated selling prices less (1) the costs of completion, (2) the costs of disposal, and (3) a normal profit.
 - c. Raw material inventories—at current replacement cost
4. Plan, property and equipment (PPE)
 - a. If the PPE is to be used in operations—at current replacement costs for similar capacity—unless the expected future use of the assets indicates a lower value to the acquirer.
 - b. If PPE is expected to be sold—at fair value less costs of disposal.
5. Identifiable intangible assets and other assets—at appraised fair value.

"Therefore, the value of IPR&D continues to be a financial reporting issue as long as purchased goodwill remains a recognized asset."

6. Liabilities (such as notes and accounts payable, long-term debt, pensions, warranties, claims payable)—at present value of amounts to be paid determined at appropriate current interest rates.

ACCOUNTING FOR IPR&D IN BUSINESS COMBINATIONS

The valuation of purchased IPR&D is often a complex issue in a business combination PPA. Under GAAP, R&D expenditures are normally expensed as incurred. However, an acquirer will often purchase a company that has previously incurred and expensed substantial sums for R&D. In some technology company transactions, most of the acquisition purchase is for the value of the target company's previous R&D efforts. FIN 4 clearly states that the acquirer must expense that portion of the acquisition purchase price. This is because, if this amount were to be recorded as an acquired asset, it would create a "back door" for R&D capitalization—which is prohibited by SFAS 2.

In the late 1990s, the SEC expressed concern that excessive portions of purchase price premiums were allocated to IPR&D and then immediately expensed. Such a PPA reduces the allocation to goodwill and reduces future amortization charges. With the "no amortization" requirement of SFAS 142, the motivation for an excessive PPA to IPR&D has abated. However, SFAS 142 emphasizes that (1) an appropriate allocation to IPR&D is required and (2) this amount should be immediately expensed by the acquiring entity.

While IPR&D should be expensed immediately upon acquisition, the value of IPR&D continues to play an important financial reporting role. This is because of the SFAS 142 requirement that goodwill should be regularly tested for impairment. Specifically, under SFAS 142, a determination must be made of the implied fair value of goodwill. This amount is compared to the recorded amount of goodwill for purposes of ascertaining whether, and by how much, goodwill has been impaired.

The impairment testing process is essentially identical to the PPA procedure used in a purchase accounting. This procedure involves the allocation of the overall fair value of reporting unit to all assets and liabilities—and to unrecognized intangibles including IPR&D—as if the reporting unit was acquired as of the impairment test date.

Therefore, the value of IPR&D continues to be a financial reporting issue as long as purchased goodwill remains a recognized asset. Only to the extent that there is an excess of (1) fair value over (2) amounts assigned to assets/liabilities will there be an implied fair value of goodwill. If this analysis is not performed in this manner, then the entire (and overstated)

residual amount would be allocated to goodwill. And, that goodwill amount would not be truly comparable to the recorded amount of the goodwill—thereby impeding the goodwill impairment testing. An illustration of the continuing valuation of IPR&D is presented in the following example.

SIMPLIFIED PURCHASED IPR&D ONGOING VALUATION REQUIREMENT EXAMPLE

Alpha Company (“Alpha”) acquired Beta Company (“Beta”) on December 31, 2002, for \$3.4 million. The purchase price was properly allocated to assets acquired and liabilities assumed, including an allocation of \$240,000 to IPR&D. This purchased IPR&D was properly expensed as of December 31, 2002. A residual value of \$500,000 was assigned to goodwill. The Beta operations became a separate reporting unit within the consolidated company.

To test for goodwill impairment in 2003, Alpha management assessed the fair value of the Beta operations—using information about comparable operations and economic characteristics, including market-derived pricing multiples of earnings—at \$3.15 million. As of that date, the recorded value of the Beta reporting unit net assets, excluding goodwill, was \$2,400,000. The Beta goodwill remained at its original \$500,000 recorded value.

Alpha management assigned a fair value of \$2.6 million to net identifiable assets excluding goodwill. Alpha management estimated that the IPR&D has an economic fair value of \$210,000. The residual fair value is \$340,000 (i.e., \$3.15 million less \$2.6 million + \$210,000). This \$340,000 amount is less than the \$500,000 recorded amount of goodwill. Therefore, a goodwill impairment of \$260,000 (i.e., \$500,000 - \$340,000) should be recognized by Alpha as 2003 operating expense.

If the fair value of the IPR&D (i.e., \$210,000) had been excluded from the goodwill impairment analysis, the residual fair value would have been computed as: \$3.15 million - \$2.6 million = \$550,000. Since recorded goodwill was only \$500,000, no goodwill impairment would have been indicated in that case. However, that impairment conclusion would be erroneous. This is because it would have ignored a real (albeit unrecognized) intangible asset of the Beta reporting unit (i.e., the IPR&D). And, that impairment conclusion would have effectively mischaracterized that IPR&D as goodwill.

VALUATION OF PURCHASED IPR&D

The income approach is the preferred IPR&D valuation approach. Within the income approach, the yield capitalization

method (also called the discounted cash flow—or DCF—method) is commonly used in the valuation of purchased IPR&D. An important consideration in the DCF method is the availability of reliable revenue and expense projections.

Preferably, revenue and expense projections are available for each individual technology project or product/service. Often, such project/product/service revenue and expense projections are prepared by the target technology company management and included in an offering memorandum. Also, such project/product/service revenues and expense projections are sometimes (1) prepared by the acquirer company financial analysts and (2) presented to the acquirer company board of directors prior to the decision to consummate the M&A transaction.

In addition to the data and documents otherwise considered in a PPA analysis, the valuation analyst will typically request the following information for the IPR&D valuation:

“An important consideration in the DCF method is the availability of reliable revenue and expense projections.”

- listing of each R&D project and apparatus,
- date(s) of each R&D project initiation,
- estimated date(s) of each R&D project completion,
- estimated amount of effort spent so far on each R&D project,
- status of each project along R&D technology development life cycle,
- effort to complete each R&D project,
- description of each technology and of its expected evolution,
- schedule of the appropriate technology development life cycle,
- listing of the anticipated products/services,
- schedule of the appropriate product life cycle,
- marketing and pricing strategies,
- analysis of market demand,
- analysis of expected market share,
- analysis of expected rate of market penetration and customer acceptance, and
- analysis of competition/competing technology.

There are several economic input variables in the typical DCF model for the valuation of purchased IPR&D. The quantitative relationships of these economic input variables are described on the following page:

**Valuation of Purchased IPR&D
Economic Input Variables in a Typical DCF Model**

Step One

current period IPR&D revenue
× technology life cycle factor
= expected next period IPR&D revenue

Step Two

expected IPR&D revenue
– cost of goods/services sold
– selling, general and administrative expenses
– ongoing R&D expense
= profit before tax from IPR&D
× 1 – effective income tax rate for subject IPR&D
= profit after tax from IPR&D

Step Three

profit after tax from IPR&D
+ depreciation and amortization expense
– capital expenditures
– capital charge on assets used in commercialization of IPR&D
= IPR&D economic income

Step Four

IPR&D economic income
× present value discount factor
= present value of IPR&D economic income

Step Five

sum of present value of IPR&D economic income for each year in expected life cycle of the IPR&D
× income tax amortization factor
= indication of value of purchased IPR&D

IPR&D VALUATION INPUT VARIABLES

The following discussion summarizes the economic input variables typically included in the IPR&D valuation DCF model.

IPR&D REVENUE

The first variable is the projection of expected IPR&D revenue. In order to prepare such a projection, the analyst will typically review both (1) revenue projections prepared by the target technology company management and (2) revenue projections prepared by the acquirer company M&A analysts. Both the target company and the acquirer company revenue projections should be adjusted (if necessary) to represent the revenue-generating capacity of the IPR&D as part of an inde-

pendent business enterprise—that is, without the economic influence of any post-acquisition synergies or economies of scale from the acquiring company.

In the review of any IPR&D revenue projections, the analyst should consider both (1) the support for and (2) the reasonableness of such factors as: the size of potential market, the subject’s ability and rate of market penetration, and the technology product/service expected.

In some cases, the analyst may only have overall target company business enterprise revenue projections available. In other circumstances, revenue projections by product may be available. Whether they relate to product/service line revenue or business enterprise revenue, the analyst should perform a rigorous due diligence investigation of “hockey stick” revenue projections. These projections indicate supernormal revenue growth rates in the early years of the projection period.

If the IPR&D relates to a new technology, or if the target company will be first to market with a new product/service, such supernormal revenue growth rates may be appropriate. However, the analyst should thoroughly examine both the quantitative and qualitative support for the “hockey stick” revenue projections.

TECHNOLOGY DEVELOPMENT LIFE CYCLE FACTOR

An analysis of the technology development life cycle affects two DCF model inputs. First, the term of the technology development life cycle will influence the projection period for the IPR&D revenue and expenses. Second, the shape of the technology development life cycle will influence (1) the rate at which the IPR&D revenue will increase during the introduction and maturity stages and (2) the rate at which the IPR&D revenue will decline during the decay stage.

Discussions with the target company R&D personnel and marketing personnel often provide useful information regarding (1) the subject market and (2) the competing technologies. This information provides a starting point for estimating the IPR&D technology development life cycle. The IPR&D technology development life cycle may be developed on either (1) a units versus time scale or (2) a dollars versus time scale. After the initial estimation, the IPR&D technology development life cycle is typically translated to a percentage to time scale (or common-sized to the maximum value scale) for ease of analysis.

The IPR&D technology development life cycle may not always be shaped like the classic bell curve. This is particularly true in cases when the purchased IPR&D is the only significant intangible asset of the target company. Nonetheless, the subject IPR&D revenue projection should generally follow the classic technology development life cycle configuration of (1) starting low, (2) growing at an increasing rate, (3) leveling off, and then (4) declining to zero.

IPR&D OPERATING EXPENSES

The projection of IPR&D operating expenses is another important component of the DCF analysis. The analyst can often obtain information to project operating expenses from published industry data, public filings of publicly traded guideline companies, and security analysts brokerage reports regarding competing technology companies. In addition, the analyst can obtain information regarding the IPR&D operating expenses by analyzing the historical financial statements of the target company or of the acquirer company.

The analyst should be mindful that buyer-specific synergies should not be included in the IPR&D valuation. And, the analyst should not naively apply the cost structure of either the target company or the acquirer when estimating IPR&D operating expenses.

Within the IPR&D operating expense projection, the analyst typically projects selling and marketing expenses as a separate line item. In addition, there is typically a separate line item projection for R&D expenses. If the IPR&D is expected to lead to the development of a new product/service, then the product/service launch expenses are often projected separately from the target company's general selling and marketing expenses.

All of the development efforts needed to bring the IPR&D projects to the point of feasibility (and commercialization) should be included in the operating expense projections. Ongoing R&D expenses generally relate to the continuing effort to research and develop new technologies, processes, or products/services.

The objective of the operating expense projection is to consider only those expenses related to the IPR&D. Therefore, R&D expenses should not be included in the operating expense projection beyond the new product/service introductory stage. This is because, by then, the R&D efforts related to the subject IPR&D project will be completed. However, there may be minor ongoing R&D expenses in the operating expense projection. These expenses may relate to adapting the IPR&D to new technology development or future marketplace demands.

CAPITAL CHARGE/ECONOMIC RENT

A capital charge is intended to represent a fair rate of return on—or an economic rent for the use of—the tangible and intangible assets that are used in the process of generating the projected IPR&D revenue. The purpose of the capital charge is to isolate the specific component of economic income related solely to the IPR&D. The capital charge line item in the DCF

analysis is often quantified in the form of an economic rent. This economic rent is a hypothetical expense (as compared to an actual accounting expense) that the IPR&D pays for the use of target company assets that help generate the new product/service income.

The capital charge/economic rent is typically deducted at the net income level of the DCF analysis. The capital charge is deducted in order to estimate the portion of the target company economic income that is contributed by the subject IPR&D. One procedure for estimating the capital charge is to multiply an appropriate rate of return by the fair market value (as of the acquisition date) of the tangible and intangible assets that contribute to the IPR&D revenue generation. Using this procedure, the product of the rate of return times the asset value is the amount of the capital charge.

The capital charge may be converted into an economic rent by dividing the capital charge amount into the projected revenue (or some other projection variable). The capital charge is typically stated in the form of an economic rent simply because it is easier to use an economic rent calculation in the DCF analysis.

In the case of a start-up technology company, the assets contributing to the generation of expected IPR&D revenue may include: (1) net working capital, (2) tangible personal property, and (3) a trained and assembled workforce. In the case of a more mature technology company, the assets contributing to the generation of expected IPR&D revenue may include: core technology, patents and copyrights, customer relationships, trademarks and trade names, real estate, and tangible personal property. Accordingly, the assets that contribute to the projected IPR&D revenue will vary based on the stage (1) of the IPR&D and (2) of the technology company.

PRESENT VALUE DISCOUNT RATE

The discount rate is based on the risk associated with (1) the completion and (2) the success of the IPR&D. This risk varies inversely as the IPR&D moves along the technology development life cycle. That is, during the early stages of the technology development life cycle, the IPR&D risk is the highest. And the risk then decreases as the IPR&D successively progresses to the feasibility stage and the commercialization stage.

The specific procedures for estimating a discount rate for an IPR&D income approach analysis is beyond the scope of this discussion. Analysts sometimes include an asset-specific risk premium in the estimation of the discount rate used in the IPR&D analysis. This is because IPR&D typically has greater risk

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than most patents, copyrights, trademarks, or trade secrets. Compared to more established intellectual property, IPR&D typically experiences these additional types of risk:

- Project completion risk—the risk of successful completion of the IPR&D project.
- Scalability risk—the risk of a successful translation from a bench model or pilot plant to a full-scale product manufacturing/service delivery process.
- Marketability risk—the risk associated with the customer/marketplace acceptance of the product/service.

The discount rate used in the analysis of IPR&D in the early stage of the technology development life cycle would be much higher than the discount rate used in the analysis of similar IPR&D in a later stage of the technology development life cycle. The selected discount rate will typically decline nonlinearly to the point where the IPR&D project reaches completion or proves feasibility. At that stage, the appropriate discount rate would be only a little higher than the discount rate used in the analysis of an established intellectual property.

INCOME TAX AMORTIZATION EFFECT

For federal income tax, corporate taxpayers typically amortize the cost of a purchased intangible asset over a 15-year period under Internal Revenue Code Section 197. The income tax effect related to this amortization is generally included in the IPR&D income projection.

The annual amortization expense is typically recognized in the DCF analysis as an additional expense line before the estimation of pretax income. The annual amortization expense is then added back as a credit to expense (and as a debit to cash flow) below the income tax expense line. This add-back is made because amortization expense is a noncash expense item (just like depreciation expense). The final value indication is then calculated in an iterative process in the DCF analysis.

Alternatively, the income tax amortization effect may be included in the DCF analysis through the use of an amortization effect “factor.” This amortization effect “factor” is based on: (1) the selected discount rate, (2) the effective income tax rate, and (3) the appropriate amortization period. A common income tax amortization effect factor formula is presented as follows:

$$\text{Amortization effect factor} = \frac{1}{1 - (\text{income tax rate}) \times (\text{present value annuity factor}) \times \text{amortization period}}$$

where the present value annuity factor is based on (1) the selected discount rate and (2) the appropriate amortization period.

SEC INTEREST IN IPR&D VALUATIONS

The expensing of purchased IPR&D has been required by SFAS 2 since 1974. However, the SEC did not express an interest in (1) the magnitude of acquisition PPA to IPR&D or (2) the methodology for the valuation of IPR&D until the late 1990s. The first transaction that raised the SEC level of interest appears to be the IBM acquisition of Lotus Development Corporation (“Lotus”). On July 5, 1995, IBM acquired all outstanding Lotus stock for approximately \$3.24 billion. IBM immediately expensed \$1.84 billion (or approximately 57 percent of the purchase price) as purchased IPR&D.

After that, the frequency and the size of these technology company acquisition write-offs of IPR&D increased. In 1998 (a watershed year with regard to SEC interest in this issue), total charges related to the write-off of IPR&D by S&P 500 technology companies were approximately \$11 billion. This \$11 billion amount was almost as much as the total IPR&D write-off charges for the entire period of 1990 through 1997.

During the first half of 1998, the SEC began to take action regarding post-acquisition IPR&D write-offs by publicly traded corporations. The SEC examined all available documents regarding certain technology company acquisitions. The SEC studied the descriptions of the various acquired IPR&D projects. The SEC investigated the nature of the R&D work already completed by the target company, as well as the amount of remaining R&D work to be completed by the acquirer.

Based on its investigation, the SEC determined that it was necessary to reduce the amounts of acquisition prices allocated to purchased IPR&D. In 1998, the SEC used its regulatory position to selectively challenge public corporation IPR&D valuations. In some instances, the SEC required that these corporations (1) reduce their IPR&D PPA and (2) restate their financial statements. After this regulatory investigation process was underway, the SEC began to provide specific guidance regarding the IPR&D valuation and PPA process.

This guidance was first provided in written form in a letter dated September 9, 1998, from Lynn E. Turner (then SEC Chief Accountant) to Robert Herz, Chair, American Institute of Certified Public Accountants (AICPA) SEC Regulations Committee (the “Turner letter”). The following excerpts from the Turner letter set forth the SEC position:

Recently published articles and research indicate that the amounts written off by public companies as acquired in-process research and development (“IPR&D”) have increased dramatically both in magnitude and frequency.

More thorough study of the situations described above confirmed the presence of significant problems in the recognition and valuation of IPR&D. In light of the practice problems we encountered, we encourage the AICPA SEC Regulations Committee to provide its constituency additional guidance concerning IPR&D.

Unreasonable valuations of IPR&D appear to be caused frequently by management's treatment of attributes of capitalized assets as if they were attributes of IPR&D.

We believe that the value of the right to enhance or embellish an existing product, or the right to enhance or embellish an existing technology that has alternative future uses, is not separable from the value of ownership of the intellectual rights to the technology itself.

APB 16 requires that the allocation of purchase cost be based on "fair value." In some circumstances, some appraisers have defined fair value not as "fair market value," . . . but as "investment value to a particular buyer."

Purchase price allocations may be based on appraisals that use an "income approach" to valuation. In this case, management's estimates of future revenues and costs should be evaluated with skepticism.

The Turner letter expressed the SEC concerns that (1) values allocated to IPR&D as a percentage of acquisition purchase prices were increasing over time and (2) specific professional guidance related to IPR&D valuation methodology was necessary. On October 22, 1998, Lynn Turner (in his role as SEC Chief Accountant), reiterated these points in a speech to the Financial Executives Institute 1998 Annual Conference. Mr. Turner furthered this same position in a speech delivered on December 3, 1998, to the Colorado Society of Certified Public Accountants 1998 SEC Conference.

This SEC investigation continued into 1999. On January 22, 1999, the SEC posted a "Sample Letter to Companies Reporting Charges" on the SEC website, at www.sec.gov. This letter warned publicly traded companies that the SEC may investigate any acquisition PPA to purchased IPR&D. This letter indicates that even into 1999, the SEC was still developing its professional guidance regarding the valuation of purchased IPR&D.

SEC CONCERNS REGARDING IPR&D VALUATIONS

During the 1998-1999 period, the SEC identified several concerns regarding IPR&D valuations. The SEC expressed these concerns in comment letters to individual registrants (i.e., technology company acquirers) and in speeches delivered by SEC representatives. In particular, the SEC noted four recurring concerns regarding IPR&D valuations.

First, in the contemporaneous IPR&D valuations, the IPR&D projects were not separated from other technology-related intangible assets that were acquired as part of the transaction. Many of the IPR&D valuations did not consider the value of the existing commercialized core technology.

Many of the IPR&D valuations did not consider the contributory value added by the existing customer base, trademarks, and goodwill to the marketing of the "new and improved" or "next generation" products/services.

Second, the contemporaneous IPR&D valuations did not consider either (1) the stage of development or (2) the amount of completion of the purchased IPR&D projects. According to the SEC, the IPR&D valuation models did not distinguish between the value of (1) a project still in conceptual and/or design stage versus (2) a project that was approaching the completion and commercialization phase.

Third, the SEC was concerned that many IPR&D valuations estimated "investment value" rather than "fair value." That is, the IPR&D value conclusion encompassed buy-specific synergies, economies of scale, and post-merger economic benefits. Since these buyer-specific value increments were not available to the typical hypothetical willing buyer of the target technology company, the SEC concluded that they should not be included in the IPR&D valuations.

Fourth, the proportion of the total acquisition purchase price related to IPR&D (and the amount of the immediate post-acquisition expense) was inconsistent with the announced business reasons for the acquisition. In some cases, the target technology company did not incur or disclose any R&D expenditures prior to the transaction. That lack of disclosure indicated to the SEC that the target technology company had not made any significant R&D effort.

Based on their review of public corporation acquisition filings during the 1998-1999 period, the SEC perceived problems with the then current IPR&D valuation methodologies. In late 1998 and early 1999, the SEC proposed methodological guidance with regard to the valuation of, and PPA to, purchased IPR&D. The methodological guidance included:

- IPR&D valuations should include adequate procedures to identify all of the acquired tangible assets and intangible assets. The value of any other intangible assets should not be included in the value of the purchased IPR&D.
- IPR&D valuations should be based on "fair value," and not on the "value to a particular buyer."
- The income approach is an acceptable IPR&D valuation approach. However, the valuation should specifically consider: (1) the acquirer company's track record of projecting its product development efforts, (2) the amount and timing of the current future cash flow from the new products/services or releases, and (3) the current market conditions and competing technologies.
- The allocation of projected cash flow to IPR&D should recognize the economic contribution of (1) existing products, (2) existing core technologies, and (3) other acquired tangible and intangible assets. This recognition may be based on a capital charge, an economic rent, a profit split, or a similar allocation procedure.

- The projected cash flow attributable to the development of future versions of the subject product/service should be excluded from the IPR&D valuation.
- IPR&D valuations that use the market approach/relief from royalty method based on "industry average" technology license royalty rates are not appropriate.
- The valuation of purchased IPR&D should not be based on a "residual" analysis. This residual method should only be used for the valuation of goodwill.
- The fair value of (1) an existing product/service or (2) an existing technology should not be considered as part of the IPR&D. This is true even if the acquirer intends to significantly modify (1) the product/service or (2) the technology. If the target technology company has an ongoing enhancement program on the existing product/service, an IPR&D allocation could be considered for the enhancement efforts.
- The same procedures that the acquirer company uses to determine if internally developed products/services are in-process or complete should be used to determine if the purchased technology is in-process or complete. For example, a pharmaceutical company that considers a product to be in the R&D stage until it receives an FDA approval should use the same policy in the IPR&D analysis.

"The valuation of IPR&D is still an important issue for three reasons."

rent IPR&D valuation methodologies may again produce values that do not pass the SEC reasonableness tests.

SUMMARY AND CONCLUSION

The immediate post-acquisition expensing of purchased IPR&D is required under long-standing GAAP. As technology company pricing multiples (and M&A purchase price premiums) soared in the late 1990s, the SEC expressed concerns over then current IPR&D valuation and PPA methodologies. Starting in late 1998, the SEC proposed professional guidance regarding IPR&D valuation methodologies. This SEC guidance included the following:

- Purchased IPR&D should not be considered a "residual" intangible asset for PPA purposes. Only goodwill should be valued using a residual methodology for PPA purposes.
- The standard of value for purchased IPR&D should be "fair value" and not "investment value" (meaning value to a particular buyer). Accordingly, acquirer-specific incremental value due to expected post-merger synergies should be ignored in the IPR&D valuation.
- The income approach is an acceptable approach for the IPR&D valuation. However, this analysis should incorporate a rigorous due diligence of both target company projections and acquirer company projections.
- It is not appropriate to naively use "industry average" technology/license royalty rates in the market approach/relief from royalty method valuation of purchased IPR&D.

ILLUSTRATIVE VALUATION OF IPR&D

Exhibit I presents an example of an IPR&D valuation. The example is deliberately simplified for illustrative purposes. The illustrative valuation methodology is intended to (1) address all of the SEC concerns regarding pre-1999 IPR&D valuations and (2) incorporate the professional guidance provided by the SEC in recent years.

CURRENT STATUS OF IPR&D PROFESSIONAL GUIDANCE

The FASB has decided that the accounting for R&D costs (including IPR&D) should be addressed in a comprehensive manner. The comprehensive R&D project was scheduled for 2002. However, at the time of this writing, the FASB has postponed, and not rescheduled, its consideration of the accounting for R&D. Until the FASB addresses this issue, the immediate expense of purchased IPR&D is required under GAAP.

Based on the professional guidance issued (albeit somewhat piecemeal) by the SEC in and after 1999, there is greater consistency today regarding IPR&D valuation methodologies. The current IPR&D valuation methodologies appear to produce values that are consistent with the SEC's implicit reasonableness tests. Of course, current technology company pricing multiples—and purchase price premiums—are greatly reduced compared to the late 1990s. When the currently depressed prices for technology company acquisitions recover, the cur-

The valuation of IPR&D is still an important issue for three reasons. First, although prices are currently depressed, there are still acquisitions of technology companies. And, even financially distressed technology target companies often have IPR&D projects in progress. Accordingly, that purchased IPR&D should be valued under SFAS 141 and expensed under SFAS 2. Second, many technology companies filed for bankruptcy protection in 2001 and 2002. When those companies emerge from bankruptcy protection, they will adopt fresh start reporting under SOP 90-7. At that time, IPR&D will have to be valued. Third, many technology company acquirers of the late 1990s have to make annual tests of goodwill impairment under SFAS 142. As illustrated above, the valuation of unrecorded IPR&D is an integral procedure in the SFAS 142 annual goodwill impairment test.

Dennis Mandell is the director of the San Francisco office and is a principal of the firm. He can be reached at (415) 733-6908 or at dmmandell@willamette.com. Robert Reilly is a managing director of our firm and is resident in the Chicago office. He can be reached at (773) 399-4318 or at rfreilly@willamette.com. www.willamette.com.

Exhibit I

Valuation of IPR&D
Valuation Variables and Projections
( in 000s)

Valuation Projections	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Revenue	\$34,409	\$55,570	\$53,714	\$42,684	\$24,230	\$14,656
Cost of goods sold	<u>5,850</u>	<u>8,558</u>	<u>7,520</u>	<u>6,104</u>	<u>3,586</u>	<u>2,184</u>
Gross profit	28,559	47,012	46,194	36,581	20,644	12,472
General and administrative expenses	13,763	19,450	17,188	12,805	6,784	4,104
Marketing expenses	6,882	11,114	10,743	8,537	4,846	2,931
Research and development expenses:						
Cost to complete IPR&D	359	307	--	--	--	--
Maintenance R&D expenses	<u>344</u>	<u>556</u>	<u>537</u>	<u>427</u>	<u>242</u>	<u>147</u>
Total operating expenses	<u>21,348</u>	<u>31,427</u>	<u>28,468</u>	<u>21,769</u>	<u>11,873</u>	<u>7,181</u>
Operating income	7,211	15,586	17,726	14,811	8,771	5,291
	21.0%	28.0%	33.0%	34.7%	36.2%	36.1%
<u>Valuation Variables</u>						
Gross margin	83.0%	84.6%	86.0%	85.7%	85.2%	85.1%
General and administrative expenses	40.0%	35.0%	32.0%	30.0%	28.0%	28.0%
Marketing expenses	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
Research and development expenses:						
Cost to complete IPR&D	\$359	\$307	--	--	--	--
Maintenance R&D expenses	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Capital charge/economic rent	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%
Subject IPR&D useful life: 6 years						
Present value discount rate: 25%						
Income tax rate: 40%						

Valuation of IPR&D
Income Approach Valuation Analysis
As of December 31, 2002
(in 000s)

Valuation Analysis	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Revenue projection	\$34,409	\$55,570	\$53,714	\$42,684	\$24,230	\$14,656
Cost of goods sold projection	<u>5,850</u>	<u>8,558</u>	<u>7,520</u>	<u>6,104</u>	<u>3,586</u>	<u>2,184</u>
Gross profit	28,559	47,012	46,194	36,581	20,644	12,472
General and administrative expenses	13,763	19,450	17,188	12,805	6,784	4,104
Marketing expenses	6,882	11,114	10,743	8,537	4,846	2,931
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Cost to complete IPR&D	359	307	--	--	--	--
Maintenance R&D expenses	<u>344</u>	<u>556</u>	<u>537</u>	<u>427</u>	<u>242</u>	<u>147</u>
Total operating expenses	<u>21,348</u>	<u>31,427</u>	<u>28,468</u>	<u>21,769</u>	<u>11,873</u>	<u>7,181</u>
Operating income	7,211	15,586	17,726	14,811	8,771	5,291
Income tax expense	<u>2,885</u>	<u>6,234</u>	<u>7,090</u>	<u>5,925</u>	<u>3,508</u>	<u>2,116</u>
Net income	4,327	9,351	10,635	8,887	5,263	3,175
Less: Capital charge/economic rent	<u>1,342</u>	<u>2,167</u>	<u>2,095</u>	<u>1,665</u>	<u>945</u>	<u>572</u>
Economic income	2,985	7,184	8,540	7,222	4,318	2,603
Present value factor @25%	<u>0.8889</u>	<u>0.7111</u>	<u>0.5689</u>	<u>0.4551</u>	<u>0.3641</u>	<u>0.2913</u>
Present value of economic income	\$2,653	\$5,109	\$4,858	\$3,287	\$1,572	\$758
Sum of present value of economic income	\$18,237					
Income tax amortization factor (0.165)	<u>3,009</u>					
Indicated value of IPR&D	21,246					
IPR&D fair market value (rounded)	<u>\$21,200</u>					