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A Guide to Valuation of the Assembled Workforce Intangible Asset

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Most industrial and commercial organizations recognize their employees—and other forms of human capital—as a valuable intangible asset. Companies value their assembled workforce for a variety of transactional, financing, accounting, taxation and litigation purposes. This discussion describes and illustrates the valuation of a typical debtor company's assembled workforce. An assembled workforce falls into a category referred to as human capital intangible assets. Human capital intangible assets also include:

1. contracts with employees (or former employees), such as employment contracts,
2. "personality" or other entertainment industry contracts,
3. sports player contracts, and
4. covenants not to compete and noncompete agreements.

Valuation of Human Capital Intangible Assets The assembled workforce intangible asset is the employer's expectation that experienced employees will report to work tomorrow morning. The employer also expects that these employees:

1. are trained in how to perform their duties and responsibilities,
2. know how to operate any equipment for which they are responsible,
3. are knowledgeable of the goals and protocols of the subject organization, and
4. are experienced working with and communicating with each other.

As noted above, human capital intangible assets may also include certain contracts, such as employment agreements/ contracts, player agreements/contracts and employee covenants

not-to-compete. These intangible assets give the employer the right to receive some future benefit (e.g., the employment of a professional or athlete) or the right to avoid some future problem (e.g., competition from a former employee).

There may be intellectual-property components to human capital intangibles. For example, employees are often aware of a company's most valuable (and most guarded) trade secrets. In fact, the know-how component of its assembled workforce is often a company's most significant competitive advantage. For that reason, employers often request employees to sign nondisclosure, confidentiality and similar agreements. As they relate to the employer's proprietary trade secrets, those agreements provide evidence of the company's intellectual property.

Valuation Approaches, Methods and Procedures

There are generally accepted approaches, methods and procedures for the valuation of human capital intangible assets, such as a trained and assembled workforce. The three intangible asset valuation approaches are (1) the sales comparison approach, (2) the income approach and (3) the cost approach. Each approach has the same objective: to arrive at a reasonable indication of value for the subject intangible asset.

The sales-comparison approach (also called the market approach) is based on the economic principles of competition and equilibrium. These economic principles conclude that, in a free and unrestricted market, supply-and-demand factors will drive the price of an investment to a point of equilibrium. The principle of substitution also directly influences the market approach because the identification and analysis of equilibrium prices for substitute investments will provide important evidence to the analyst with regard to the indicated value for the subject human capital.

The income approach is based on the economic principle of anticipation (also called the principle of expectation). In this approach, the value of the subject human capital is the present value of the expected economic income to be earned from the ownership of the subject property. As the name of this economic principle implies, the investor "anticipates" the "expected" economic income to be earned from the property. This expectation of prospective economic income is converted to a present worth—*i.e.*, the value of the assembled workforce.

The cost approach is based on the economic principle of substitution. This principle indicates that an investor will pay no more for an investment than the cost to obtain (*i.e.*, either purchase or construct) an investment of equal utility. Utility can be measured in many ways, including functionality, desirability and so forth. The availability (and the cost) of substitute investments is directly affected by shifts in the supply and demand functions with regard to the universe of substitute investments. Unlike fungible tangible assets, often there are few reasonable substitutes for many types of intangible assets. In the case of unique intangible assets, the application of the cost approach may have limitations.

Analysts typically attempt to value human capital using all three valuation approaches in order to obtain a multi-dimensional perspective. The final value estimate is typically based on a synthesis of the value indications derived from various alternative approaches and methods.

Sales Comparison Approach Methods

Typically, analysts first attempt to apply market approach methods in the valuation process because "the market"—that is, the economic environment where arm's-length transactions between unrelated parties occur—is typically the best indicator of the value of an intangible asset. Valuation analysts review "the market" in order to extract both sale and license transactions that may be useful in the analysis of the subject intangible asset.

There are fewer individual valuation methods to select from within the market approach, as compared to either the cost or income approaches. Nonetheless, the practical application of a market-approach method is a very complex and rigorous analytical process. In the valuation of a trained and assembled workforce, the market approach often has limitations. Therefore, the market approach is less commonly used than other valuation approaches. Nonetheless, it is important for the analyst to consider the application of the market approach in any assembled workforce valuation.

There is a general systematic process to the application of market-approach methods in the intangible-asset valuation summarized as follows:

1. Research the appropriate exchange market to obtain information on sale transactions, listings and offers to purchase or license "guideline" (*i.e.*, similar from an investment risk and return perspective) or "comparable" (*i.e.*, virtually identical from a functional perspective) intangibles that are similar to the subject intangible in terms of characteristics such as type,

use, industry in which the intangible functions, date of sale, etc.

2. Verify the information by confirming that the data obtained are factually accurate and that the sale or license exchange transactions reflect arm's-length market considerations (if the guideline transaction was not at arm's-length market conditions, then adjustments to the transactional data may be necessary). This verification procedure may also elicit additional information about the current market conditions for the sale or license of the subject intangible.

3. Select relevant units of comparison (*e.g.*, income multipliers or dollars per unit for an assembled workforce, units such as "per employee") and develop a comparative analysis for each unit of comparison.

4. Compare "guideline" intangible-asset sale or license transactions with the subject using the elements of comparison and adjust the sale or license price of each guideline transaction appropriately to the subject intangible—or eliminate the sale or license transaction as a guideline for future consideration.

5. Reconcile the various value indications into a single value indication or a range of values. In an imprecise market, a range of values for the subject intangible may sometimes be a better conclusion than a single-value estimate.

The reconciliation procedure is the last phase in which two or more value indications have been extracted from market-derived empirical data. The analyst summarizes and reviews the data and analyses that resulted in each of the value indications. These value indications are then resolved into a range of value—or into a single point estimate. The analyst should consider the strengths and weaknesses of each value indication derived, examining the reliability and appropriateness of the market data compiled and the analytical procedures applied.

Income-Approach Methods

The income approach is based on the premise that the debtor company will generate discrete economic income returns from human capital in future periods. The applicability of the income approach depends on the nature of the subject workforce and the business model of the debtor company employing the workforce.

There are numerous measures of economic income that are relevant to an income-approach analysis of human capital. Given the different measures of economic income that may be used

in the valuation, an essential element in the application of this approach is to ensure that the subject discount rate or capitalization rate used in the analysis is derived on a basis consistent with the subject measure of economic income.

Several categories of income-approach methods are listed below:

1. methods that quantify incremental levels of economic income (*i.e.*, the intangible asset owner will enjoy a greater level of economic income by owning the intangible as compared to not owning the intangible).
2. methods that quantify decremental levels of economic costs (*i.e.*, the intangible-asset owner will suffer a lower level of economic costs—such as otherwise required investments or operating expenses—by owning the intangible as compared to not owning the intangible).
3. methods that estimate a relief from a hypothetical royalty or rental payment (*i.e.*, the amount of a royalty or rental payment that the intangible asset owner would be willing to pay to a third party in order to obtain the use of—and the rights to—the subject intangible).
4. methods that quantify the difference in the value of overall business enterprise—or similar economic unit—as the result of owning the subject intangible (and using it in the business enterprise) as compared to not owning the subject intangible (and not using it in the business enterprise).
5. methods that estimate the value of the subject intangible as a residual from the value of an overall business enterprise (or of a similar economic unit), or as a residual from the value of an overall estimation of the total intangible value of a business enterprise (or of a similar economic unit).

Cost-Approach Methods

The cost approach is commonly used in the valuation of an assembled workforce. The theoretical underpinning of the cost approach relates to the following economic principles:

1. Substitution—affirms that no prudent buyer would pay more for an intangible than the total cost to "construct" an intangible of equal desirability and utility.
2. Supply and demand—shifts in supply and demand cause costs to increase and decrease and cause changes in the need for supply of different types of intangible assets.
3. Externalities—gains or losses from external factors may accrue to intangible assets. External conditions may cause a newly "constructed" intangible to be worth more or less than its cost.

Within the cost approach, there are several related methods that each use a similar definition of the type of cost that is relevant to the analysis. The most common types of cost include reproduction cost and replacement cost.

Reproduction cost contemplates the construction of an exact replica of the subject intangible. Reproduction cost is the total cost, at current prices, to construct an exact duplicate or replica of the subject intangible. In the case of an assembled workforce, reproduction cost would estimate the current cost to create an exact duplicate of the subject employees. Reproduction cost would consider (1) the same number of employees and (2) employees with exactly the same levels of experience, expertise and education as the subject employees.

Replacement cost contemplates the cost to recreate the functionality or utility of the subject intangible. However, in form or appearance, the replacement intangible may be quite different from the actual subject intangible. A replacement-cost analysis attempts to replace the efficiency and effectiveness of the subject workforce—not the quantity and quality of the actual workforce. In a replacement-cost analysis, the hypothetical workforce may have fewer—but more highly qualified—employees. The expected production of the replacement workforce would be the same as the current workforce, but the composition (number, age, experience, education, etc.) of the replacement workforce may be quite different from the current workforce.

For example, if the replacement workforce has fewer employees than the current workforce, then the current workforce may suffer from excess operating (labor) costs. These excess operating costs would relate to the current excess number of employees, and the capitalization of the excess operating (labor) costs may be one way to quantify functional obsolescence.

The cost (whether replacement or reproduction) of human capital should include both direct costs (e.g., materials) and indirect costs (e.g., engineering and design labor). The replacement or reproduction cost should also include:

1. the developer's profit (i.e., an expected profit margin on the direct and indirect cost investment) and
2. an entrepreneurial incentive (i.e., a fair rate of return on the time and money investment in the development project to economically motivate the development process).

In addition, all relevant forms of obsolescence—including economic obsolescence—should reduce the current cost measure of the human capital.

The "replacement cost new less depreciation" (RCNLD) method is frequently used to value an assembled workforce. The costs to replace an assembled workforce include the costs to recruit, hire and train a replacement workforce. In applying the RCNLD method, recruiting and hiring costs include the following:

- salaries and benefits of employees who are involved in recruiting replacement employees.
- salaries and benefits of employees who are involved in interviewing replacement employees.
- overhead costs (e.g., office space, utilities and clerical support) related to employees who are involved in recruiting and hiring the replacement employees.
- headhunter recruitment fees.
- direct recruitment and hiring expenditures (materials, pre-employment screening exams, background checks, drug tests, medical tests, advertisements, travel and lodging expenses for job candidates, relocation costs, signing bonuses, license or certification exams, and so on).

In applying the RCNLD method, training costs include the following:

- salaries and benefits of employees who are involved in training replacement employees.
- overhead costs (e.g., office space, utilities and clerical support) related to employees who are involved in training the replacement workforce.
- salary and benefits paid to employees as they are being trained, until they become productive.
- direct training expenditures (classroom training materials, in-the-field training materials or fees paid for replacement employees to attend formal external training courses).

Typically, in the RCNLD method, the estimated costs to recruit, hire and train are expressed as a percentage of total compensation for employees. The estimated costs to recruit, hire and train are then multiplied by the historical total compensation for the different employee levels to conclude the assembled workforce value.

Illustrative Example

Exhibits 1 through 4 present a simplified illustration of the valuation of the debtor company assembled workforce. In this example, the value of the debtor company assembled workforce is based on the cost to recruit, hire and train new employees of comparable experience and

expertise to that of the subject workforce. This cost is estimated as a percent of total compensation for employees of various years of service. The debtor currently has 1,750 employees.

Exhibit 1 presents employee compensation data. Exhibit 2 presents the expected costs to recruit, hire and train employees. The replacement cost data document the debtor company:

1. recruiting process and the costs associated with each of the aspects involved in the recruiting process,
2. hiring process and the costs associated with each of the aspects involved in the hiring process, and
3. training process and the costs associated with each of the aspects involved in the training process.

Exhibit 3 then calculates the replacement cost new before making allowances for depreciation and obsolescence. The indicated direct and indirect costs related to the debtor company assembled workforce is \$77.9 million (rounded). After consideration of (1) developer's profit and (2) entrepreneurial incentive, the total replacement cost new of the debtor company assembled workforce, as of Dec. 31, 2005, is \$93.1 million (rounded). Exhibit 4 includes the consideration of physical depreciation and functional/technological obsolescence.

In Exhibit 4, the amount of physical depreciation is based on an analysis indicating that the ideal replacement workforce would have a different composition than the current 1,750 employees. This example indicates the 1,600 employees with more than 11 years of service would be replaced with employees that have 6-10 years of experience. The amount of physical depreciation is calculated by estimating what the total replacement cost new would be if the 1,600 employees with over 11 years of service had the cost composition (*i.e.*, total compensation and costs to recruit, hire and train) as employees with 6-10 years of service. This amount is then subtracted from the replacement cost new.

Exhibit 4 also presents an estimate of functional obsolescence related to the debtor company assembled workforce. In this simplified example, we assumed that there were 3 percent excess employees in the assembled workforce.

Value Conclusion

As summarized on Exhibit 4, the indicated fair market value of the debtor company assembled workforce is \$47.6 million.

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