

A CLOSER LOOK AT PURCHASE PRICE ALLOCATIONS

Companies making acquisitions must comply with the Fair Value accounting rules of ASC 805, Business Combinations, and should consider an independent valuation of the acquired assets and liabilities.



Summary

Purchase price allocation can represent a significant challenge for a company's financial organization. The accounting rules are complex and can often seem counter-intuitive. This white paper describes some of the key principles of these studies and engagement considerations.

Introduction

For a young technology company, an acquisition is a key milestone for management and can represent the acceleration of the company towards its strategic goals.

ASC 805, Business Combinations, requires the use of the Acquisition Method of Accounting. Acquired assets and liabilities must be recorded at their fair values. Some tangible assets and liabilities such as cash, accounts receivable, and accounts payable are usually straightforward. Other tangible assets such as inventory and fixed assets may need to be adjusted based on independent appraisals.

In addition, the intangible assets and goodwill must also be identified and valued using an analysis commonly referred to as a Purchase Price Allocation Study.

The Purchase Price Allocation Study calculates the value of acquired assets for financial reporting.

The Fundamental Equation

The fundamental equation of purchase price allocation is that the value of the assets acquired must equal the value of the consideration paid.

- On one side of the equation is the Purchase Consideration: the amount paid (in cash, notes, stock, or other consideration) for the acquisition, including the amount of debt assumed by the acquirer and the value of a contingent consideration (i.e., earn outs), if any.
- On the other side of the equation are all the assets: working capital (net of current liabilities), fixed assets, other tangible assets, intangible assets, and goodwill.

Figure 1 shows an example of the basic equation before the study is done. In this example the target company was acquired for \$12.5 million. The fair value of the company's working capital was \$1.0 million, and the appraised value of its property, plant, and equipment was \$2.5 million. The study must allocate \$9.0 million between the intangible assets and goodwill.

	<u>Total Consideration</u>	<u>%</u>
	<i>\$ millions</i>	
Total Purchase Consideration (cash)	<u>\$ 12.5</u>	
Net Working Capital	\$ 1.0	8.00%
Property Plant and Equipment	2.5	20.00%
Total Value of Intangible Assets and Goodwill	<u>9.0</u>	<u>72.00%</u>
Total Purchase Consideration	<u>\$ 12.5</u>	<u>100.00%</u>

Figure 1: Distribution of Assets prior to the Valuation of Intangible Assets

Identification of Intangible Assets

Intangible assets are assets that lack physical substance. Typically, intangible assets are classified in five major groups:

- Technology-based Intangibles (such as patented or unpatented technology, software, databases);
- Customer-based Intangibles (such as customer contracts and relationships);
- Marketing-based Intangibles (such as trademarks, distribution arrangements, and non-compete agreements);
- Artistic / Creative Intangibles (such as plays, books, and movies); and
- Contract-based Intangibles (such as licensing/royalty arrangements or supplier contracts).

Intangible assets can be considered either “identifiable” (and therefore need to be valued separately) or “not identifiable” (and can be considered part of goodwill). There are two criteria for determining if an intangible asset is identifiable and needs to be valued: either 1) the asset is **separable**, or 2) the asset arises from a contractual or other legal right. **Separable** means the asset can be separated and sold off or licensed independently from the business. It does not matter whether there is an intent to sell off the asset. If it **could** be sold, then it must be valued. A contractual or legal right must be valued even if it is **not** separable. An example might be a wireless spectrum license: if a firm bought a wireless communications company, the license would need to be valued even though it is difficult to imagine how the business could operate without the right to use the spectrum.

All separable assets and contractual rights must be valued.

Most intangible assets have limited remaining useful lives due to technological, legal, contractual, or economic factors. For instance, a technology asset may be subject to obsolescence, a non-compete agreement may have a termination date, and so on. It is possible for an intangible to have an indefinite life (such as a well-recognized brand name) but these are generally considered to be the exception and not the rule.

Figure 2 shows the basic equation after the study is done. In this example, the identifiable intangible assets were determined to be the customer contracts with a value of \$1.6 million, the developed technology with a value of \$2.1 million, and the trademarks with a value of \$0.3 million. The value of the acquired workforce was determined to be \$0.5 million and the remaining goodwill was \$4.5 million

	Total Consideration \$ millions	%
Net Working Capital	\$ 1.0	8.00%
Property Plant and Equipment	2.5	20.00%
Identifiable Intangibles		
Customer Contracts	1.6	12.80%
Technology	2.1	16.80%
Trademarks	0.3	2.40%
Goodwill		
Acquired Work Force	0.5	4.00%
Other Goodwill	4.5	36.00%
Total Purchase Consideration	<u>\$ 12.5</u>	<u>100.00%</u>

Figure 2: Distribution of Assets after the Purchase Price Allocation Study is Performed

Goodwill is the residual amount after subtracting all identifiable assets from the acquisition price.

Relationship of Goodwill to Tangible and Intangible Assets

Goodwill captures the portion of value that cannot be linked to any specific tangible or identifiable intangible item, contractual right, or aspect of the business that could be sold or licensed separately.

The value of goodwill is simply the residual amount left over after subtracting all the identified tangible and intangible assets from the acquisition price. That is, goodwill represents the intangible value of a business that cannot be identified as separable or contractually/legally distinct. It is the remaining value that is not associated with the specifically identified intangible assets.

The Acquired Work Force as a Part of Goodwill

The one exception to this definition of goodwill is that it includes the value of the acquired workforce. The acquired workforce is not considered an identifiable intangible asset. The study will typically split goodwill into two numbers: the value of the acquired workforce and value of other goodwill.

The acquired workforce is typically recognized at their *replacement cost*. That is, the value of the workforce is based on the cost of recruiting a replacement workforce with the same level of skills and productivity.

How the Identified Intangible Assets Are Valued

The accounting profession classifies the many specific valuation methodologies within three broad “approaches”: the *Income Approach* (in which future economic benefits such as earnings or cash flow are capitalized), the *Market Approach* (in which the prices paid in actual transactions of the same or a similar asset are used as the basis of value), and the *Asset Approach* (which is often considered as the cost to replace the asset, and can include a reasonable return on the asset). While the *Market Approach* is considered the preferable basis for determining the value of an asset, relevant market transactions often are not available. As a result, the *Income Approach* is utilized frequently based on either a discounted cash flow or discounted earnings analysis.

Every Intangible (and Tangible) Asset is Assigned a Rate of Return (including Goodwill)

A key principle of these valuations is that the different types of tangible and intangible assets have different risk-adjusted rates of return. For instance, cash and other components of a company’s working capital may be considered low risk, and therefore, are associated with a relatively low rate of return (typical working capital lines of credit for the industry may be an appropriate indicator of the return), and property, plant and equipment may have a higher associated rate of return (typical equipment leasing rates may be referenced). The identified intangible assets would typically be expected to have a higher rate of return than the tangible assets.

The components of goodwill are also assigned rates of return. The acquired workforce may be assigned the average cost of capital for the company overall, and the other goodwill (that is the unidentifiable intangible value) may be assigned the highest rate of return among all the identified assets.

The acquired business as a whole is also assigned a rate of return. Typically two analyses are performed to estimate this value. The first analysis estimates

the cost of capital for a set of public guideline companies (referred to as the Weighted Average Cost of Capital or WACC). It can be useful to think of the guideline companies as representative of the hypothetical market participant. The second analysis calculates an internal rate of return (or IRR) on the acquisition by comparing the price of the acquisition to the discounted cash flows of the business after the date of acquisition. Determining the relevant post acquisition cash flows may be complex. In addition, the analysis may also require some form of reconciliation between the calculated IRR and WACC, in order to determine the appropriate rate of return to select for the acquired business as a whole.

Figure 3 displays the Rates of Return: the Internal Rate of Return was calculated to be 21.00% and the Weighted Average Cost of Capital was calculated to be 20.00%. The Rate of Return on Working Capital and Property, Plant, and Equipment were determined to be 4.00% and 9.00%, respectively. The identified intangibles and workforce were estimated to equal the WACC at 20.00%. Other goodwill was estimated to be 30.00%.

	Total Consideration \$ millions	%	Rate of Return
Net Working Capital	\$ 1.0	8.00%	4.00%
Property Plant and Equipment	2.5	20.00%	9.00%
Identifiable Intangibles			
Customer Contracts	1.6	12.80%	20.00%
Technology	2.1	16.80%	20.00%
Trademarks	0.3	2.40%	20.00%
Goodwill			
Acquired Work Force	0.5	4.00%	20.00%
Other Goodwill	4.5	36.00%	30.00%
Total Purchase Consideration	<u>\$ 12.5</u>	<u>100.00%</u>	
Weighted Average Cost of Capital (WACC)			20.00%
Internal Rate of Return (IRR)			21.00%

Figure 3: Rates of Return

The Key Test of Reasonableness: the Weighted Average Return on Assets (WARA)

Once the analysis has determined estimates of the value of the tangible assets, identifiable intangible assets, the acquired workforce, and other goodwill, a key test of reasonableness is performed.

The reasonableness test consists of determining the weighted average rate of return on the assets. This is calculated by taking the summation of each asset's rate of return multiplied by the percentage of each asset's value relative to the total acquired asset value. This value is called the weighted average return on assets (WARA). The value of the WARA is then compared to the value of the guideline company WACC and the IRR previously calculated. The value of the WARA typically needs to be close to the WACC and IRR values in order for the analysis to be deemed reasonable.

Figure 4 shows the calculated value of WARA to be 20.12% which is within the range of the WACC of 20.00% and the IRR 21.00%

Different rates of return (WARA, WACC and IRR) need to converge for the study to be deemed reasonable.

	Total Consideration <i>\$ millions</i>	% A	Rate of Return B	Weighted Average Rate of Return C = A x B
Net Working Capital	\$ 1.0	8.00%	4.00%	0.32%
Property Plant and Equipment	2.5	20.00%	9.00%	1.80%
Identifiable Intangibles				
Customer Contracts	1.6	12.80%	20.00%	2.56%
Technology	2.1	16.80%	20.00%	3.36%
Trademarks	0.3	2.40%	20.00%	0.48%
Goodwill				
Acquired Work Force	0.5	4.00%	20.00%	0.80%
Other Goodwill	4.5	36.00%	30.00%	10.80%
	<u>\$ 12.5</u>	<u>100.00%</u>		<u>20.12%</u>
Weighted Average Cost of Capital (WACC)				20.00%
Internal Rate of Return (IRR)				21.00%

Figure 4: Calculation of the Weighted Average Rate of Return

The Market Participant Theory

Fair Value accounting rules require the assets and liabilities of the acquired company to be valued using a market participant theory which may seem counter-intuitive. Specifically, acquired assets are not valued based on the intentions of the actual buyer. The acquired assets must be valued assuming a hypothetical buyer (called the "market participant") puts each asset to its highest and best use. For example, the acquirer may intend to scrap an acquired company's trademarks. However, the trademarks must be valued as if they are kept in use by a hypothetical market participant.

Contributory Asset Charges and the Tax Amortization Benefit

Many intangible assets may not be primary revenue generating assets of the target, and the valuation of these intangibles will require a series of cross

charges to distribute a portion of the company's value to these assets (referred to as Contributory Asset Charges).

IRC 197 provides a tax deduction on the amortization of intangible assets over fifteen (15) years. The present value of this tax benefit can be calculated and included in the value of each intangible asset.

Engagement Elements

The financial analysis, however, is only one part of the overall engagement. These studies require key information from the company and the involvement of management and auditors.

We identify four key steps for these engagements: Foundation, Preliminary Analysis, Financial Analysis, and Documentation:

1. **Foundation:** The initial tasks involve determining the merger rationale and obtaining key documentation including the merger agreement, due diligence information, material contracts, and management's analysis/financial projections of the acquired business post-acquisition. While most interaction will be with the financial organization, interviews with operational and technical/engineering management may also be required. The accounting profession continues to revise and enhance specific guidance concerning these studies, and the company's auditors should receive an initial briefing.
2. **Preliminary Analysis:** Formal identification of the intangible assets that will be the subject of the study and the preliminary selection of the specific methods and information requirements for each subject asset are required. In this step we also:
 - Collect information from publicly traded companies and the development of the Market Participant theory including the market participants' cost of equity and debt, operating and financial metrics including gross profit, EBITDA, and operating profits, and activity ratios; perform adjustments, if required, to the company's financial projections to reflect the market participant theory.
 - Collect and develop estimates of target specific data including technology obsolescence risk, customer retention / attrition data, research and development programs that were in process as of the time of the acquisition, and the technology roadmap and analysis of future revenue derivable from technology that was in existence at the time of the merger versus future

revenues that will be derived from the in-process research and development.

- Obtain royalty rates and other market data (to the extent available) for the valuation of trademarks and trade names, and potentially other specific assets as well.

3. *Financial Analysis:* It is necessary to analyze the consideration paid for the target, including working capital, assumed debt, and other factors involving the transaction, as well as to develop the core quantitative model for the study. Specific analytical models will include:

- Estimating the enterprise value of the target at the time of the acquisition and the calculation of the internal rate of return (IRR) on the transaction.
- Estimating the cost of capital for the target overall and for each tangible and intangible asset.
- Creating the asset specific valuation models for each intangible asset. These models include calculation of supporting analyses including the value of the tax amortization benefit and contributory asset charges.

4. *Documentation:* Prior to finalization of the analysis, the company's accountants should be briefed on the specific assumptions and proposed methods and procedures for the analysis. A draft of the report should be prepared and circulated to management and auditors before being finalized.

Interfacing with the auditors throughout the valuation is key to a smooth process.

Conclusion

Purchase Price Allocation Studies can be challenging due to the specific principles and methods promulgated under Fair Value accounting rules. In addition, the accounting profession continues to clarify its detailed guidance for performing these analyses.

Successful development and acceptance of the analysis requires careful consideration of the views of management and the company's auditors. The valuation specialist must have an understanding of traditional valuation practice as well as a detailed understanding of the specific requirements and guidance issued by the accounting profession.

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