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Section 1:
Overview – Growing Importance of Intangible Assets
Intangible Asset Valuation - Introduction

• The following slides provide a high level overview of key concepts in the valuation of intangible assets.

• The American Society of Appraisers (ASA) offers two intangible asset valuation courses that provide comprehensive instruction on these and many other topics in an interactive, collaborative environment.
  • BV 301, Valuation of Intangible Assets
  • BV 302, Special Topics in the Valuation of Intangible Assets

• The International Institute of Business Valuers (IIBV) offers the following course which is substantially similar to the ASA course offering.
  • IIBV 301, Valuation of Intangible Assets
# Introduction - Intangible Asset vs. Business Valuation

<table>
<thead>
<tr>
<th>Analytical Variable</th>
<th>Business Valuation</th>
<th>Intangible Asset Valuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income subject to analysis</td>
<td>All operating income of business enterprise</td>
<td>Portion of operating income</td>
</tr>
<tr>
<td>Life of income projections</td>
<td>Typically into perpetuity</td>
<td>Usually limited remaining useful life (“RUL”)</td>
</tr>
<tr>
<td>Discount/Cap rates</td>
<td>Usually lower</td>
<td>Usually higher</td>
</tr>
<tr>
<td>Effect of obsolescence</td>
<td>Assume business adapts (going concern)</td>
<td>Assume effect on RUL</td>
</tr>
<tr>
<td>Highest and best use</td>
<td>Usually obvious</td>
<td>Requires analysis</td>
</tr>
<tr>
<td>Transactional data</td>
<td>Often available</td>
<td>Difficult to find</td>
</tr>
<tr>
<td>Control</td>
<td>Control or minority value</td>
<td>Control value</td>
</tr>
<tr>
<td>Level of value</td>
<td>Various – total invested capital, equity, minority interest in equity</td>
<td>Total value of asset</td>
</tr>
<tr>
<td>Legal rights subject to analysis</td>
<td>Fee simple interest</td>
<td>Numerous possibilities</td>
</tr>
</tbody>
</table>
Increased Emphasis on Intangibles – Economies Are Increasingly Focused on Intangibles

Percent of U.S. workforce

Note: Industry includes manufacturing, construction, and mining.
Source: Federal Reserve Bank of Dallas.
Increased Emphasis on Intangibles – Changing Mix of Business Value Over Time

- Under current accounting rules, many **internally created** intangible assets are **not** included on the balance sheet of the owner. Hence, the **book value of the firm often does not reflect the true value**. Balance sheets are no longer a full measure of the financial position of many firms.

- As intangible assets assume increasing importance in the economy, Price to Book Value Multiples are increasing as represented by the S&P 500. Increasing multiples reflect increasing recognition of the importance of intangibles. (Source: S&P/Barra Indexes – Fundamental Data)

  - 1977    1.2 to 1.0
  - 1980    1.3 to 1.0
  - 1985    1.6 to 1.0
  - 1990    1.8 to 1.0
  - 1995    3.0 to 1.0
  - 2000    4.2 to 1.0
  - 2005    2.9 to 1.0 (Post SFAS 141/141R/ASC 805)
  - 2011    2.3 to 1.0
## Increased Emphasis on Intangibles – Example of Market Value to Book Value Relationship

### Importance of Intangible Assets

**Comparison of Market Cap to Book Value for Selected Companies**

9/29/2011

<table>
<thead>
<tr>
<th>Country</th>
<th>Business</th>
<th>Market Capitalization</th>
<th>Book Value of Equity</th>
<th>Ratio of MC to BVE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>China</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tencent Holdings, Inc.</td>
<td>Internet Software and Services</td>
<td>38,640</td>
<td>3,919</td>
<td>9.9</td>
</tr>
<tr>
<td>Baidu</td>
<td>Internet Software and Services</td>
<td>42,368</td>
<td>1,730</td>
<td>24.5</td>
</tr>
<tr>
<td>Lenovo</td>
<td>Computers and Peripherals</td>
<td>6,922</td>
<td>1,961</td>
<td>3.5</td>
</tr>
<tr>
<td><strong>Japan</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sony Corporation</td>
<td>Household Durables</td>
<td>19,799</td>
<td>36,396</td>
<td>0.5</td>
</tr>
<tr>
<td>Toyota Motor Corp.</td>
<td>Automobiles</td>
<td>110,335</td>
<td>134,009</td>
<td>0.8</td>
</tr>
<tr>
<td>All Nippon Airways Co. Ltd.</td>
<td>Airlines</td>
<td>7,943</td>
<td>6,265</td>
<td>1.3</td>
</tr>
<tr>
<td><strong>France (EUR $Billion)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compagnie Generale DES Etablissements Michelin SCA</td>
<td>Auto Components</td>
<td>11,520</td>
<td>12,527</td>
<td>0.9</td>
</tr>
<tr>
<td>LVMH Moet Hennessy Louis Vuitton</td>
<td>Textiles, Apparel and Luxury Goods</td>
<td>70,171</td>
<td>30,764</td>
<td>2.3</td>
</tr>
<tr>
<td>Danone</td>
<td>Food Products</td>
<td>37,823</td>
<td>16,036</td>
<td>2.4</td>
</tr>
<tr>
<td><strong>Germany</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daimler AG</td>
<td>Automobiles</td>
<td>50,636</td>
<td>56,187</td>
<td>0.9</td>
</tr>
<tr>
<td>Allianz SE</td>
<td>Insurance</td>
<td>44,314</td>
<td>64,884</td>
<td>0.7</td>
</tr>
<tr>
<td>Bayer AG</td>
<td>Pharmaceuticals</td>
<td>47,213</td>
<td>27,470</td>
<td>1.7</td>
</tr>
<tr>
<td><strong>United Kingdom</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BAE Systems plc</td>
<td>Aerospace and Defense</td>
<td>14,026</td>
<td>8,498</td>
<td>1.7</td>
</tr>
<tr>
<td>HSBC Holdings plc</td>
<td>Commercial Banks</td>
<td>140,921</td>
<td>167,537</td>
<td>0.8</td>
</tr>
<tr>
<td>GlaxoSmithKline plc</td>
<td>Pharmaceuticals</td>
<td>104,337</td>
<td>15,153</td>
<td>6.9</td>
</tr>
<tr>
<td><strong>United States</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apple Inc.</td>
<td>Computers and Peripherals</td>
<td>368,064</td>
<td>69,343</td>
<td>5.3</td>
</tr>
<tr>
<td>The Coca-Cola Company</td>
<td>Beverages</td>
<td>156,272</td>
<td>35,424</td>
<td>4.4</td>
</tr>
<tr>
<td>McDonald's Corp.</td>
<td>Hotels, Restaurants and Leisure</td>
<td>90,825</td>
<td>14,953</td>
<td>6.1</td>
</tr>
</tbody>
</table>

*Source: Capital IQ*
## Increased Emphasis on Intangibles – Purchase Allocation of Wyeth, Inc. (Pfizer, Inc. 10K – 10/5/2009 - $ in millions)

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working capital, excluding inventories</td>
<td>$16,342</td>
</tr>
<tr>
<td>Inventories</td>
<td>8,388</td>
</tr>
<tr>
<td>Property, plant and equipment</td>
<td>10,054</td>
</tr>
<tr>
<td><strong>Identifiable intangible assets, excluding in-process research and development</strong></td>
<td><strong>37,595</strong></td>
</tr>
<tr>
<td>In-process research and development</td>
<td>14,918</td>
</tr>
<tr>
<td>Other noncurrent assets</td>
<td>2,394</td>
</tr>
<tr>
<td>Long-term debt</td>
<td>(11,187)</td>
</tr>
<tr>
<td>Benefit obligations</td>
<td>(3,211)</td>
</tr>
<tr>
<td>Net tax accounts</td>
<td>(24,773)</td>
</tr>
<tr>
<td>Other noncurrent liabilities</td>
<td>(1,980)</td>
</tr>
<tr>
<td><strong>Total identifiable net assets</strong></td>
<td><strong>48,612</strong></td>
</tr>
<tr>
<td><strong>Goodwill</strong></td>
<td><strong>19,954</strong></td>
</tr>
<tr>
<td>Net assets acquired</td>
<td>68,566</td>
</tr>
<tr>
<td>Less: Amounts attributable to non-controlling interests</td>
<td>(330)</td>
</tr>
<tr>
<td><strong>Total consideration transferred</strong></td>
<td><strong>68,236</strong></td>
</tr>
</tbody>
</table>
Increased Emphasis on Intangibles – 2011 Houlihan Lokey Survey of Purchase Price Allocations by US Firms in 2010

● 506 transactions with sufficient disclosure (there were 328, 439 and 658 transactions in 2009, 2008 and 2007 studies)
● Disclosure improving (higher % of transactions with disclosure)
● Intangibles includes:
  – Developed technology
  – In-process research & development
  – Customer related assets
  – Trademark and trade name
  – Other (including non-compete, licenses and core deposits)
● Source: Houlihan Lokey, Tenth Annual Purchase Price Allocation Study, August 2011
### Summary Allocation Percentages
#### 2010 Study

<table>
<thead>
<tr>
<th>$ in millions</th>
<th>Count</th>
<th>Purchase Consideration Median</th>
<th>Mean</th>
<th>Intangible Assets, % of PC Low</th>
<th>High</th>
<th>Median</th>
<th>Mean</th>
<th>Goodwill, % of PC Low</th>
<th>High</th>
<th>Median</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Industries</td>
<td>506</td>
<td>$66</td>
<td>$851</td>
<td>0%</td>
<td>100%</td>
<td>32%</td>
<td>35%</td>
<td>0%</td>
<td>97%</td>
<td>38%</td>
<td>38%</td>
</tr>
<tr>
<td>Aerospace, Defense &amp; Government</td>
<td>31</td>
<td>$112</td>
<td>$629</td>
<td>6%</td>
<td>43%</td>
<td>26%</td>
<td>26%</td>
<td>5%</td>
<td>74%</td>
<td>41%</td>
<td>43%</td>
</tr>
<tr>
<td>Business Services</td>
<td>43</td>
<td>46</td>
<td>387</td>
<td>2%</td>
<td>84%</td>
<td>27%</td>
<td>32%</td>
<td>5%</td>
<td>92%</td>
<td>46%</td>
<td>46%</td>
</tr>
<tr>
<td>Consumer, Food &amp; Retail</td>
<td>41</td>
<td>103</td>
<td>1,978</td>
<td>7%</td>
<td>84%</td>
<td>32%</td>
<td>33%</td>
<td>0%</td>
<td>89%</td>
<td>33%</td>
<td>35%</td>
</tr>
<tr>
<td>Energy</td>
<td>17</td>
<td>270</td>
<td>2,484</td>
<td>0%</td>
<td>69%</td>
<td>15%</td>
<td>23%</td>
<td>1%</td>
<td>62%</td>
<td>30%</td>
<td>29%</td>
</tr>
<tr>
<td>Financial Institutions</td>
<td>34</td>
<td>242</td>
<td>4,199</td>
<td>0%</td>
<td>85%</td>
<td>12%</td>
<td>21%</td>
<td>0%</td>
<td>69%</td>
<td>23%</td>
<td>27%</td>
</tr>
<tr>
<td>Healthcare</td>
<td>91</td>
<td>66</td>
<td>363</td>
<td>2%</td>
<td>100%</td>
<td>44%</td>
<td>44%</td>
<td>2%</td>
<td>77%</td>
<td>36%</td>
<td>36%</td>
</tr>
<tr>
<td>Industrials</td>
<td>46</td>
<td>52</td>
<td>316</td>
<td>1%</td>
<td>100%</td>
<td>27%</td>
<td>32%</td>
<td>1%</td>
<td>56%</td>
<td>25%</td>
<td>26%</td>
</tr>
<tr>
<td>Infrastructure Services &amp; Materials</td>
<td>16</td>
<td>125</td>
<td>409</td>
<td>10%</td>
<td>88%</td>
<td>21%</td>
<td>29%</td>
<td>4%</td>
<td>68%</td>
<td>33%</td>
<td>36%</td>
</tr>
<tr>
<td>Media, Sports &amp; Entertainment</td>
<td>11</td>
<td>17</td>
<td>33</td>
<td>9%</td>
<td>64%</td>
<td>26%</td>
<td>29%</td>
<td>19%</td>
<td>70%</td>
<td>46%</td>
<td>45%</td>
</tr>
<tr>
<td>Real Estate, Lodging &amp; Leisure</td>
<td>2</td>
<td>10</td>
<td>10</td>
<td>4%</td>
<td>15%</td>
<td>9%</td>
<td>9%</td>
<td>85%</td>
<td>85%</td>
<td>85%</td>
<td>85%</td>
</tr>
<tr>
<td>Technology</td>
<td>144</td>
<td>35</td>
<td>301</td>
<td>1%</td>
<td>94%</td>
<td>36%</td>
<td>38%</td>
<td>2%</td>
<td>97%</td>
<td>44%</td>
<td>43%</td>
</tr>
<tr>
<td>Telecom</td>
<td>29</td>
<td>69</td>
<td>467</td>
<td>9%</td>
<td>89%</td>
<td>35%</td>
<td>43%</td>
<td>4%</td>
<td>68%</td>
<td>37%</td>
<td>37%</td>
</tr>
<tr>
<td>Transportation &amp; Logistics</td>
<td>1</td>
<td>20,343</td>
<td>20,343</td>
<td>13%</td>
<td>13%</td>
<td>13%</td>
<td>13%</td>
<td>22%</td>
<td>22%</td>
<td>22%</td>
<td>22%</td>
</tr>
</tbody>
</table>

* Purchase consideration represents the equivalent to total assets, including equity, debt and non-interest bearing liabilities assumed, as applicable.

** Includes transactions done by U.S. listed public company acquirers completed in 2010.
### Increased Emphasis on Intangibles – Comparative Summary of Houlihan Lokey Surveys 2003-2010

#### Median PC Allocation to Intangible Assets and Goodwill

<table>
<thead>
<tr>
<th></th>
<th>Intangible Assets, % of Purchase Consideration</th>
<th>Goodwill, % of Purchase Consideration</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Industries</td>
<td>32% 32% 27% 23% 19% 20% 17% 16%</td>
<td>38% 40% 36% 36% 37% 37% 42% 42%</td>
</tr>
<tr>
<td>Aerospace, Defense &amp; Govt</td>
<td>26% 23% 22% 18% 23% 27% 24% 23%</td>
<td>41% 41% 51% 47% 53% 46% 55% 32%</td>
</tr>
<tr>
<td>Basic Industrials</td>
<td>27% 23% 20% 22% 11% 12% 8% 7%</td>
<td>25% 25% 28% 25% 27% 28% 30% 22%</td>
</tr>
<tr>
<td>Consumer, Food &amp; Retail</td>
<td>32% 34% 28% 27% 16% 23% 17% 18%</td>
<td>33% 38% 37% 28% 28% 37% 48% 34%</td>
</tr>
<tr>
<td>Energy</td>
<td>15% 10% 11% 0% 1% 15% 0% 0%</td>
<td>30% 16% 15% 5% 11% 19% 8% 2%</td>
</tr>
<tr>
<td>Engineering &amp; Construction</td>
<td>21% 10% 13% 11% 12% 13% 6% 15%</td>
<td>33% 43% 37% 27% 41% 35% 33% 40%</td>
</tr>
<tr>
<td>Financial Services</td>
<td>12% 5% 6% 2% 2% 1% 1% 2%</td>
<td>23% 11% 15% 14% 13% 10% 13% 0%</td>
</tr>
<tr>
<td>Healthcare</td>
<td>44% 45% 38% 31% 32% 38% 25% 14%</td>
<td>36% 37% 36% 45% 41% 38% 46% 45%</td>
</tr>
<tr>
<td>Media, Sports &amp; Entertainment</td>
<td>26% 46% 24% 30% 18% 29% 24% 48%</td>
<td>46% 26% 43% 47% 31% 41% 42% 10%</td>
</tr>
<tr>
<td>Real Estate</td>
<td>9% 25% 11% 13% 1% 4% 3% 1%</td>
<td>NM 17% 36% 30% 0% 41% 0% 0%</td>
</tr>
<tr>
<td>Technology</td>
<td>36% 37% 32% 28% 26% 23% 26% 23%</td>
<td>44% 44% 49% 47% 51% 57% 53% 52%</td>
</tr>
<tr>
<td>Telecom</td>
<td>35% 27% 27% 19% 22% 21% NA NA</td>
<td>37% 41% 28% 45% 36% 36% NA NA</td>
</tr>
</tbody>
</table>
Increased Emphasis on Intangibles – 2009 Ernst & Young Survey of Purchase Price Allocations by US Firms in 2007

- As shown in the graph below, the allocation of the enterprise value between tangible assets, intangible assets and goodwill varied greatly depending on the industry of the company acquired.

![Graph showing allocation of enterprise value by industry]

(Figures may not add up to 100% due to rounding)
Increased Emphasis on Intangibles – Competitive Advantage of Firms is Increasingly Driven by Intangibles

● “Wealth and growth in today's economy are driven primarily by intangible (intellectual) assets. Physical and financial assets are rapidly becoming commodities, yielding at best an average return on investment. Abnormal profits, dominant competitive positions, and sometimes even temporary monopolies are achieved by the sound deployment of intangibles, along with other types of assets.”

Increased Emphasis on Intangibles – Intangible Assets Can Have Unlimited Scale

- “Physical, human, and financial assets are rival assets . . . alternative uses compete for the services of these assets. In particular, a specific deployment of rival assets precludes them from simultaneously being used elsewhere.”

- “In contrast, intangible assets are, in general, nonrival; they can be deployed at the same time in multiple uses, where a given deployment does not detract from the usefulness of the asset in other deployments.”

- “A major contributor to the nonrivalry of intangibles . . . generally characterized by large fixed (sunk) cost and negligible marginal (incremental) cost.”

- “Intangibles are often characterized by increasing returns to scale. The usefulness of the ideas, knowledge, and research embedded . . . is not limited by the diminishing returns to scale typical of physical assets.”

- “Knowledge is cumulative, with each idea building on the last, whereas machines deteriorate and must be replaced. In that sense, every knowledge-oriented dollar makes a productivity contribution on the margin, while perhaps three-quarters of private investment in machinery and equipment is simply to replace depreciation.” Grossman and Helpman (1994, p.31)

 Reasons for Valuing Intangibles – Partial List

● Compliance
  – Financial Reporting
  – Taxation
    • Estate and Gift
    • Transfer Pricing
    • Ad Valorem
● Transactions
  – Licensing
  – Financing
  – Transaction Support
● Litigation
  – Marital Dissolution
  – Infringement
  – Bankruptcy
Definitions – Intangible Asset and Intellectual Property

● IVSC Guidance Note 4 *Valuation of Intangible Assets* paragraph 3 defines an intangible asset as “A non-monetary asset that manifests itself by its economic properties. It does not have physical substance but grants rights and economic benefits to its owner or the holder of an interest.

● International Accounting Standard 38, *Intangible Assets*, paragraph 8 defines an intangible asset as “identifiable non-monetary asset without physical substance.”

● ASC 350, *Intangibles-Goodwill and Other* defines intangible assets as “Assets (not including financial assets) that lack physical substance. (The term intangible assets is used in this Statement to refer to intangible assets other than goodwill.)”

● Intellectual Property (IP) – Creations of the mind – creative works or ideas embodied in a form that can be shared or can enable others to recreate, emulate, or manufacture them. There are four ways to protect intellectual property - patent, trademark, copyright, or trade secret.

Source: U.S. Patent and Trademark Office (USPTO) Glossary
International Valuation Standards Council (IVSC) – Issuance of Guidance Note 4, *Valuation of Intangible Assets*

- In February 2010, the International Valuation Standards Board of IVSC issued GN 4, *Valuation of Intangible Assets*.
- GNs are intended to guide experienced valuers on the application of the fundamental principles of the International Valuation Standards (IVS).
- Key section of GN 4 include:
  - Definitions
  - Types of Intangible Assets
  - Valuation approaches and methods
  - Valuation inputs
  - Reporting the Valuation
- GN 4 provides principles based guidance. Other materials cited in this presentation are based on other resources which provide more detailed insights into specific elements of intangibles valuation.
Definitions – Fair Value in a Financial Reporting Context

• Fair Value (Accounting Definition under IFRS 13 and ASC 820):
  – “Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.” (IFRS 13 and ASC 820-10-20).
  – “An orderly transaction is a transaction that assumes exposure to the market for a period prior to the measurement date to allow for marketing activities that are usual and customary for transactions involving such assets or liabilities . . .” (IFRS 13 and ASC 820-10-20)
  – “The transaction to sell the asset or transfer the liability is a hypothetical transaction at the measurement date, considered from the perspective of a market participant that holds the asset or owes the liability. Therefore, the objective of a fair value measurement is to determine the price that would be received to sell the asset or transfer the liability at the measurement date (an exit price).” (IFRS 13 and ASC 820-10-35-3)
  – Fair value was previously thought to be an entry price (buy-side); what a company would pay to acquire an asset or pay to settle a liability.
Definitions – Fair Value in a Financial Reporting Context (cont’d.)

– A fair value measurement is for a particular asset or liability. Therefore, the measurement should consider attributes specific to the asset or liability, for example, the condition and/or location of the asset or liability and restrictions, if any, on the sale or use of the asset at the measurement date. (IFRS 13 and ASC 820-10-35-19)

– “The asset or liability might be a standalone asset or liability (for example, a financial instrument or an operating asset) or a group of assets and/or liabilities (for example, an asset group, a reporting unit, or a business).” (IFRS 13 and ASC 820-10-35-21)

– It is essential to view fair value from the point of view of market participants rather than a specific entity. Market participants are unrelated parties, knowledgeable of the asset or liability given due diligence, willing and able to transact for the asset/liability, and may be hypothetical. (IFRS 13 and ASC 820-10-20)
Definitions – Fair Value in a Financial Reporting Context - Market Participants

- Market participants are buyers and sellers in the principal or most advantageous market for the asset or liability.

- Market participants are:
  - Unrelated (i.e., independent) to the reporting entity
  - Knowledgeable about factors relevant to the asset or liability and the transaction
  - Financial and legal ability to transact
  - Willing to transact without compulsion

- Market participants may be either strategic or financial buyers.
Section 2:

Identification of Intangible Assets
Identification of Intangible Assets – Introduction

• There are many types of intangible assets.
• A typical acquisition of a business enterprise and allocation of purchase price may involve half a dozen or more intangibles identified and valued.
• Certain intangibles dictated by industry:
  – Patents/products in pharmaceutical / life sciences industries
  – FCC licenses in broadcast industry
  – Core deposits in banking industry
  – Web site members valued in Internet industry
  – Production processes and patents valued for manufacturing companies
Identification of Intangible Assets – Key Groupings

• Paragraph 3.2 of GN 4 indicates that intangibles may be contractual or non-contractual.

• IVSC Guidance Note 4 lists four principal classes of intangibles.
  – Marketing-related
  – Customer or supplier-related
  – Technology-related
  – Artistic-related

• IFRS and US GAAP provide more detailed information on types of intangibles.

• ASC 805, Business Combinations, includes the four groups above plus a fifth grouping – contract-based intangibles.
Identification of Intangible Assets – Marketing Related Intangible Assets

- Marketing-related intangible assets are primarily used in the marketing or promotion of products or services. The non-exhaustive listing includes:
  a. Trademarks, trade names, service marks, collective marks, certification marks
  b. Trade dress (unique color, shape, or package design)
  c. Newspaper mastheads
  d. Internet domain names
  e. Non-competition agreements

Source: IVSC, GN 4 paragraph 3.3 and ASC 805-20-55-14 (non-exhaustive list).
Identification of Intangible Assets – Artistic-Related Intangible Assets

- Artistic-related intangible assets are those intangible assets of an artistic nature reflecting the creativity of the creator. These can include such items as:
  
a. Plays, operas, ballets
b. Books, magazines, newspapers, other literary works
c. Musical works such as compositions, song lyrics, advertising jingles
d. Pictures, photographs
e. Video and audiovisual material, including motion pictures, music videos, television programs

  Source: ASC 805-20-55-29 (non-exhaustive list).

- IVSC GN 4, paragraph 3.6. provides a similar but abbreviated listing of artistic-related intangibles.
Identification of Intangible Assets – Contract-Based Intangible Assets

- Contract-based intangible assets are established by contracts and include:
  a. Licensing, royalty, standstill agreements
  b. Advertising, construction, management, service or supply contracts
  c. Lease agreements
  d. Construction permits
  e. Franchise agreements
  f. Operating and broadcast rights
  g. Servicing contracts such as mortgage servicing contracts
  h. Employment contracts
  i. Use rights such as drilling, water, air, timber cutting, and route authorities

Source: ASC 805-20-55-31 (non-exhaustive list).
Identification of Intangible Assets – Technology-Based Intangible Assets

● Technology-based intangible assets protect or support technology and include:
  a. Patented technology
  b. Computer software and mask works
  c. Unpatented technology
  d. Databases, including title plants
  e. Trade secrets, such as secret formulas, processes, recipes

  Source: ASC 805-20-55-38 (non-exhaustive list).

● IVSC GN 4, paragraph 3.5. provides a similar listing of technology related intangibles.
Identification of Intangible Assets – Customer-Related Intangible Assets

- Customer or supplier-related intangible assets arise from relationships with or knowledge of customers or suppliers. Examples include, but are not limited to:
  - advertising, construction, management, service or supply agreements;
  - licensing and royalty agreements;
  - servicing contracts;
  - order books;
  - employment contracts;
  - use rights, such as drilling, water, air, timber cutting and airport landing slots;
  - franchise agreements;
  - customer relationships; or
  - customer lists.
  - **Source:** IVSC GN4, paragraph 3.4

- ASC 805-20-55-20 provides a similar listing.
Identification of Intangible Assets – Types of Customer-Related Intangible Assets

- **Order or production backlog**:  
  - Arises from contracts or specific sales orders  
  - Time, volume, price and quality are fixed  
  - Contractual-legal basis would lead to recognition and valuation

- **Customer contracts and related customer relationships**:  
  - Time volume, price and quality are stipulated  
  - Contractual-legal basis would lead to recognition and valuation

- **Non-contractual customer relationships**:  
  - Absence of legal rights to protect or control the relationship  
  - Customer relationships where there is meaningful contact generally lead to recognition and valuation (exception – walk-in retail customers)
Identification of Intangible Assets – Types of Customer-Related Intangible Assets

- Customer lists
- Transactional purchase order based customers
- Transactional customer relationships with MSAs
- Recurring customer relationships with switching costs
- Customers with long term contracts
- Take or pay contracts
Section 3:

Summary Information on Cost and Market Approaches
Overview of Cost Approach – IFRS and US GAAP Definition

• Definition of Cost Approach per IFRS 13 (and ASC 820), Fair Value Measurement:

  “The cost approach is based on the amount that currently would be required to replace the service capacity of an asset (often referred to as current replacement cost). From the perspective of a market participant (seller), the price that would be received for the asset is determined based on the cost to a market participant (buyer) to acquire or **construct a substitute asset of comparable utility, adjusted for obsolescence.** Obsolescence encompasses physical deterioration, functional (technological) obsolescence, and economic (external) obsolescence and is broader than depreciation for financial reporting purposes (an allocation of historical cost) or **tax purposes** (based on specified service lives).” (ASC 820-10-35-34)

  – The approach assumes that the **fair value would not exceed what it would cost a market participant to acquire or construct a substitute asset of comparable utility, adjusted for obsolescence.”**
Overview of Cost Approach – IVSC Definition

– *Definition of Cost Approach per the International Valuation Standards Council, Technical Information Paper 3, The Valuation of Intangible Assets, paragraph 7.1:* “The cost approach is based on the economic principle that a buyer will pay no more for an asset than the cost to obtain an asset of equal utility, whether by purchase or by construction.”
Overview of Cost Approach – Considerations for Use

- Asset not directly associated with income generation of the business.
  - Readily replaceable workforce compared to complex FDA approval.
  - Internally-used software.

- When the cost of reconstructing or replacing an asset with a sufficiently comparable asset can be reasonably determined.

- Asset not readily valued using market or income approach.

- Economic obsolescence should be considered, but is difficult to quantify:
  - Does not consider amount of future economic benefits
  - Does not consider timing and duration of future economic benefits
  - Does not consider risk

- Subjectivity in developing cost estimates.

- Divergence in practice in treatment of tax attributes – (1) Use of pretax costs or (2) tax-affect pretax costs and apply amortization benefit factor.
Overview of Cost Approach – Comments on Criteria for Selection of Assets to Appraise

- The Cost Approach may be best suited for assets which are not a direct source of economic earnings for the business enterprise.
- Attributes of assets valued using the Cost Approach may also include:
  - Not an enabling asset which “drives” the business;
  - More easily replaced; and
  - Often less significant value relative to other intangible assets.
- The Cost Approach is often best suited for the appraisal of the following intangible assets:
  - Assembled workforce
  - Internally developed and used software
  - Engineering drawings
  - Packaging designs
Overview of the Cost Approach – Definition from ASC 820

● “The cost approach is based on the amount that currently would be required to replace the service capacity of an asset (often referred to as current replacement cost). From the perspective of a market participant (seller), the price that would be received for the asset is determined based on the cost to a market participant (buyer) to acquire or construct a substitute asset of comparable utility, adjusted for obsolescence. Obsolescence encompasses physical deterioration, functional (technological) obsolescence, and economic (external) obsolescence and is broader than depreciation for financial reporting purposes (an allocation of historical cost) or tax purposes (based on specified service lives).” (ASC 820-10-35-34)

– The approach assumes that the fair value would not exceed what it would cost a market participant to acquire or construct a substitute asset of comparable utility, adjusted for obsolescence.
Overview of the Cost Approach – Key Elements

- The Cost Approach establishes value based on the cost of reproducing or replacing the asset (reproduction cost or replacement cost).

- Based on economic **principle of substitution**:
  - A prudent investor would pay no more for a fungible (i.e., interchangeable) asset than the cost that would be incurred to replace the asset with a substitute of comparable utility or functionality.

- Replacement cost new typically establishes the maximum amount that a prudent investor would pay for a fungible asset.
Overview of the Cost Approach – Elements of Labor, Material and Overhead

- Labor – Fully-burdened direct labor including all related payroll benefits (primarily taxes, pension, and insurance).
- Material – All materials directly consumed in the development of the intangible asset development process. (Rare for most intangibles.)
- Overhead – Facility costs, management and administrative support, and other unallocated expenses.
Overview of the Cost Approach – Inclusion of Entrepreneurial Profit

- For real estate assets, a provision for **profit or incentive on the costs associated with the development of an asset** is regularly included and is a specific element of the description of the valuation approach.

- For intangible assets, many valuation professionals do not include a provision for any profit or incentive on the costs associated with the development of an asset which is valued using the Cost Approach.

- An asset acquired from a third party would presumably reflect their costs associated with creating the asset as well as some form of profit mark-up required to provide a return on investment.

- There is limited current guidance on this issue in the financial valuation literature related to the valuation of intangible assets.
Overview of the Cost Approach – Inclusion of Entrepreneurial Profit (cont’d)

Possible reasons for the exclusion of a profit or incentive element in the valuation of intangible assets using the Cost Approach include:

– Role of asset – Real estate and other assets which are sold to third parties would more logically require a profit element in their pricing/value. Many intangible assets valued using the Cost Approach are viewed as contributory assets (see detailed discussion in Section 8). Inclusion of this profit for a contributory asset may distort values of other assets valued using the Excess Earnings Method.

– Difficulty of estimates – Introduction of this element would further increase the complexity of efforts for appraising assets associated with a business acquisition.

– Materiality – The increased value in an asset valued using the Cost Approach may be offset by the reduced value of an asset valued using the Excess Earnings Method.
Overview of the Cost Approach – Inclusion of Entrepreneurial Profit (cont’d)

● SEC comment on customer valuation suggested the **Cost Approach may understate value of customer-related intangibles**. SEC noted that for customer-related intangibles an opportunity cost (lost profit) would need to be added to the initial cost estimate if a Cost Approach is used.

● This SEC comment related to the valuation of customer-related intangibles which many agree would seem to most logically be valued using an Income Approach. However, the question can be broadened to the valuation of other intangible assets.

● The Income Approach is most often used to value customer relationships. However, “while an income approach often provides the most appropriate valuation of acquired customer relationship intangible assets, circumstances may certainly indicate that a different method provides a better estimate of fair value.” (Speech by Joseph B. Ucuzoglu on December 11, 2006)

● SEC Speech on December 10, 2007 by Sandie E. Kim

  – SEC noted “For certain intangible assets, it may be appropriate to use a replacement cost approach. In order to determine the replacement cost of an intangible asset, do not forget to ask the following questions: “Would a market participant pay a premium for the benefit of having the intangible asset available for use today, rather than waiting until the asset is obtained or created?” If the answer is yes, and the premium for immediate use would be material, we believe that an “opportunity cost” should be considered in the fair value of the intangible asset under a replacement cost approach. That opportunity cost represents the foregone cash flows during the period it takes to obtain or create the asset, as compared to the cash flows that would be earned if the intangible asset was on hand today.”

- SEC Speech on December 10, 2007 by Sandie E. Kim
  - Some of the question to keep in mind include, but are not limited to, the following:
    - Is the asset difficult to obtain or create?
    - Is there a long period of time required to obtain or create the asset?
    - Is the asset scarce?
    - Is the asset critical to the business operations?
Overview of the Cost Approach – Internally Development Costs vs. Third Party Cost Estimates

● The estimated cost of an asset could differ depending on whether costs are based on internal or third party cost estimates.

● Cost estimates for intangible development from a third party would be expected to include compensation for:
  – Labor,
  – Material,
  – Overhead, and
  – Profit required to compensate the seller for their efforts.

● Historical practice for valuation of internally created intangibles may include differing assumptions regarding these amounts – especially allocation of overhead and inclusion of a profit element.

Sample Comparison of Internal vs. Third Party Cost Estimates

<table>
<thead>
<tr>
<th></th>
<th>Internal</th>
<th>Third Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Labor Rate per Hour</td>
<td>$40.00</td>
<td>$40.00</td>
</tr>
<tr>
<td>Profit Mark Up @ 15% (1)</td>
<td>0%</td>
<td>15%</td>
</tr>
<tr>
<td>Adjusted Labor Rate</td>
<td>40.00</td>
<td>46.00</td>
</tr>
<tr>
<td>Hours Required</td>
<td>5,000</td>
<td>5,000</td>
</tr>
<tr>
<td>Base Labor Cost</td>
<td>200,000</td>
<td>230,000</td>
</tr>
<tr>
<td>Materials (2)</td>
<td>30,000</td>
<td>50,000</td>
</tr>
<tr>
<td>Materials Mark-Up (3)</td>
<td>0%</td>
<td>15%</td>
</tr>
<tr>
<td>Total Materials with Mark-Up</td>
<td>30,000</td>
<td>57,500</td>
</tr>
<tr>
<td>Total Labor and Materials before Overhead</td>
<td>230,000</td>
<td>287,500</td>
</tr>
<tr>
<td>Overhead Allocation (4)</td>
<td>10%</td>
<td>20%</td>
</tr>
<tr>
<td>Fair Value Estimate before Obsolescence Adj.</td>
<td>253,000</td>
<td>345,000</td>
</tr>
<tr>
<td>Adjustment for Obsolescence (5)</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Fair Value Estimate</strong></td>
<td><strong>$253,000</strong></td>
<td><strong>$345,000</strong></td>
</tr>
</tbody>
</table>

*Note:*
(1) Internal cost estimate may not include profit factor
(2) Materials may differ due to less accurate tracking
(3) For internal estimate, inclusion of mark-up on materials is uncertain
(4) Overhead allocations may differ
(5) Analysis indicated no adjustments required for any form of obsolescence.
Overview of the Cost Approach – Limitations

- The Cost Approach does not incorporate information about the amount of economic benefits associated with the asset (i.e., it does not consider economic obsolescence).
- It does not consider the duration of time over which the economic benefits will be enjoyed.
- The Cost Approach does not capture the risk associated with receiving the expected economic benefits.
- Adjustments that are necessary to reflect the effects of obsolescence must be separately calculated and are often difficult to quantify.
Overview of the Cost Approach – Challenges with Relationship between Cost and Income Approach Value Indications

- A development stage drug requires valuation for ASC 805. Key information developed by the valuation professional includes:
  - Estimated costs incurred of $10,000,000 at valuation date.
  - Estimated costs to complete of $100,000,000 with 3 years until expected revenue and income generation (if viable).
  - Valuation professional has estimated a fair value of the IPR&D of $200,000,000 using a discounted cash flow analysis.
  - What questions does this difference between cost and income indications raise? (E.g., does this difference imply a risk that someone can beat them to market?)
Overview of the Cost Approach – Reproduction or Replacement Costs Should Lead to the Same Ultimate Value Conclusion

Cost Approach Estimates

Reproduction cost estimates

“cost to construct an exact duplicate”
Using same materials, production standards, design ...

Replacement cost estimates

“cost to construct equivalent utility”
Using modern materials, production standards, design ...
Overview of the Cost Approach – Flow of Elements of Cost Approach – From Cost to Value – Pre-tax Calculation

Reproduction cost (new)
- **Incurable** functional (technological) obsolescence

= Replacement cost (new)
- Physical deterioration
- **Curable** functional (technological) obsolescence
- Economic obsolescence (external)

= Value of subject asset

Reproduction cost (new)
- Incurable functional (and technological) obsolescence

= Replacement cost (new)

- Physical deterioration
- Curable functional (and technological) obsolescence
- Economic obsolescence (external)

= “Pre-tax” value of asset

- Provision for taxes
+ Amortization tax benefit

= Value of subject asset
Overview of the Cost Approach – Use of Historical Costs

- Historical cost is the actual cost (total cost) that had been incurred to develop the asset.
- Historical costs, when adjusted for inflation or comparative cost indexes are applied, result in current reproduction costs. Intangible asset valuation is almost always concerned with replacement and not reproduction cost.
- Often used in machinery and equipment appraisals where costs have already been capitalized.
- Historical costs should be assessed by valuation professionals in the event current replacement costs differ materially from these amounts. The current replacement cost would be expected to be the preferable basis for the valuation estimate.
Obsolescence – Definitions of Forms of Obsolescence from Valuing Machinery and Equipment, ASA valuation text

- **Economic obsolescence** is the loss in value of a property caused by factors external to the property. These may include such things as:
  - The economics of the industry
  - Availability of financing
  - Loss of material and/or labor sources
  - Passage of new legislation
  - Changes in ordinances
  - Increased cost of raw materials, labor, or utilities (without an offsetting increase in product price)
  - Reduced demand for the product
  - Increased competition
  - Inflation or high interest rates, or similar factors
Obsolescence – Definitions of Forms of Obsolescence from Valuing Machinery and Equipment (cont’d)

● **Functional obsolescence** is the loss in value or usefulness of a property caused by inefficiencies or inadequacies of the property itself, when compared to a more efficient or less costly replacement property that new technology has developed.

● Symptoms suggesting the presence of functional obsolescence are:
  - Excess operating cost
  - Excess construction (excess capital cost)
  - Overcapacity
  - Inadequacy
  - Lack of utility, or similar conditions
Obsolescence – Definitions of Forms of Obsolescence from Valuing Machinery and Equipment (cont’d)

- **Physical deterioration** is the loss in value or usefulness of a property due to the **using up or expiration of its useful life**.

- **Physical deterioration** is caused by:
  - Wear and tear
  - Deterioration
  - Exposure to various elements
  - Physical stresses, and similar factors

Obsolescence – Estimation

- For assets where market data is available, the market data would be expected to capture all forms of obsolescence.
- Tangible assets:
  - The values of many types of used tangible assets are reported in pricing guides (used vehicles and similar equipment items as examples) or other sources and can be easily referenced in the valuation process. For these assets, obsolescence considerations are readily captured in the market price.
  - Many tangible assets may be unique and a Market Approach may not be feasible. For these assets, measurement of all forms of obsolescence is more challenging.
- Intangible assets – Given the special use nature of many intangible asset, market data is often not available. This creates challenges in measuring the different forms of obsolescence as a part of developing a fair value estimate.
Obsolescence – Estimation of Age / Life Depreciation

- One means of capturing obsolescence (primarily functional and possibly some economic for an intangible asset) is through depreciation based on the asset’s actual age and its expected remaining life.

- Assume the following:
  - Replacement cost new for asset at valuation date $100
  - Age of asset (years) 6
  - Total economic life of asset 8

- The indicated fair value of the asset would be:
  - Current RCN $100
  - Less obsolescence adjustment (6 / 8 or 75%) - 75
  - Depreciated replacement cost $ 25

- For a tangible asset, the age / life adjustment would include a provision for “normal” physical obsolescence (wear and tear). An asset not in “typical” condition would require a further adjustment for physical obsolescence.
Obsolescence – Estimation of Economic Obsolescence

- Economic (external) obsolescence results from conditions external to the asset including industry, general economic or other factors.
- Allocation of economic obsolescence to assets is extremely difficult and reflects specific facts and circumstances.
- Two key drivers of economic obsolescence are:
  - Lower revenues – price and/or quantity sold declines
  - Increased operating costs
Obsolescence – Estimation of Economic Obsolescence (cont’d)

- Revenue shortfall – Economic obsolescence may result from an excess of the capacity of an asset relative to market demand. (See Valuing Machinery and Equipment, pp. 97–101.)
  - A machine is acquired for $100 with expected output of 10 units. Weak economic factors indicate demand of only 6 units. An adjustment for economic obsolescence of 40% is indicated. Lower demand might result in dramatically lower profit, so, obsolescence measurement may be more complex.

- Excess operating costs – Costs above those initially anticipated represent another form of economic obsolescence. Excess operating costs might be the result of economic factors which are external to the asset (i.e., dramatic increase in fuel costs).

- These and other approaches of measuring economic obsolescence require consideration of business enterprise level factors, hence, the allocation of obsolescence among various asset remains an issue.
Obsolescence – Estimation of Economic Obsolescence (cont’d)

- External factors may impact the value of many assets of a business enterprise (cash and certain assets are not impacted by external obsolescence).

- To measure economic obsolescence at a business enterprise level, compare:
  - Fair value of the total invested capital (TIC) of the business enterprise (appraised as a going concern) to
  - Fair value of total individual estimates for WC, FA and IA (summation of all individual appraised asset values less current liabilities). (Remember TIC is equal to WC plus FA plus IA.)

- If the FV of TIC is less than the total of WC, FA and IA, there is obsolescence that should be allocated to underlying assets of the enterprise. (This statement is predicated on the transaction not being a bargain purchase.)

- If purchase price exceeds appraised asset values after obsolescence adjustments, there is goodwill.

- Question: If economics of business enterprise are poor due to weak management, how does this impact economic obsolescence?
Valuation of Assembled Workforce – Tuff Tables Example – Pretax Cost Approach

Valuation Date
Actual $'s

<table>
<thead>
<tr>
<th>Position</th>
<th>Replacement Costs Per Worker (Pre-Tax)</th>
<th>Number of Employees</th>
<th>Total Replacement Cost (Pre-Tax)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hiring Costs</td>
<td>Training Costs/Year</td>
<td>Lost Productivity</td>
</tr>
<tr>
<td>Management &amp; Professionals</td>
<td>$10,000</td>
<td>$10,000</td>
<td>$10,417</td>
</tr>
<tr>
<td>Sales Representatives</td>
<td>$5,000</td>
<td>$5,000</td>
<td>$8,750</td>
</tr>
<tr>
<td>Product Design</td>
<td>$5,000</td>
<td>$5,000</td>
<td>$8,750</td>
</tr>
<tr>
<td>Administrative / Clerical</td>
<td>$1,000</td>
<td>$500</td>
<td>$1,250</td>
</tr>
<tr>
<td>Semi-skilled</td>
<td>$500</td>
<td>$500</td>
<td>$1,250</td>
</tr>
<tr>
<td>Unskilled</td>
<td>$250</td>
<td>$250</td>
<td>$625</td>
</tr>
</tbody>
</table>

Total 308 $2,182,542

Value of Pre-Tax Replacement Cost $2,182,542

Indicated Fair Value of Assembled Workforce, Rounded $2,180,000

Note:
Figures based on discussions with and data provided by Management.
## Valuation of Assembled Workforce – Tuff Tables Example – After-Tax Plus Tax Amortization Benefit

**PE Buyer, Inc.**  
Valuation of Intangible Assets of Tuff Tables, Inc. for ASC 805  
Valuation of Assembled Workforce

### Valuation Date

Actual $'s

<table>
<thead>
<tr>
<th>Position</th>
<th>Replacement Costs Per Worker (Pre-Tax)</th>
<th>Number of Employees</th>
<th>Total Replacement Cost (Pre-Tax)</th>
<th>Yr. Burdened Compensation</th>
<th>Starting Productivity</th>
<th>Months to 100% Productivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management &amp; Professionals</td>
<td>$10,000 $10,000 $10,417 $30,417</td>
<td>10</td>
<td>$304,167</td>
<td>$125,000 $125,000</td>
<td>50%</td>
<td>3</td>
</tr>
<tr>
<td>Sales Representatives</td>
<td>$5,000 $5,000 $8,750 $18,750</td>
<td>75</td>
<td>$1,406,250</td>
<td>$70,000 $70,000</td>
<td>50%</td>
<td>5</td>
</tr>
<tr>
<td>Product Design</td>
<td>$5,000 $5,000 $8,750 $18,750</td>
<td>5</td>
<td>$93,750</td>
<td>$60,000 $60,000</td>
<td>50%</td>
<td>4</td>
</tr>
<tr>
<td>Administrative / Clerical</td>
<td>$1,000 $500 $1,250 $2,750</td>
<td>30</td>
<td>$82,500</td>
<td>$40,000 $40,000</td>
<td>75%</td>
<td>2</td>
</tr>
<tr>
<td>Semi-skilled</td>
<td>$500 $500 $1,250 $2,250</td>
<td>75</td>
<td>$168,750</td>
<td>$40,000 $40,000</td>
<td>75%</td>
<td>2</td>
</tr>
<tr>
<td>Unskilled</td>
<td>$250 $250 $625 $1,125</td>
<td>113</td>
<td>$127,125</td>
<td>$30,000 $30,000</td>
<td>75%</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>308</strong> $2,182,542 $308 $2,182,542</td>
<td><strong>308</strong></td>
<td><strong>2,182,542</strong></td>
<td><strong>1,289,000</strong></td>
<td><strong>50%</strong></td>
<td><strong>3</strong></td>
</tr>
</tbody>
</table>

Value of Pre-Tax Replacement Cost  
Less: Provision for Taxes  
Value of After-Tax Replacement Cost  
Plus: Tax Amortization Benefit  
Indicated Fair Value of Assembled Workforce

### Indicated Fair Value of Assembled Workforce, Rounded  
$1,560,000

**Note:**  
Figures based on discussions with and data provided by Management.

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*Intangible Asset Valuation*  
www.appraisers.org
Valuation of Customer-Related Intangibles

- Valuation of customer-related intangibles using the Cost Approach is rare in many industries. SEC has commented on this in published speeches.
  - As customers are the source of revenues of a firm, customer-related intangibles would typically be expected to be valued using an Income Approach.
  - In certain cases, technology or products may be more important than customers in the generation of revenues. An example would be a FDA approved blockbuster drug.
  - In these cases, there is presently some divergence in practice among practitioners. Complex approaches which value both technology and customers using an Income Approach are being developed. These approaches include complex adjustments to avoid the “double-counting” of revenues and income.
Valuation of Customer-Related Intangibles – SEC Comments

- According to Statement by SEC Staff: *Remarks Before the 2005 AICPA National Conference on Current SEC and PCAOB Developments*, December 5, 2005, “.. the use of a Cost Approach has generally been challenged since, in the staff's experience, the models failed to capture all associated costs that would be necessary to rebuild that customer relationship and the resultant value was not deemed sufficient when compared to values derived by other approaches.”

- Cheryl Tjon-Hing of the SEC stated on May 9, 2007 that when the Cost Approach for the valuation of customer-based intangibles it may erroneously exclude opportunity costs (lost profits) associated with not having customer relationships in place.
Overview of Market Approach – IFRS and US GAAP

**Definition**

- **Definition of Market Approach per ASC 820**: “This approach uses observable prices and other relevant information that is generated by market transactions involving identical or comparable assets or liabilities. The fair value measure is based on the value that those transactions indicate.”

- **Definition of Market Approach per IVSC Technical Information Paper 3, paragraph 5.1**: “The market approach provides an indication of value by comparing the subject asset with identical or similar assets for which price information is available.”
Overview of Market Approach – Considerations for Use

- To conduct a Market Approach, the appraiser needs to identify **arm’s-length transactions** of guideline assets, disclosure of pricing information, and reasonable knowledge of the relevant facts.

- Publicly available market data are often not available for intangible assets.
  - Intangible assets are very unique.
  - When intangibles are sold, they are typically sold with other components of a business enterprise.
  - If sold individually, transactions are not often subject to public disclosure.

- Aside from the use of **market royalty rates**, the Market Approach is rarely used for valuing intangibles.

- Examples where Market Approach for an intangible asset are relatively limited. A few include:
  - Domain Names
  - Operating Rights - FCC Licenses and telecom operating spectrums
Section 4:

Overview of the Income Approach

- The Appraisal Foundation is working to enhance valuation practice for intangibles through the issuance of “Best Practices” documents.
  - *The Identification of Contributory Assets and the Calculation of Economic Rents* issued May 31, 2010. This document provides an extended discussion of key elements of Multi-Period Excess Earnings Method. Materials include:
    - Body
    - Comprehensive example
    - Glossary
    - Toolkit with charts and forms will be included in subsequent release
  - *Best Practices on the Valuation of Customer-Related Assets* draft document issued in June 2012
  - *Best Practices for Measurement and Application of a Control Premium in Determining the Fair Value of Business or Reporting Unit for Financial Reporting Purposes* draft document in process
Overview of Income Approach – IFRS and US GAAP Definition

- **Definition of Income Approach per ASC 820 and IFRS 13, Fair Value Measurement:**

  - B10 The income approach converts future amounts (e.g., cash flows or income and expenses) to a single current (i.e., discounted) amount. When the income approach is used, the fair value measurement reflects current market expectations about those future amounts.

  - B11 Those valuation techniques include, for example, the following:

    (a) present value techniques (see paragraphs B12–B30);

    (b) option pricing models, such as the Black-Scholes-Merton formula or a binomial model (i.e., a lattice model), that incorporate present value techniques and reflect both the time value and the intrinsic value of an option; and

    (c) the multi-period excess earnings method, which is used to measure the fair value of some intangible assets.
Overview of Income Approach – IVSC Definition

- Definition of Income Approach per IVSC Technical Information Paper 3 The Valuation of Intangible Assets. Paragraph 6.1: “Valuation methods under the income approach determine the value of an intangible asset by reference to the present value of future income, cash flows or cost saving that could be reasonably expected to be achieved by a market participant owning the asset.”
Overview of Income Approach – Alternative Methods

● The derivation of income estimates is the key difference in the valuation of intangibles using the different methods.

  – Multi-period Excess Earnings Method (MPEEM)
    • Value is based on excess income (residual income of the business after deducting returns from all other assets).

  – Relief-from-Royalty Method (RFR)
    • Value is based on avoided third party license payment for right to use an asset (assumes asset is not owned).

  – Income Increment / Cost Decrement Methods
    • Value based on differential cash flows with and without an asset.

  – Build-Out (Greenfield) Method
    • Assumes the only asset in place is the appraised asset. All other assets will be acquired and “ramped-up” in the Build-Out Method DCF Model.
Overview of Income Approach – Types of Assets Frequently Valued Using Different Methods

● **Multi-period Excess Earnings Method** (Residual income):
  – Customer related intangibles
  – Key technology (critical to revenue generation)

● **Relief-from-Royalty Method** (Avoided third party payment):
  – Trade names
  – Some less important technologies (internal use)

● **Income Increment / Cost Decrement Methods:**
  – Covenant Not-to-Compete Contract

● **Build-Out (Greenfield) Method:**
  – FCC Licenses
  – Other permits, rights to operate
Overview of Income Approach – When to Use the MPEEM

● The MPEEM is best suited for assets which generate surplus cash flow that can be measured. These can be referred to as enabling assets or primary income generating assets.

● Attributes of assets valued using the MPEEM may include:
  – Direct source of current or near future revenue generation,
  – Enabling asset which “drives” the business,
  – Replacement may be more difficult, and
  – Typically considered the most significant or valuable acquired intangible assets.
MPEEM - Summary Observations

- For the primary income-producing asset of a business enterprise, the MPEEM is most likely the appropriate method to employ.

- The income attributable to the primary asset can be best estimated as a residual concept, or stated alternatively, as the excess return after a fair return to other assets that contribute to the generation of net income. The fair return to other assets is often referred to as a “contributory asset charge.”

- Cash flow of the business operations is allocated to various assets that contribute to the operations. If there is any excess income after the allocation of income to other assets (working capital, fixed assets and/or intangible assets), this excess income is the basis for the value of the primary asset.
MPEEM - Primary Steps

1. Assess business operations and the appropriate asset(s) to be valued using the MPEEM. *(Key Issue)*

2. Estimate future revenues driven by the specific enabling intangible asset(s) (i.e., existing customers or a specific technology) and other supporting (i.e., contributory) assets. *(Key Issue)*

3. Estimate expenses (COGS and Operating Expenses) that are required to generate the revenue from the key intangible asset and related contributory assets. *(Key Issue)*

4. Adjust the above expenses as appropriate for any unrelated expenses. *(Key Issue)*
   a. Existing technology does not require research and development expenditures associated with in-process or future technology(ies).
   b. Existing customers may not require some marketing expenses related to obtaining new customers.
   c. EBITDA margin for existing customers or technology may exceed the EBITDA margin for the overall business. The higher short-term margin reflects the exclusion of investment in developing new intangibles.
5. Determine the types of assets and fair values of the assets needed to support the generation of profits (Key Issue). Other needed assets are known as contributory assets and typically include:

a. Working capital

b. Fixed assets

c. Intangible assets that are separable from goodwill, such as trade name, non-competes, other

d. Intangible assets that are not separable from goodwill, such as assembled workforce

e. Accounting goodwill is not considered a contributory asset. (Accounting goodwill may include buyer specific synergies, future technology and/or customers and excess purchase price which are not required to support the enabling asset.)
MPEEM – Primary Steps (cont’d)

6. Estimate the rate of return (discount rate) for each contributory asset based on the estimated risk associated with the asset. (*Key Issue*)

7. Calculate the excess earnings (residual income) associated with the primary intangible asset by subtracting the contributory asset charges from the pro forma income for the overall group of related assets.

8. Estimate the discount rate for the intangible asset being valued. (*Key Issue*)

9. Calculate and sum the present value of the projected economic benefits (excess earnings) from the intangible asset.

10. Calculate and add the additional value associated with amortizing the value of the asset for income tax purposes to reach conclusion of fair value of the specific item valued.
MPEEM – Use of MPEEM for Customers or Technology

● Either customers or technology (or both) may often be valued using the MPEEM.

● Customers – If customers are a key asset and firm does not have any key technology, then customer related intangibles clearly drive revenue generation.

● Key technology – If marketing and customer acquisition efforts are less important due to technology “driving” revenues, then key technology drives revenue generation:
  – U.S. Food and Drug Administration (“FDA”) approved drug
  – Other extremely important technology sold to customers

● In some instances, both technology and customer relationships are both important to revenue generation of a business enterprise. The Contributory Asset document discusses valuation solutions in this instance.
MPEEM (Technology) – Pharma Acquisition Example

Pharma Buyer, Inc.

Valuation of Intangible Assets of XYZ Pharma, Inc. for ASC 805

Valuation of Technology
Excess Earnings Method

<table>
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<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
<th>Year 7</th>
<th>Year 8</th>
<th>Year 9</th>
<th>Year 10</th>
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<td>Revenue (1)</td>
<td>$10,000</td>
<td>$50,000</td>
<td>$100,000</td>
<td>$150,000</td>
<td>$165,000</td>
<td>$165,000</td>
<td>$123,750</td>
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<td>Growth</td>
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<td>50.0%</td>
<td>10.0%</td>
<td>0.0%</td>
<td>-25.0%</td>
<td>-50.0%</td>
<td>-50.0%</td>
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<td>Cost of Goods Sold</td>
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<td>5,000</td>
<td>10,000</td>
<td>15,000</td>
<td>16,500</td>
<td>16,500</td>
<td>12,375</td>
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<td>Gross Profit</td>
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<td>45,000</td>
<td>90,000</td>
<td>135,000</td>
<td>148,500</td>
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<td>111,375</td>
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<td>SG&amp;A Expenses</td>
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<td>30,000</td>
<td>45,000</td>
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<td>37,125</td>
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<td>Less: Development R &amp; D (2)</td>
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<td>Maintenance R &amp; D (3)</td>
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<td>200</td>
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<td>Operating Income</td>
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<td>29,800</td>
<td>59,800</td>
<td>89,800</td>
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<td>6,000</td>
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<td>4,950</td>
<td>2,475</td>
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<td>11,120</td>
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<td>39,880</td>
<td>27,640</td>
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<td>After-Tax Earnings</td>
<td>3,240</td>
<td>16,680</td>
<td>34,480</td>
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<td>54,400</td>
<td>54,400</td>
<td>41,460</td>
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<td>After-Tax Capital Charges (5) % of Revenue</td>
<td>0.50%</td>
<td>50</td>
<td>250</td>
<td>500</td>
<td>750</td>
<td>825</td>
<td>825</td>
<td>619</td>
<td>309</td>
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<tr>
<td>Net Working Capital (Excl. Excess Cash)</td>
<td>0.75%</td>
<td>75</td>
<td>375</td>
<td>750</td>
<td>1,125</td>
<td>1,238</td>
<td>1,238</td>
<td>928</td>
<td>464</td>
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<td>Fixed Assets</td>
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<td>25</td>
<td>125</td>
<td>250</td>
<td>375</td>
<td>413</td>
<td>413</td>
<td>309</td>
<td>155</td>
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<tr>
<td>Internal Technology</td>
<td>0.50%</td>
<td>50</td>
<td>250</td>
<td>500</td>
<td>750</td>
<td>825</td>
<td>825</td>
<td>619</td>
<td>309</td>
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<tr>
<td>Assembled Workforce</td>
<td>2.00%</td>
<td>200</td>
<td>1,000</td>
<td>2,000</td>
<td>3,000</td>
<td>3,000</td>
<td>2,475</td>
<td>1,238</td>
<td>619</td>
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<tr>
<td>Total Capital Charges</td>
<td>3,440</td>
<td>17,680</td>
<td>35,480</td>
<td>53,280</td>
<td>58,620</td>
<td>58,620</td>
<td>43,935</td>
<td>21,908</td>
<td>10,894</td>
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<td>Income from Technology</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
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<tr>
<td>Mid-Year Convention Discount Rate</td>
<td>0.50%</td>
<td>0.500</td>
<td>1.000</td>
<td>1.500</td>
<td>2.000</td>
<td>2.500</td>
<td>3.000</td>
<td>4.000</td>
<td>5.000</td>
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<tr>
<td>Present Value Factor</td>
<td>0.8944</td>
<td>0.7155</td>
<td>0.5724</td>
<td>0.4579</td>
<td>0.3664</td>
<td>0.2931</td>
<td>0.2345</td>
<td>0.1876</td>
<td>0.1501</td>
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<td>Present Value</td>
<td>3,077</td>
<td>12,651</td>
<td>20,310</td>
<td>24,399</td>
<td>21,476</td>
<td>17,181</td>
<td>13,031</td>
<td>10,109</td>
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<td>Sum of Present Values</td>
<td>$116,251</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Plus: Tax Amortization Benefit (6)</td>
<td>15,115</td>
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<td>Fair Value of Technology</td>
<td>131,367</td>
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</tbody>
</table>

Notes:
(1) Financials based on Management projections.
(2) Development R & D expense excluded in calculation of maintenance R & D.
(3) Future levels of maintenance R & D estimated based on year 1 estimate.
(4) See Market Comparable Royalty Rate exhibit.
(5) See Capital Charge Analysis exhibit.
(6) TAB calculated using discount rate of 25 percent.
### MPEEM (Customer-Related Intangibles) - Example

**PE Buyer, Inc.**

*Valuation of Intangible Assets of Tuff Tables, Inc. for ASC 805*

Valuation of Customer Relationships

**Excess Earnings Method**

Valuation Date

$ in 000's

<table>
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<tr>
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<td></td>
<td>$42,000</td>
<td>N/A</td>
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<td>85.0%</td>
<td>35,700</td>
<td>20,145</td>
<td>15,555</td>
<td>9,400</td>
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<td>7,226</td>
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<td>2,177</td>
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<td>848</td>
<td>2,417</td>
<td>1.0</td>
<td>0.5</td>
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<td>Year 2</td>
<td>$43,260</td>
<td>3.0%</td>
<td>72.3%</td>
<td>72.3%</td>
<td>31,255</td>
<td>17,637</td>
<td>13,818</td>
<td>8,229</td>
<td>938</td>
<td>6,327</td>
<td>4,764</td>
<td>1,906</td>
<td>2,858</td>
<td>748</td>
<td>2,116</td>
<td>1.0</td>
<td>1.5</td>
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<td>$44,558</td>
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<td>61.4%</td>
<td>61.4%</td>
<td>27,364</td>
<td>15,441</td>
<td>11,818</td>
<td>7,205</td>
<td>821</td>
<td>5,393</td>
<td>4,171</td>
<td>1,668</td>
<td>2,502</td>
<td>650</td>
<td>1,852</td>
<td>1.0</td>
<td>2.5</td>
<td>1,278</td>
<td>965</td>
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<td>Year 4</td>
<td>$45,895</td>
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<td>52.2%</td>
<td>52.2%</td>
<td>23,957</td>
<td>13,519</td>
<td>10,438</td>
<td>6,308</td>
<td>719</td>
<td>4,849</td>
<td>3,652</td>
<td>1,461</td>
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<td>1,622</td>
<td>1.0</td>
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<td>1,278</td>
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<tr>
<td>Year 5</td>
<td>$47,271</td>
<td>3.0%</td>
<td>44.4%</td>
<td>44.4%</td>
<td>20,975</td>
<td>11,636</td>
<td>9,139</td>
<td>5,522</td>
<td>629</td>
<td>4,246</td>
<td>3,197</td>
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<td>1,918</td>
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<td>37.7%</td>
<td>37.7%</td>
<td>18,363</td>
<td>10,362</td>
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<td>4,835</td>
<td>551</td>
<td>3,717</td>
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<td>32.1%</td>
<td>32.1%</td>
<td>16,077</td>
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<td>6,133</td>
<td>4,323</td>
<td>482</td>
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<td>Year 8</td>
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<td>27.2%</td>
<td>14,075</td>
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<td>1,127</td>
<td>293</td>
<td>834</td>
<td>1.0</td>
<td>9.5</td>
<td>1,278</td>
<td>178</td>
</tr>
</tbody>
</table>

**Notes:**

(1) Financials based on Management projections.

(2) See Market Comparable Royalty Rate exhibit.

(3) See Capital Charge Analysis exhibit.

(4) Remaining useful life calculated as time to realize 95% of discounted cash flows.
Overview of Income Approach – When to Use the RFR Method

- The RFR Method is often best suited for assets which may be licensed, but instead are owned. As such, value is derived based on the fact that the owner of that asset avoids the cost of licensing that asset.

- Attributes of assets valued using the RFR Method may include:
  - Generally not expected to be a direct source of current or near future revenue generation
  - Generally not an enabling asset which “drives” the business
  - Possibly more readily replaced
  - Less significant portion of cash flows (and value in many cases) relative to primary asset that is valued using the MPEEM)
Overview of Income Approach – RFR Method and Income Incremental/Cost Decrement Methods

● The RFR Method or Income Increment/Cost Decrement Method are more often used to value assets with indirect income benefits (e.g., create cost savings) that can still be valued using another method under the Income Approach.

● Examples of indirect income benefits (i.e., does not directly produce revenue):
  – Cost savings to the owner of the intangible asset due to a relief from having to pay a third party for the licensing of a similar asset
  – Cost savings leading to increased income – avoided marketing expenses due to a recognized trade name
  – Protection from competition from a covenant not to compete leading to increased income due to reduced competition for a period of time
  – Other cash flow benefit

● If an asset or assets are valued using a RFR Method, it is likely that another asset (customer related intangible asset) would be valued using the MPEEM.
## RFR Method - Valuation of Trade Name Example

**PE Buyer, Inc.**  
Valuation of Intangible Assets of Tuff Tables, Inc. for ASC 805  
Valuation of Trade Name  
Relief from Royalty Method

**Valuation Date**  
$ in 000's

### Relief from Royalty Method

<table>
<thead>
<tr>
<th></th>
<th>December 31</th>
<th>Residual</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Year 1</td>
<td>Year 2</td>
</tr>
<tr>
<td>Revenue</td>
<td>$42,000</td>
<td>$43,260</td>
</tr>
<tr>
<td>Growth</td>
<td>3.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Less: Unbranded Product Revenues</td>
<td>15.0%</td>
<td>6,300</td>
</tr>
<tr>
<td>Revenues Subject to Royalty</td>
<td>35,700</td>
<td>36,771</td>
</tr>
<tr>
<td>Royalty Rate</td>
<td>5.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Pre-Tax Royalties</td>
<td>1,785</td>
<td>1,839</td>
</tr>
<tr>
<td>Less: Maintenance Expense</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Pre-Tax Royalties after Maintenance Expense</td>
<td>1,685</td>
<td>1,739</td>
</tr>
<tr>
<td>Income Taxes</td>
<td>40.0%</td>
<td>674</td>
</tr>
<tr>
<td>After-Tax Royalties</td>
<td>1,011</td>
<td>1,043</td>
</tr>
<tr>
<td>Capitalized Residual Value (CF / (k - g))</td>
<td>10,742</td>
<td></td>
</tr>
<tr>
<td>Partial Period Factor</td>
<td>1.0000</td>
<td>1.0000</td>
</tr>
<tr>
<td>Mid-Year Convention Discount Rate</td>
<td>0.5000</td>
<td>1.5000</td>
</tr>
<tr>
<td>Present Value Factor</td>
<td>0.9366</td>
<td>0.8216</td>
</tr>
<tr>
<td>Present Value of Cash Flow</td>
<td>947</td>
<td>857</td>
</tr>
<tr>
<td>Sum of Present Values of Cash Flows</td>
<td>9,873</td>
<td></td>
</tr>
<tr>
<td>Plus: Tax Amortization Benefit</td>
<td>2,093</td>
<td></td>
</tr>
<tr>
<td>Indicated Fair Value of Trade Name</td>
<td>11,966</td>
<td></td>
</tr>
</tbody>
</table>

**Indicated Fair Value of Trade Name, Rounded**  
$12,000

**Note:**  
(1) Financials based on Management projections.
RFR Method - Valuation of Internal Use Technology – Example

**PE Buyer, Inc.**  
Valuation of Intangible Assets of Tuff Tables, Inc. for ASC 805  
Valuation of Internal Use Technology  
Relief from Royalty Method

Valuation Date  
$ in 000's

<table>
<thead>
<tr>
<th></th>
<th>December 31</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenue Dependent on Technology (1)</strong></td>
<td></td>
<td>$10,000</td>
<td>$12,000</td>
<td>$15,000</td>
<td>$10,000</td>
<td>$5,000</td>
</tr>
<tr>
<td><strong>Royalty Rate (2)</strong></td>
<td>1.0%</td>
<td>1.0%</td>
<td>1.0%</td>
<td>1.0%</td>
<td>1.0%</td>
<td>1.0%</td>
</tr>
<tr>
<td><strong>Pre-Tax Royalties</strong></td>
<td></td>
<td>100</td>
<td>120</td>
<td>150</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td><strong>Less: Maintenance Expense</strong></td>
<td>0.0%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Adjusted Pre-tax Royalties</strong></td>
<td></td>
<td>100</td>
<td>120</td>
<td>150</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td><strong>Income Taxes</strong></td>
<td>40.0%</td>
<td>40</td>
<td>48</td>
<td>60</td>
<td>40</td>
<td>20</td>
</tr>
<tr>
<td><strong>Adjusted After-Tax Royalties</strong></td>
<td></td>
<td>60</td>
<td>72</td>
<td>90</td>
<td>60</td>
<td>30</td>
</tr>
<tr>
<td><strong>Partial Period Factor</strong></td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
<td></td>
</tr>
<tr>
<td><strong>Mid-Year Convention Discount Rate</strong></td>
<td>16.0%</td>
<td>0.9285</td>
<td>0.8004</td>
<td>0.6900</td>
<td>0.5948</td>
<td>0.5128</td>
</tr>
<tr>
<td><strong>Present Value Factor</strong></td>
<td>56</td>
<td>58</td>
<td>62</td>
<td>36</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td><strong>Sum of Present Values of Cash Flows</strong></td>
<td></td>
<td>227</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Plus: Tax Amortization Benefit</strong></td>
<td></td>
<td>43</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fair Value of Internal Use Technology</strong></td>
<td></td>
<td>270</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:**  
(1) Financials based on Management projections.  
(2) Estimated based on costs savings from use of patented production process on internal production process.
Other Income Approach Issues – Limitations

● Determination of appropriate method may be challenging.

● Significant informed judgment is required when assigning cash flows of an acquired enterprise to specific intangible assets.

● Need to properly reflect risk associated with the cash flows in question and determine appropriate discount rate.

● Need to determine the term of the cash flow forecasts.

● Limited observable market data to support many variables.
Other Income Approach Issues – Generation of Cash Flows

- The cash flow stream generated by an intangible asset may include any/all of the following:
  - **Increased revenue** – due to higher quality and/or unique features:
    - Premium price per unit, and/or
    - Increased number of units sold.
  - **Cost savings** – production, marketing, other
  - New profit generation – development of proprietary products, core technology used in a new product, or unrelated in-process research and development separate from the core technology.
  - Mix of the above.
Cash Flow Estimation - Market Participant vs. Entity Specific Assumptions

- Valuations should incorporate market participant rather than buyer specific assumptions.

- Process for normalizing market participant projections:
  - Start with projections of buyer.
  - Extract any elements that relate solely to buyer specific synergies.
  - Include any market participant synergies not included.
Cash Flow Estimation - Market Participant vs. Entity Specific Assumptions - Example

• The following example with different investor groups and the related investment value of the entity will clarify this concept.

• Cash flows to seller $100

• Cash flows to financial buyers $120 (higher cash flows expected due to enhanced mgmt.)

• Cash flows to strategic buyers $140 to $150 (various strategic buyers) with cost synergies

• Cash flows to strategic buyers $170 to $175 (various strategic buyers) with revenue and cost synergies

• Cash flows to optimal buyer $200 (greatest revenue/cost synergies)

• Market participant cash flows would be in range of $170 to $175. Optimal buyer would not pay seller for synergies that only they would realize.
Market Participant vs. Entity Specific Assumptions
Understanding Synergies - Value Perspective

**Investment Value to Buyer**
- Buyer specific synergies
- Market participant synergies

**Synergies available to optimal buyer**
- Any synergies available to more than one market participant buyer

**Stand alone value of Target**

**Investment Value to Seller**

*In a prudent transaction, the purchaser should not pay for unique buyer specific synergies that other buyers do not share*
Cash Flow Estimation - Market Participant vs. Entity Specific Assumptions – Types of Synergies

● Revenue
  – Increased revenue from cross selling to customers
  – Increased revenue from product/service bundling

● Cost
  – Selling costs reduction from sales force redundancies
  – Reduced manufacturing costs from production consolidation
  – Reduced distribution costs from consolidation of distribution facilities

● Cost of Capital
  – Combined entity may have better access to capital
  – Reduced customer concentration resulting in lower borrowing rate

● Other
Discount Rate Estimates – Overview

● Estimating discount rates associated with different intangible assets (as well as contributory assets) is one of the more challenging areas of valuation.

● Although there is often limited direct market evidence to estimate discount rates for intangible assets, there are several means of confirming that estimates are within a range of reason.

● The following slides present information pertaining to:
  – Return requirements for different asset classifications
  – Return requirements within the spectrum of intangible assets
  – General methods of confirming the reasonableness of discount rate estimates.
Discount Rate Estimates – Risk and Rate of Return

- Assets within a business enterprise have different risk and return characteristics
- Rate of return of a particular asset is commensurate with its risk
- Assets typically have different liquidity and return characteristics
Discount Rate Estimates – Returns on Specific Assets

● Returns on individual assets are selected in light of:
  – Current costs of funds
  – Type of asset and its liquidity
  – Acceptance as collateral for debt-financing purposes
  – Special purpose nature vs. broader use
  – Discussions with asset-based lenders on current trends

● Higher liquidity of an asset corresponds to:
  – Increased marketability
  – Greater acceptance as collateral
  – Less equity required to finance the asset
  – Lower required rate of return
Discount rate should reflect the risk associated with the income attributable to the intangible asset. A general risk spectrum associated with various intangible asset classes follows:

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working Capital</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed Assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intangible Assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal Use Software</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer Contracts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer Relationships</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patented Technology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tradenames</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unpatented Technology (In-Use)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IPR&amp;D</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assembled Workforce</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goodwill</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of Debt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WACC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of Equity</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Discount Rate Estimates – Sample Calculation for Returns on Specific Assets

**PE Buyer, Inc.**

**Valuation of Intangible Assets of Tuff Tables, Inc. for ASC 805**

**Weighted Average Cost of Capital - Specific Assets**

<table>
<thead>
<tr>
<th>Weighted Average Cost of Capital</th>
<th>BEV</th>
<th>Working Capital</th>
<th>Fixed Assets</th>
<th>Trade Name</th>
<th>Customer Relationships</th>
<th>Current Technology</th>
<th>Assembled Workforce</th>
<th>IPR&amp;D</th>
<th>Goodwill</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debt-to-Capital</td>
<td>16.0%</td>
<td>100.0%</td>
<td>70.0%</td>
<td>16.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Cost of Debt (After-tax)</td>
<td>3.9%</td>
<td>3.9%</td>
<td>3.9%</td>
<td>3.9%</td>
<td>3.9%</td>
<td>3.9%</td>
<td>3.9%</td>
<td>3.9%</td>
<td>3.9%</td>
</tr>
<tr>
<td>Pro Rata Amount</td>
<td>0.6%</td>
<td>3.9%</td>
<td>2.7%</td>
<td>0.6%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Equity-to-Capital</td>
<td>84.0%</td>
<td>0.0%</td>
<td>30.0%</td>
<td>84.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Cost of Equity</td>
<td>16.2%</td>
<td>16.2%</td>
<td>16.2%</td>
<td>16.2%</td>
<td>16.2%</td>
<td>16.2%</td>
<td>16.2%</td>
<td>16.2%</td>
<td>16.2%</td>
</tr>
<tr>
<td>Asset Specific Risk Premium</td>
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<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>4.0%</td>
<td>7.0%</td>
</tr>
<tr>
<td>Cost of Equity</td>
<td>16.2%</td>
<td>16.2%</td>
<td>16.2%</td>
<td>16.2%</td>
<td>16.2%</td>
<td>16.2%</td>
<td>16.2%</td>
<td>20.2%</td>
<td>23.2%</td>
</tr>
<tr>
<td>Pro Rata Amount</td>
<td>13.6%</td>
<td>0.0%</td>
<td>4.8%</td>
<td>13.6%</td>
<td>16.2%</td>
<td>16.2%</td>
<td>16.2%</td>
<td>20.2%</td>
<td>23.2%</td>
</tr>
<tr>
<td>Weighted Average Cost of Capital</td>
<td>14.2%</td>
<td>3.9%</td>
<td>7.6%</td>
<td>14.2%</td>
<td>16.2%</td>
<td>16.2%</td>
<td>16.2%</td>
<td>20.2%</td>
<td>23.2%</td>
</tr>
<tr>
<td>Rounded</td>
<td>14.0%</td>
<td>4.0%</td>
<td>8.0%</td>
<td>14.0%</td>
<td>16.0%</td>
<td>16.0%</td>
<td>16.0%</td>
<td>20.0%</td>
<td>23.0%</td>
</tr>
</tbody>
</table>

**Notes:**

(a) Estimates of capital type percentages are somewhat judgmental. Reconciliation with the WACC and IRR and a detailed understanding of appraised entity will assist in making these estimates.

(b) Return on goodwill results in a WAR that is equal to the WACC
Discount Rate Estimates – Reconciliation Process Can Improve Estimates

- The overall discount rate for a business enterprise is reflected by the Weighted Average Cost of Capital (WACC). The WACC can be compared to the Weighted Average Return on Assets (WARA) (and the Internal Rate of Return (IRR)) to assist in confirming the reasonableness of specific discount rates for assets valued using the Income Approach.

- WACC = Return on Business Enterprise (debt plus equity)

- WARA = Return on Assets (working capital, fixed assets, intangibles, other)

- IRR = Implied return implicit in a transaction to the investors (debt and equity)
Discount Rate Estimates Reconciliation - Weighted Average Cost of Capital (cont’d)

\[
\text{Market Value of Invested Capital} = \text{WACC - Capital Based} = \text{WARA - Asset Based}
\]

- WACC - Capital Based:
  - Fair Value of Long Term Interest Bearing Debt +
  - Fair Value of Equity

- WARA - Asset Based:
  - Fair Value of Net Working Capital
  - Fair Value of Tangible Assets
  - Fair Value of Intangible Assets
  - Fair Value of Goodwill
Discount Rate Estimates Reconciliation - Weighted Average Cost of Capital

- The Weighted Average Cost of Capital (WACC) is the overall rate of return for an investment in a business enterprise.
- WACC represents the return required for long term debt and equity capital.
- Long term debt and equity capital are conceptually equivalent to net assets.
- A business enterprise is an assemblage of a variety of assets including:
  - Working capital
  - Tangible assets
  - Identifiable intangible assets
  - Goodwill
Discount Rate Estimates Reconciliation - Weighted Average Return on Assets (WARA)

• A business enterprise represents a portfolio of assets with different levels of investment and return requirements

<table>
<thead>
<tr>
<th>Fair Value of Net Working Capital</th>
<th>Weights x Required Rate of Return</th>
<th>Weighted Average Rate of Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.7% x 4%</td>
<td></td>
<td>0.5%</td>
</tr>
<tr>
<td>Fair Value of Tangible Assets</td>
<td>15.7% x 8%</td>
<td>1.3%</td>
</tr>
<tr>
<td>Fair Value of Intangibles</td>
<td>52.9% x 15%</td>
<td>8.0%</td>
</tr>
<tr>
<td>Fair Value of Goodwill</td>
<td>19.6% x 22%</td>
<td>4.3%</td>
</tr>
<tr>
<td>100%</td>
<td></td>
<td>14.1%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14.0% Rounded</td>
</tr>
</tbody>
</table>

Intangible Asset Valuation
www.appraisers.org
Summary Bibliography


• American Society of Appraisers, BV 302, Special Topics in the Valuation of Intangible Assets, 2010.

• International Valuation Standards Council, Guidance Note 4, Valuation of Intangible Assets (Revised 2010).


• Fair Value Measurements and Disclosures, Accounting Standards Codification 820, Financial Accounting Standards Board.

• Business Combinations, Accounting Standards Codification 805, Financial Accounting Standards Board.

Section 5:
Key Comments from the Final Release of the Contributory Asset Charge Best Practices Document
Contributory Asset Charge - Introduction

● The May 31, 2010 final release of “The Identification of Contributory Assets and Calculation of Economic Rents” was issued by the Appraisal Foundation.

● The Best Practices document and related toolkit provide:
  ● Detailed discussion of valuation issues
  ● Comprehensive valuation example
  ● Practical expedient valuation example

● The following slides provide a listing of key comments from the CAC document. For an advanced intangible asset appraiser, the extracted comments represent advanced practice areas and key insights that may be help enhance valuation practice.
3.6.01 “Valuation specialists should consider the contributions to cash flow of the various contributory assets and charges for these assets should be estimated for each year in the projection period, rather than, for instance, automatically fixing such levels to amounts estimated at the valuation date.”

3.6.02 “In calculating a CAC, the valuation specialist should consider whether each of the contributory assets used in the previous period CAC calculation remains relevant in the next period. The appropriate level of contributory assets in future periods is a determination based on facts and circumstances.”

3.6.06 “... the valuation specialist should consider whether the contributory asset to be used or replaced in the future would have an economic rent that varies over time.”
3.6.08 “The stage of an entity in its lifecycle (as viewed by a market participant) is important as the valuation specialist considers future contributory asset requirements. In many cases early stage enterprises may be experiencing rapid growth which allows them to leverage existing assets more efficiently over time and, as such, the level of contributory assets may decline as a percentage of revenue (in some cases this declining percentage may be offset through allocation of the aggregate CAC to current and future assets thereby effectively “smoothing” the CAC allocated to the subject intangible asset over time). Further, mature companies would expect to see relatively stable levels of assets in comparison to revenues.”

- Paragraph 2.2.05 notes working capital includes operating cash.
- 2.2.06 notes use of normalized working capital rather than actual working capital balance. Further notes use of market participant levels.
  - WARA should not reflect excess or shortfall of assets.
- 2.2.07 “If the revenue component of the PFI was developed on an accrual basis, then it likely would be appropriate to include the deferred revenue as a component of working capital. . . . deferred revenue should be included if in working capital on a normalized basis if deferred revenue is a part of the entity’s ongoing operation.”
3.2.02 “... In certain industry for which negative working capital is the norm. It is the view of the Working Group that negative working capital that is generated in the normal course of business in certain industry sectors enhance overall entity value and should be considered in determining the appropriate level of working capital to serve as the basis for calculating CACs. This will, in effect, create “negative” CACs for working capital the apportioned amount of which would enhance the value of the subject intangible asset.”

3.2.03 “Another issue is the impact of one-time business combination accounting adjustments to working capital such as inventory step-ups. The Working Group believes that such one-time adjustments should be excluded from the initial and ongoing levels of working capital (based on a market participant assumption) used in the CAC calculation. ... adjust for the effects of any one-time modifications of the PFI utilized in the valuation of the subject intangible asset to avoid double counting profit or expense.”
2.2.03 “. . . a normalized level of fixed assets for an entity in its infancy may be different from the level required once the entity reaches a mature stage in its life cycle. To the extent the PFI reflects excess or deficient levels of contributory assets, it should be adjusted to reflect normalized levels.”

2.2.15 – “Diversity in practice exists as to whether other elements of goodwill can or should be identified as a contributory asset, measured and charged for in a MPEEM. . . . The Working Group believes that contributory assets should include all reliably measurable assets, including elements of goodwill that contribute to the realization of expected future cash flows for the subject intangible asset.”

2.2.16 “. . . Current practice suggests that assembled workforce is typically the only element of goodwill for which a contributory asset charge is taken.”

Therefore, return on goodwill is not an acceptable contributory asset charge (may include buyer specific synergies, future assets, excess purchase price).
Contributory Asset Charges – Important Elements

- Consider and Possibly Apply Multiple Valuation Approaches –
  - 3.1.01 - In a valuation study, all three [approaches] would be considered (for application), and the approach or approaches deemed most appropriate would then be selected as the proper approach(es) to use in the valuation of that asset.

- Use of Book Value as Proxy for Fair Value
  - 3.1.07 - In practice, for certain classes of assets (for instance, working capital and fixed assets) book value is often used as a proxy for the fair value on which to calculate CACs. The Working Group believes that the use of book value as a practical expedient for measuring fair value can be appropriate based on facts and circumstances so long as the use of book value is consistent with the fair value measurement objective as it is applied to the subject intangible asset. Further, market participant views of the levels of contributory assets for the subject entity are often estimated in practice with reference to industry comparable data, which is often only available based on book value. market participant CAC and book value of assets
Contributory Asset Charges – Important Elements

- Use of Measures Other than Revenues to Allocate CAC
  - 3.1.09 - There may be instances, however, when other methods such as relative amounts earned, relative units produced, relative square footage occupied, relative headcount used or relative costs expended by each subject intangible asset, each year, may represent a more appropriate allocation method.

- Presenting CAC on a Pretax Basis Can Improve Interpretation of Impact of Charges
  - 3.4.16 - that pre-tax calculations would more closely emulate an actual circumstance of renting or leasing assets, as rental or lease payments are deductible on a pre-tax basis.
Contributory Asset Charges – Important Elements

- Gross vs. Net Royalties

  - **3.5.03** - **A royalty rate that is “gross”** would consider all functions associated with ownership of a licensed asset to reside with the licensor while a royalty rate that is “net” would consider some or all functions associated with the licensed asset to reside with the licensee. gross vs. net royalty
Contributory Asset Charges – Important Elements – Methods for Valuation of Two Primary Assets

- Avoid Cross Charges When Valuing Two Enabling Assets -
  - 3.5.05 - the use of simultaneous application of the MPEEM with either single or multiple cross charges to multiple intangible assets that share the same revenue/cash flow is not best practice and should be avoided.

- Alternative Approaches When Valuing Two Enabling Assets
  - 3.5.07 - Another alternative is to value only one subject intangible asset using the MPEEM while any other subject intangible asset would be valued using an alternate method. Examples of these alternate methods are relief from royalty, cost approach, “with and without,” and techniques that indicate a “synthetic” or “hypothetical” royalty (in which a portion of the earnings are identified that essentially represent a royalty payment, but without the use of royalty rate market data).
Contributory Asset Charges – Important Elements (cont’d)

- Assessing Charges for “Generic Assets”
  
  - 4.2.03 – Selection of an overall rate of return for the entity (the weighted average cost of capital, or WACC) is a necessary starting point prior to consideration of the stratification of the rates of return. Although it is common that the risk and return associated with the intangible assets of an entity tend to reflect risk and return levels of the overall entity, valuation specialists should be cautioned that “generic” contributory assets may exhibit costs of debt and equity that are independent of the entities that own them and would be more specific to the assets themselves. For example, contributory real estate owned by a high technology entity might not exhibit risk characteristics specific to the high technology industry, but instead would require equity and debt rates of return specific to real estate investments.
Contributory Asset Charges – Important Elements (cont’d)

- Equity Financing is Probably Required for Working Capital -

  4.2.05 - The required return on working capital is typically considered to be at the lower end of returns of most, if not all, other asset classes and is assumed to be equal to the after-tax rate that would be charged to finance working capital. Since very few companies are able to borrow 100% of the value of working capital assets. The Working Group believes that a best practice, if it creates a significant difference, would be to consider the level of debt and equity financing required to fund working capital. When inventory has a limited specific market or when receivables are in a high default industry it may be appropriate to adjust the various reference rates noted in this paragraph to reflect that additional risk.
Contributory Asset Charges – Important Elements *(cont’d)*

- 4.2.08 - FASB Statement of Financial Accounting Concepts No. 7 Using Cash Flow Information and Present Value in Accounting Measurements (“CON 7”) which provides guidance for using present value techniques in financial accounting. CON 7 describes two theoretical techniques for using present value to estimate fair value. The two theoretical techniques are described in CON 7 (as clarified in FASB ASC Topic 820) can be summarized as:

  1. Discount Rate Adjustment Technique: This technique uses a single, most likely set of cash flows discounted at a rate which reflects the risk of eventually receiving those cash flows. In this technique the risk is incorporated in the development of the discount rate.

  2. Expected Present Value Technique: This technique uses a set of cash flows that represents the probability weighted average of discreet scenarios and probabilities that capture the array of possible cash flows. The risk of receiving the cash flows is reflected in the selection of the probability factors and the discount rate used should be reflective of the expected rate of return associated with the probability-weighted cash flows (which may include a “cash risk premium”).
Contributory Asset Charges – Important Elements (cont’d)

- Adjustment for WARA Calculation for Non-Taxable Stock Acquisition
  
  4.3.08 - many transactions are “non-taxable” and management’s PFI may not reflect the tax benefit (of amortization or depreciation) implicit in the fair value of underlying assets. In a business combination structured as a taxable purchase, the PFI and purchase price are likely to reflect the tax benefits. However, in the case of a deal structured as a non-taxable purchase, the Working Group recommends temporarily adjusting the purchase price for use in the WARA analysis. Because the individual asset values include the tax benefit of amortization and increased depreciation, the entity value must also be increased for comparison purposes. The Working Group believes the most straightforward adjustment technique is to calculate the additional tax benefit as if the deal had been structured as a taxable purchase and add it to the purchase price (see Exhibit A-10 in the Comprehensive Example). This adjustment would be necessary to ensure consistency in the WARA analysis, since the fair values of depreciable/amortizable assets would incorporate a proportional share of the tax benefit regardless of the structure of the deal itself (see paragraph 3.1.08).
Contributory Assets – Working Group Final Release – Calculation of Excess Earnings

- The following table from the CAC document highlights the use of economic depreciation concepts.

EBITDA
Less: Tax Depreciation
EBIT (Amortization assumed to be zero)
Less: Taxes
Debt Free Net Income
Add: Tax Depreciation
Less: Return of the fixed assets (economic depreciation of fair value)
Less: Return on the average balance of the fixed assets (at fair value)
Less: Other CACs (as necessary)
Equals: Excess earnings or cash flow

Source: CAC Document paragraph 3.4.07
Section 6:
Practical Expedient Example from CAC Best Practices Aid
Practical Expedient Example from the CAC Toolkit

- The following slides present the practical expedient example from the CAC final release.
- Exhibit B-1 – Entity Value
- Exhibit B-1a – Depreciation
- Exhibit B-2 – Adjusted PFI and Entity Value
- Exhibit B-2a – Incremental Depreciation
- Exhibit B-3 – Contributory Asset Charges – Basis for Practical Expedients (not attached)
- Exhibit B-4 – Contributory Asset Charges
- Exhibit B-5 – Customer Relationships MPEEM
Practical Expedient Example from the CAC Toolkit

- The Entity Value in this Practical Expedient is based on 8-year straight-line depreciation (rather than tax depreciation) and an effective tax rate to equate to the Entity Value in the Comprehensive Example. Based on the market participant PFI and purchase price of $4,746, the IRR of the transaction is calculated to be 10%. In addition a market-based WACC of 10% is estimated, which reconciles to the IRR. This example reflects a non-taxable transaction.
### Practical Expedient Example - Entity Value – Exhibit B-1

#### Exhibit B-1

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenue</th>
<th>Gross Profit</th>
<th>Operating Expenses</th>
<th>EBITDA</th>
<th>Depreciation</th>
<th>Amortization</th>
<th>EBIT</th>
<th>Taxes</th>
<th>Debt Free Net Income</th>
<th>less: Incremental Working Capital</th>
<th>add: Depreciation</th>
<th>less: Capital Expenditures</th>
<th>Debt Free Cash Flow</th>
<th>Residual Value</th>
<th>PV Factor</th>
<th>PV DFCF</th>
<th>Entity Value</th>
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<td>$1,456</td>
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#### Intangible Asset Valuation

www.appraisers.org
Intangible Asset Valuation
www.appraisers.org

### Practical Expedient Example – Depreciation – Exhibit B-1a

**Depreciation: $745 of Financial Reporting Basis with an 8-Year Straight-Line Depreciation**

This is a reference schedule for the projected depreciation reflected in the Entity Value. The valuation specialist should have an understanding of the assumptions reflected in, and the calculation of, the depreciation provided in the PFI. Such an understanding will allow for an assessment of the reasonableness of the simplifying assumption that the tax depreciation and statutory tax rate are reasonably approximated by accounting depreciation and the effective tax rate.

**Straight-Line Depreciation Of:**
- Acquired or Current Fixed Assets
- Capital Expenditures:
  - Year 1
  - Year 2
  - Year 3
  - Year 4
  - Year 5
  - Year 6
  - Year 7
  - Year 8
  - Year 9
  - Year 10
- Residual

**Fixed Asset Turnover**
- Beginning Balance
- add: Capital Expenditures
- less: Depreciation
- Ending Balance
- Average Fixed Assets
- Fixed Asset Turnover

<table>
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<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
<th>Year 7</th>
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<td>$ -</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital Expenditures</td>
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<td></td>
<td></td>
<td></td>
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<td>351</td>
<td>392</td>
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<td>545</td>
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<td></td>
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<td>567</td>
</tr>
</tbody>
</table>

**Fixed Asset Turnover**
- Beginning Balance
- add: Capital Expenditures
- less: Depreciation
- Ending Balance
- Average Fixed Assets
- Fixed Asset Turnover

<table>
<thead>
<tr>
<th></th>
<th>745</th>
<th>809</th>
<th>963</th>
<th>1,138</th>
<th>1,327</th>
<th>1,501</th>
<th>1,650</th>
<th>1,771</th>
<th>1,864</th>
<th>1,936</th>
<th>2,000</th>
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<td>591</td>
<td>609</td>
<td>627</td>
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<tr>
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<td>222</td>
<td>246</td>
<td>275</td>
<td>311</td>
<td>351</td>
<td>392</td>
<td>436</td>
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<td>Ending Balance</td>
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<td>963</td>
<td>1,138</td>
<td>1,327</td>
<td>1,501</td>
<td>1,650</td>
<td>1,771</td>
<td>1,864</td>
<td>1,936</td>
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<td>111%</td>
<td>106%</td>
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<td>100%</td>
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</tbody>
</table>
Practical Expedient Example – Note on Tax Structure of Deal

The PFI in this exhibit is adjusted to reflect the tax benefits that would result from a restatement of the tax basis of certain of the assets to fair value. The tax benefit inherent in the fair value of an asset is not reflected in the PFI of a non-taxable transaction. For example, the step-up in fixed assets or the fair value of an assembled workforce are not reflected in the entity’s tax basis and the PFI for the transaction excludes this benefit. In order to maintain consistency between the PFI to be used in valuing the customer relationships and the fair value of the assets to which a CAC will be applied, the PFI should be adjusted to include the cash flow benefits of the increase in the tax basis of the contributory assets. The Working Group believes that the fair value of an intangible asset should not differ depending on the tax structure of a particular transaction. For additional discussion on the applicability of TABs see paragraphs 3.1.08 and 4.3.08 in this Monograph and paragraphs 5.3.9 - 5.3.108 in the 2001 AICPA IPR&D Practice Aid. When the PFI is adjusted to include the additional cash flow benefit embedded in the fair value of the contributory assets, this results in an Adjusted Entity Value that is greater than the Entity Value by an amount equal to the present value of the tax benefits related to the increase in tax basis. The Entity Value is recalculated at the WACC/IRR of 10% to arrive at the Adjusted Entity Value of $4,872. This increase of $126 is equivalent to the present value of the incremental tax benefit related to the step-up in the fixed assets and the assembled workforce. This Adjusted Entity Value is used only for reconciliation at this phase of the analysis. The Working Group recognizes that these adjustments might not be significant to the analysis and may be excluded based on the judgment of the valuation specialist.
## Practical Expedient Example – Exhibit B-2

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<th>Year 1</th>
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<th>Year 4</th>
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<th>Year 6</th>
<th>Year 7</th>
<th>Year 8</th>
<th>Year 9</th>
<th>Year 10</th>
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<td>$1,165</td>
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<td>$1,456</td>
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<td>$1,718</td>
<td>$1,823</td>
<td>$1,907</td>
<td>$2,035</td>
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<tr>
<td>Gross Profit</td>
<td>90%</td>
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<td>945</td>
<td>1,049</td>
<td>1,175</td>
<td>1,310</td>
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<td>26</td>
<td>29</td>
<td>33</td>
<td>36</td>
<td>40</td>
<td>43</td>
<td>46</td>
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<td>5</td>
<td>6</td>
<td>7</td>
<td>7</td>
<td>8</td>
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<tr>
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<td>53</td>
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<td>Total marketing</td>
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<td>50</td>
<td>53</td>
<td>58</td>
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<td>73</td>
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<td>82</td>
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<td>112</td>
<td>120</td>
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<tr>
<td>Total Operating Expenses</td>
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<td>481</td>
<td>519</td>
<td>545</td>
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<tr>
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<td>300</td>
<td>320</td>
<td>347</td>
<td>378</td>
<td>410</td>
<td>445</td>
<td>481</td>
<td>519</td>
<td>545</td>
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<tr>
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<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
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<td>823</td>
<td>866</td>
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<td>342</td>
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<td>472</td>
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<td>534</td>
<td>549</td>
<td>565</td>
</tr>
<tr>
<td>less: Incremental Working Capital</td>
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<td>15</td>
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<td>35</td>
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<td>45</td>
<td>42</td>
<td>37</td>
<td>32</td>
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</tr>
<tr>
<td>add: Adjusted Depreciation</td>
<td>285</td>
<td>300</td>
<td>320</td>
<td>347</td>
<td>378</td>
<td>410</td>
<td>445</td>
<td>481</td>
<td>519</td>
<td>545</td>
</tr>
<tr>
<td>Amortization - AWF</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>less: Capital Expenditures</td>
<td>286</td>
<td>400</td>
<td>450</td>
<td>500</td>
<td>525</td>
<td>541</td>
<td>557</td>
<td>574</td>
<td>591</td>
<td>609</td>
</tr>
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<td>Debt Free Cash Flow</td>
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<td>184</td>
<td>202</td>
<td>256</td>
<td>319</td>
<td>378</td>
<td>429</td>
<td>472</td>
<td>500</td>
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<tr>
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<td></td>
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<tr>
<td>PV Factor</td>
<td>10%</td>
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<td>0.8668</td>
<td>0.7880</td>
<td>0.7164</td>
<td>0.6512</td>
<td>0.5920</td>
<td>0.5382</td>
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<tr>
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<td>167</td>
<td>145</td>
<td>145</td>
<td>167</td>
<td>189</td>
<td>203</td>
<td>210</td>
<td>210</td>
<td>202</td>
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</table>
Practical Expedient Example – Incremental Depreciation

Incremental Depreciation due to the $255 Fair Value Step-up with an 8-Year Straight-Line Depreciation

This is a reference schedule for the projected depreciation reflected in the Adjusted Entity Value and also provides the fixed asset turnover based on the fair value of the fixed assets. The valuation specialist should have an understanding of the assumptions reflected in, and the calculation of, the depreciation provided in the PFI. Such an understanding will allow for an assessment of the reasonableness of the simplifying assumption that the tax depreciation and statutory tax rate are reasonably approximated by accounting depreciation and the effective tax rate.

<table>
<thead>
<tr>
<th>RUL (Years)</th>
<th>Step-up</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
<th>Year 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>18</td>
<td>9</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>27</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>36</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>45</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>54</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>63</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Total (rounded)</td>
<td></td>
<td>252</td>
<td>63</td>
<td>54</td>
<td>45</td>
<td>36</td>
<td>27</td>
<td>18</td>
</tr>
</tbody>
</table>

Fixed Asset Turnover

<table>
<thead>
<tr>
<th></th>
<th>Beginning Balance</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
<th>Year 7</th>
<th>Ending Balance</th>
<th>Average Fixed Assets</th>
<th>Fixed Asset Turnover</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1,000</td>
<td>1,001</td>
<td>1,101</td>
<td>1,231</td>
<td>1,384</td>
<td>1,531</td>
<td>1,662</td>
<td>1,774</td>
<td>1,867</td>
<td>1,939</td>
<td>2,003</td>
</tr>
<tr>
<td>add: Capital Expenditures</td>
<td>286</td>
<td>400</td>
<td>450</td>
<td>500</td>
<td>525</td>
<td>541</td>
<td>557</td>
<td>574</td>
<td>591</td>
<td>609</td>
<td>627</td>
</tr>
<tr>
<td>less: Depreciation from Exhibit B-1a</td>
<td>222</td>
<td>246</td>
<td>275</td>
<td>311</td>
<td>351</td>
<td>392</td>
<td>436</td>
<td>481</td>
<td>519</td>
<td>545</td>
<td>567</td>
</tr>
<tr>
<td>less: Incremental depreciation above</td>
<td>63</td>
<td>54</td>
<td>45</td>
<td>36</td>
<td>27</td>
<td>18</td>
<td>9</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>1,001</td>
<td>1,101</td>
<td>1,231</td>
<td>1,384</td>
<td>1,531</td>
<td>1,662</td>
<td>1,774</td>
<td>1,867</td>
<td>1,939</td>
<td>2,003</td>
<td>2,063</td>
</tr>
<tr>
<td>Average Fixed Assets</td>
<td>1,001</td>
<td>1,051</td>
<td>1,166</td>
<td>1,308</td>
<td>1,458</td>
<td>1,597</td>
<td>1,718</td>
<td>1,821</td>
<td>1,903</td>
<td>1,971</td>
<td>2,033</td>
</tr>
<tr>
<td>Fixed Asset Turnover</td>
<td></td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>
Practical Expedient Example – Contributory Asset Charges – Exhibit B-4

Contributory Asset Charges

The assumptions underlying the Comprehensive Example are consistent with the practical expedients discussed in Exhibit B-3. Working capital, fixed assets and the AWF maintain a reasonably constant relationship to the revenue. Therefore the return on the aggregate of the contributory assets in the initial period can reasonably be carried forward as a percent of revenue to apply the CACs. The following demonstrates one approach to these practical expedients.

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Working Capital</th>
<th>Fixed Assets</th>
<th>Assembled Workforce</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>$950</td>
<td>$1,000</td>
<td>$1,000</td>
</tr>
<tr>
<td>Beginning Balance</td>
<td>285</td>
<td>1,000</td>
<td>200</td>
</tr>
<tr>
<td>add: Incremental Investment</td>
<td>30%</td>
<td>15</td>
<td>286 (1)</td>
</tr>
<tr>
<td>less: Return Of (depreciation)</td>
<td>n/a</td>
<td>285 (2)</td>
<td>- (4)</td>
</tr>
<tr>
<td>Ending Balance</td>
<td>300</td>
<td>1,001</td>
<td>211</td>
</tr>
<tr>
<td>Average Balance</td>
<td>293</td>
<td>1,001</td>
<td>206</td>
</tr>
<tr>
<td>Mid-period Adjustment Factor</td>
<td>0.9535</td>
<td>0.9535</td>
<td>0.9535</td>
</tr>
<tr>
<td>Return On (5)</td>
<td>3%</td>
<td>8</td>
<td>5%</td>
</tr>
<tr>
<td>Percent of Revenue</td>
<td>0.84%</td>
<td>4.77%</td>
<td>1.96%</td>
</tr>
<tr>
<td>Total Return On applied as a CAC</td>
<td>7.57%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(1) Exhibit B-1.
(2) Exhibit B-2 includes incremental depreciation due to the fixed asset step-up.
(3) The percent increase in revenue ($50/$950 or 5.3%) applied to the initial fair value of $200, rounded.
(4) The return of is reflected in operating expenses as discussed in Exhibit B-3.
(5) After tax rates of return.
Practical Expedient Example – Customer Relationships - MPEEM

Customer Relationships MPEEM: Practical Expedients

Applies the practical expedients in the valuation of the customer relationships.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>90.0%</td>
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<td>257</td>
<td>18</td>
<td>445</td>
<td>38.0%</td>
<td>119</td>
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<td>10</td>
<td>150</td>
<td>151</td>
<td>10.0%</td>
<td>144</td>
<td>563</td>
<td>152</td>
<td>715</td>
<td>719</td>
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<td>45</td>
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<td>113</td>
<td>16</td>
<td>9</td>
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<td>119</td>
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<td>12</td>
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<td>259</td>
</tr>
<tr>
<td>3</td>
<td>$1,165</td>
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<td>106</td>
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<td>18</td>
<td>62</td>
<td>62</td>
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<td>2.0%</td>
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<td>18</td>
<td>5</td>
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<td>24</td>
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</tr>
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<td>0.0%</td>
<td>13</td>
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<td>1.0%</td>
<td>2</td>
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<td>15</td>
<td>5</td>
<td>0</td>
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<td>9</td>
<td>0</td>
<td>0.0%</td>
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<td>5</td>
<td>2</td>
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<td>1</td>
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<td>1</td>
<td>1</td>
<td>0</td>
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<td>10.0%</td>
<td>140</td>
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<td>1</td>
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<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>6</td>
<td>10.0%</td>
<td>140</td>
<td>140</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
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Intangible Asset Valuation
www.appraisers.org
Conclusion

- There is an increasing emphasis on intangibles.
- There are multiple reasons why intangible assets are valued, including for compliance, transaction, and litigation purposes.
- The most frequent valuation methodologies to value intangibles are the Cost, Market, and Income Approaches.
- Alternative methods within the Income Approach include the Relief-from-Royalty Method and the Multi-period Excess Earnings Method.
- Many assumptions require significant informed judgment by the appraiser, such as estimating discount rates and contributory asset charges.
- Intangible asset valuation is an art and a science.
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