
Intangible Asset Valuation



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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*

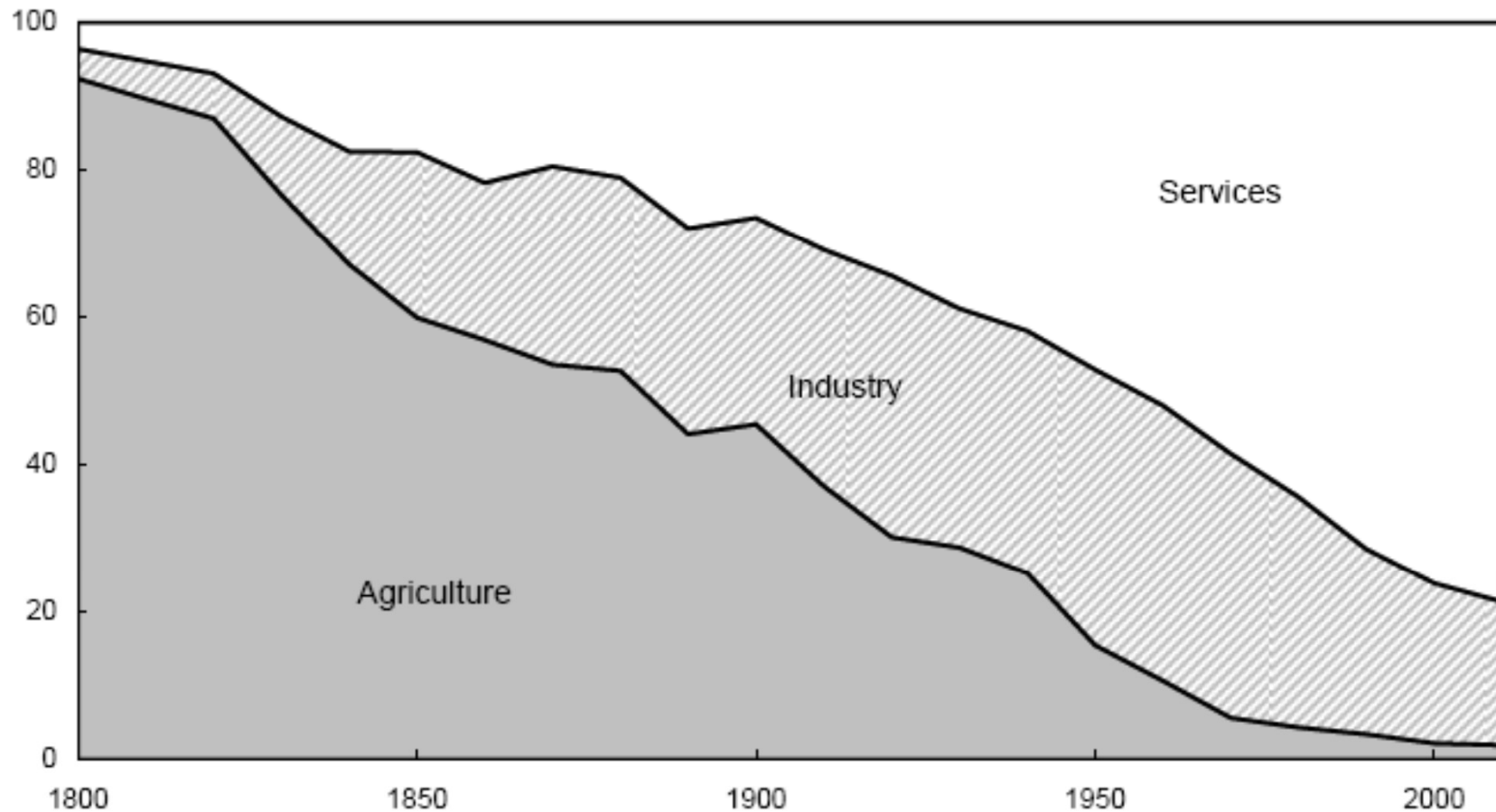


Introduction - Intangible Asset vs. Business Valuation

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

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



Increased Emphasis on Intangibles – Purchase Allocation of Wyeth, Inc. (Pfizer, Inc. 10K – 10/5/2009 - \$ in millions)

Working capital, excluding inventories	\$16,342
Inventories	8,388
Property, plant and equipment	10,054
Identifiable intangible assets, excluding in-process research and development	37,595
In-process research and development	14,918
Other noncurrent assets	2,394
Long-term debt	(11,187)
Benefit obligations	(3,211)
Net tax accounts	(24,773)
Other noncurrent liabilities	(1,980)
<hr/>	
Total identifiable net assets	48,612
Goodwill	19,954
<hr/>	
Net assets acquired	68,566
Less: Amounts attributable to non-controlling interests	(330)
<hr/>	
Total consideration transferred	68,236



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**



Increased Emphasis on Intangibles – 2011 Houlihan Lokey Survey of Purchase Price Allocations by US Firms in 2010

Summary Allocation Percentages 2010 Study

\$ in millions

	Count	Purchase Consideration		Intangible Assets, % of PC				Goodwill, % of PC			
		Median	Mean	Low	High	Median	Mean	Low	High	Median	Mean
All Industries	506	\$66	\$851	0%	100%	32%	35%	0%	97%	38%	38%
Aerospace, Defense & Government	31	\$112	\$629	6%	43%	26%	26%	5%	74%	41%	43%
Business Services	43	46	387	2%	84%	27%	32%	5%	92%	46%	46%
Consumer, Food & Retail	41	103	1,978	7%	84%	32%	33%	0%	89%	33%	35%
Energy	17	270	2,484	0%	69%	15%	23%	1%	62%	30%	29%
Financial Institutions	34	242	4,199	0%	85%	12%	21%	0%	69%	23%	27%
Healthcare	91	66	363	2%	100%	44%	44%	2%	77%	36%	36%
Industrials	46	52	316	1%	100%	27%	32%	1%	56%	25%	26%
Infrastructure Services & Materials	16	125	209	10%	88%	21%	29%	4%	68%	33%	36%
Media, Sports & Entertainment	11	17	33	9%	64%	26%	29%	19%	70%	46%	45%
Real Estate, Lodging & Leisure	2	10	10	4%	15%	9%	9%	85%	85%	85%	85%
Technology	144	35	301	1%	94%	36%	38%	2%	97%	44%	43%
Telecom	29	69	467	9%	89%	35%	43%	4%	68%	37%	37%
Transportation & Logistics	1	20,343	20,343	13%	13%	13%	13%	22%	22%	22%	22%

* 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

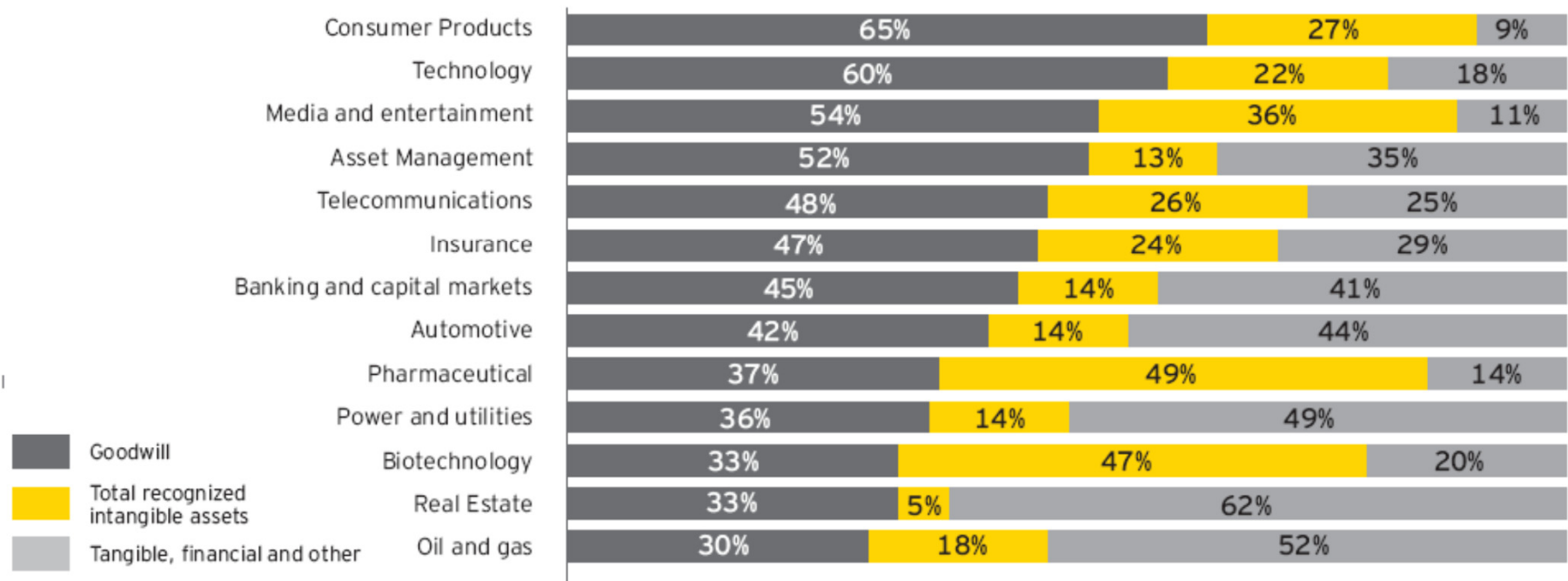
	Intangible Assets, % of Purchase Consideration								Goodwill, % of Purchase Consideration							
	2010	2009	2008	2007	2006	2005	2004	2003	2010	2009	2008	2007	2006	2005	2004	2003
	All Industries	32%	32%	27%	23%	19%	20%	17%	16%	38%	40%	36%	36%	37%	37%	42%
Aerospace, Defense & Govt	26%	23%	22%	18%	23%	27%	24%	23%	41%	41%	51%	47%	53%	46%	55%	32%
Basic Industrials	27%	23%	20%	22%	11%	12%	8%	7%	25%	25%	28%	25%	27%	28%	30%	22%
Consumer, Food & Retail	32%	34%	28%	27%	16%	23%	17%	18%	33%	38%	37%	28%	28%	37%	48%	34%
Energy	15%	10%	11%	0%	1%	15%	0%	0%	30%	16%	15%	5%	11%	19%	8%	2%
Engineering & Construction	21%	10%	13%	11%	12%	13%	6%	15%	33%	43%	37%	27%	41%	35%	33%	40%
Financial Services	12%	5%	6%	2%	2%	1%	1%	2%	23%	11%	15%	14%	13%	10%	13%	0%
Healthcare	44%	45%	38%	31%	32%	38%	25%	14%	36%	37%	36%	45%	41%	38%	46%	45%
Media, Sports & Entertainment	26%	46%	24%	30%	18%	29%	24%	48%	46%	26%	43%	47%	31%	41%	42%	10%
Real Estate	9%	25%	11%	13%	1%	4%	3%	1%	NM	17%	36%	30%	0%	41%	0%	0%
Technology	36%	37%	32%	28%	26%	23%	26%	23%	44%	44%	49%	47%	51%	57%	53%	52%
Telecom	35%	27%	27%	19%	22%	21%	NA	NA	37%	41%	28%	45%	36%	36%	NA	NA



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.

Allocation of the enterprise value (%)
(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.”
 - *Intangibles Management, Measurement and Reporting*, Baruch Lev
Brookings Institution Press, Washington D.C. 2001, p. 9.



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)

– *Intangibles Management, Measurement and Reporting*, Baruch Lev Brookings Institution Press, Washington D.C. 2001, p. 22, 25.



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:**

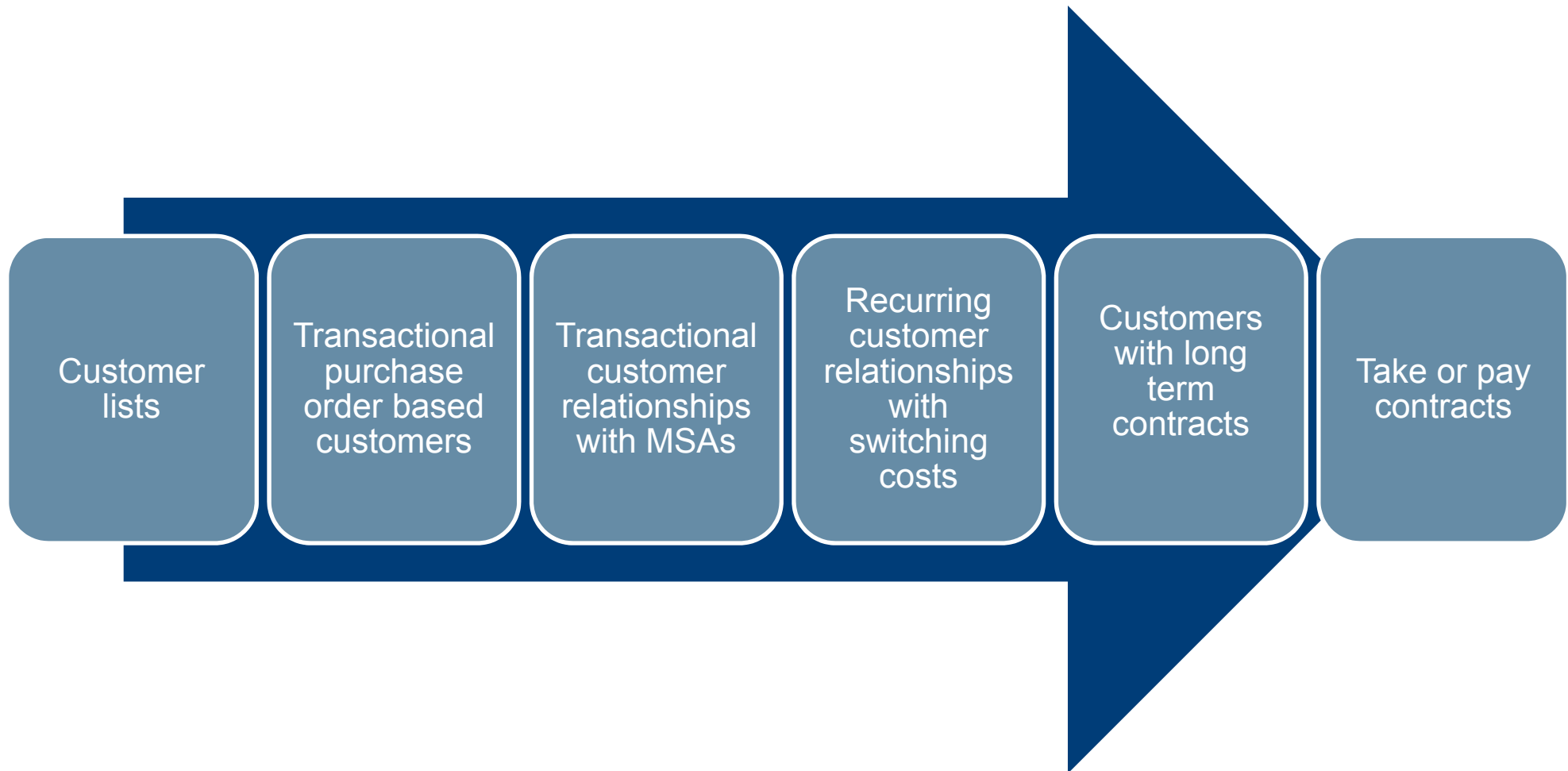
- Time volume, price and quality **are** stipulated
- Contractual-legal basis would lead to recognition and valuation

- **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



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)



Overview of the Cost Approach – Inclusion of Opportunity Costs – SEC Perspective

- 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.”



Cost Approach – Inclusion of Opportunity Costs – SEC Perspective *(cont'd)*

- 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.



Overview of the Cost Approach – Internal Development Costs vs. Third Party Cost Estimates – Example

Sample Comparison of Internal vs. Third Party Cost Estimates

	<u>Internal</u>	<u>Third Party</u>
Base Labor Rate per Hour	\$40.00	\$40.00
Profit Mark Up @ 15% (1)	0% -	15% 6.00
Adjusted Labor Rate	40.00	46.00
Hours Required	5,000	5,000
Base Labor Cost	200,000	230,000
Materials (2)	30,000	50,000
Materials Mark-Up (3)	0% -	15% 7,500
Total Materials with Mark-Up	30,000	57,500
Total Labor and Materials before Overhead	230,000	287,500
Overhead Allocation (4)	10% 23,000	20% 57,500
Fair Value Estimate before Obsolescence Adj.	253,000	345,000
Adjustment for Obsolescence (5)	0% -	0% -
Fair Value Estimate	\$ 253,000	\$ 345,000

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.

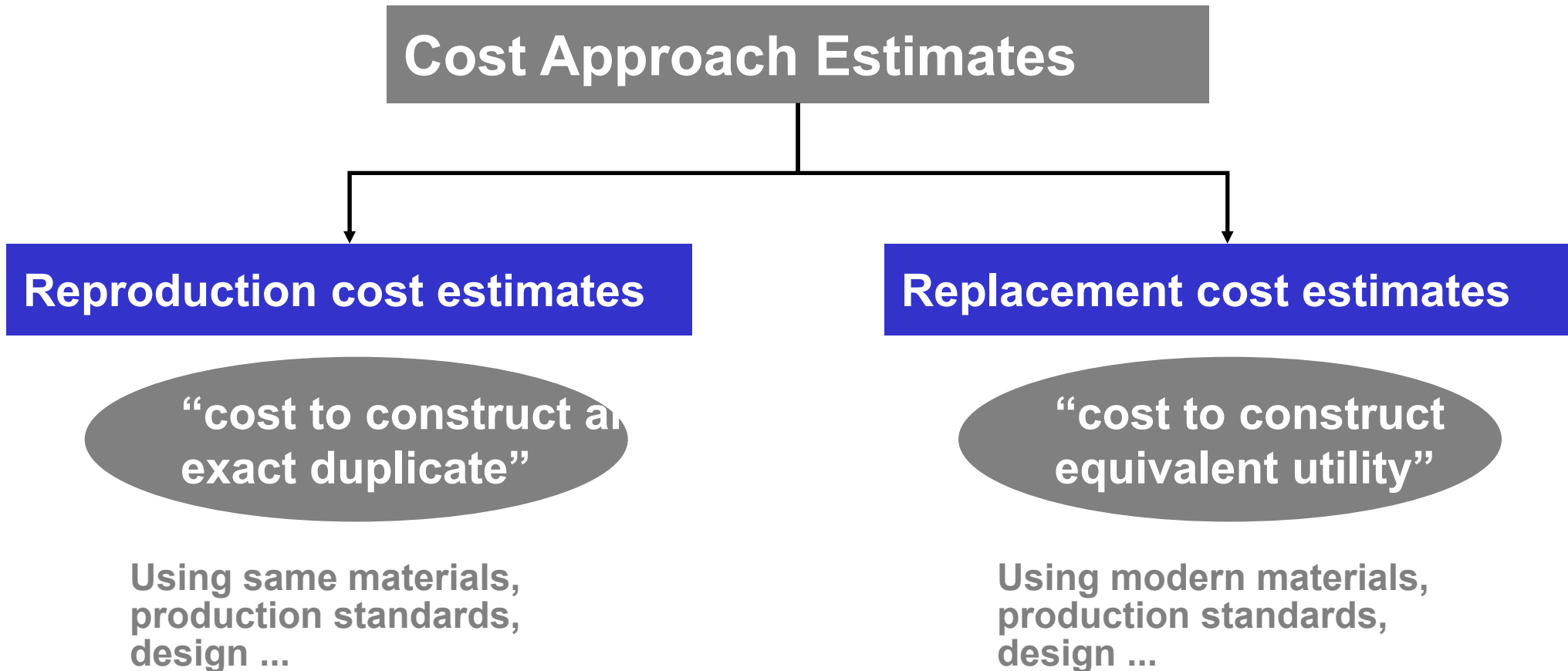


Overview of the Cost Approach – Challenges with Relationship between Cost and Income Approach Value Indications

- 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



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



Overview of the Cost Approach – Flow of Elements of Cost Approach – From Cost to Value – After-Tax Calculation

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

Source: *Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets*, Second Edition, American Society of Appraisers, 2005, page 67.



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

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

Exhibit WF

Valuation Date
 Actual \$'s

Position	Replacement Costs Per Worker (Pre-Tax)				Number of Employees	Total Replacement Cost (Pre-Tax)	Employee Details		
	Hiring Costs	Training Costs/Year	Lost Productivity	Total Cost Per Worker			Yr. Burdened Compensation	Starting Productivity	Months to 100% Productivity
Management & Professionals	\$ 10,000	\$ 10,000	\$ 10,417	\$ 30,417	10	\$ 304,167	\$ 125,000	50%	3
Sales Representatives	\$ 5,000	\$ 5,000	\$ 8,750	\$ 18,750	75	1,406,250	\$ 70,000	50%	5
Product Design	\$ 5,000	\$ 5,000	\$ 8,750	\$ 18,750	5	93,750	\$ 60,000	50%	4
Administrative / Clerical	\$ 1,000	\$ 500	\$ 1,250	\$ 2,750	30	82,500	\$ 40,000	75%	2
Semi-skilled	\$ 500	\$ 500	\$ 1,250	\$ 2,250	75	168,750	\$ 40,000	75%	2
Unskilled	\$ 250	\$ 250	\$ 625	\$ 1,125	113	127,125	\$ 30,000	75%	1
					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

Exhibit WF

Valuation Date

Actual \$'s

Position	Replacement Costs Per Worker (Pre-Tax)				Number of Employees	Total Replacement Cost (Pre-Tax)	Employee Details		
	Hiring Costs	Training Costs/Year	Lost Productivity	Total Cost Per Worker			Yr. Burdened Compensation	Starting Productivity	Months to 100% Productivity
Management & Professionals	\$ 10,000	\$ 10,000	\$ 10,417	\$ 30,417	10	\$ 304,167	\$ 125,000	50%	3
Sales Representatives	\$ 5,000	\$ 5,000	\$ 8,750	\$ 18,750	75	1,406,250	\$ 70,000	50%	5
Product Design	\$ 5,000	\$ 5,000	\$ 8,750	\$ 18,750	5	93,750	\$ 60,000	50%	4
Administrative / Clerical	\$ 1,000	\$ 500	\$ 1,250	\$ 2,750	30	82,500	\$ 40,000	75%	2
Semi-skilled	\$ 500	\$ 500	\$ 1,250	\$ 2,250	75	168,750	\$ 40,000	75%	2
Unskilled	\$ 250	\$ 250	\$ 625	\$ 1,125	113	127,125	\$ 30,000	75%	1
					308	2,182,542			
Value of Pre-Tax Replacement Cost						2,182,542			
Less: Provision for Taxes					40.0%	(873,017)			
Value of After-Tax Replacement Cost						1,309,525			
Plus: Tax Amortization Benefit						249,678			
Indicated Fair Value of Assembled Workforce						\$ 1,559,203			
Indicated Fair Value of Assembled Workforce, Rounded						\$ 1,560,000			

Note:

Figures based on discussions with and data provided by Management.



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



Introduction - Appraisal Foundation Working Groups Contribute to Best Practices for 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 (eg cash flows or income and expenses) to a single current (ie 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 (ie 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.



MPEEM – Primary Steps (*cont'd*)

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

Support

		December 31									
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue (1)		\$ 10,000	\$ 50,000	\$ 100,000	\$ 150,000	\$ 165,000	\$ 165,000	\$ 123,750	\$ 61,875	\$ 30,938	\$ 15,469
Growth		N/A	400.0%	100.0%	50.0%	10.0%	0.0%	-25.0%	-50.0%	-50.0%	-50.0%
Cost of Goods Sold	10.0%	1,000	5,000	10,000	15,000	16,500	16,500	12,375	6,188	3,094	1,547
Gross Profit		9,000	45,000	90,000	135,000	148,500	148,500	111,375	55,688	27,844	13,922
SG&A Expenses	30.0%	3,000	15,000	30,000	45,000	49,500	49,500	37,125	18,563	9,281	4,641
Total R & D		1,000									
Less: Development R & D (2)		800									
Maintenance R & D (3)		200	200	200	200	200	200	200	200	200	200
Operating Income		5,800	29,800	59,800	89,800	98,800	98,800	74,050	36,925	18,363	9,081
Less: Royalty on Trade Name (4)	4.0%	400	2,000	4,000	6,000	6,600	6,600	4,950	2,475	1,238	619
Pretax Income		5,400	27,800	55,800	83,800	92,200	92,200	69,100	34,450	17,125	8,463
Income Taxes	40.0%	2,160	11,120	22,320	33,520	36,880	36,880	27,640	13,780	6,850	3,385
After-Tax Earnings		3,640	18,680	37,480	56,280	61,920	61,920	46,410	23,145	11,513	5,696
After-Tax Capital Charges (5)	% of Revenue										
Net Working Capital (Excl. Excess Cash)	0.50%	50	250	500	750	825	825	619	309	155	77
Fixed Assets	0.75%	75	375	750	1,125	1,238	1,238	928	464	232	116
Internal Technology	0.25%	25	125	250	375	413	413	309	155	77	39
Assembled Workforce	0.50%	50	250	500	750	825	825	619	309	155	77
Total Capital Charges	2.00%	200	1,000	2,000	3,000	3,300	3,300	2,475	1,238	619	309
Income from Technology		3,440	17,680	35,480	53,280	58,620	58,620	43,935	21,908	10,894	5,387
Partial Period Factor		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Mid-Year Convention	Discount Rate	0.5000	1.5000	2.5000	3.5000	4.5000	5.5000	6.5000	7.5000	8.5000	9.5000
Present Value Factor	25.0%	0.8944	0.7155	0.5724	0.4579	0.3664	0.2931	0.2345	0.1876	0.1501	0.1200
Present Value		3,077	12,651	20,310	24,399	21,476	17,181	10,301	4,109	1,635	647
Sum of Present Values		\$ 116,251									
Plus: Tax Amortization Benefit (6)		15,115									
Fair Value of Technology		\$ 131,367									
Fair Value of Technology, Rounded		\$ 130,000									

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

Exhibit EEM

		December 31									
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue (1)		\$ 42,000	\$ 43,260	\$ 44,558	\$ 45,895	\$ 47,271	\$ 48,690	\$ 50,150	\$ 51,655	\$ 53,204	\$ 54,800
Growth		N/A	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Annual Attrition Rate	15.0%										
Annual Retention Factor	85.0%										
Revenue from Existing Customers	% of Revenue	35,700	31,255	27,364	23,957	20,975	18,363	16,077	14,075	12,323	10,789
Cost of Goods Sold	56.4%	20,145	17,637	15,441	13,519	11,836	10,362	9,072	7,943	6,954	6,088
Gross Profit		15,555	13,618	11,923	10,438	9,139	8,001	7,005	6,133	5,369	4,701
SG&A Expenses	26.3%	9,400	8,229	7,205	6,308	5,522	4,835	4,233	3,706	3,245	2,841
Addback: Selling Expenses for New Customers	3.0%	1,071	938	821	719	629	551	482	422	370	324
Operating Income		7,226	6,327	5,539	4,849	4,246	3,717	3,254	2,849	2,494	2,184
Less: Royalty on Trade Name (2)	5.0%	1,785	1,563	1,368	1,198	1,049	918	804	704	616	539
Pretax Income		5,441	4,764	4,171	3,652	3,197	2,799	2,450	2,145	1,878	1,644
Income Taxes	40.0%	2,177	1,906	1,668	1,461	1,279	1,120	980	858	751	658
After-Tax Earnings		3,265	2,858	2,502	2,191	1,918	1,679	1,470	1,287	1,127	987
After-Tax Capital Charges (3)											
Net Working Capital (Excl. Excess Cash)	0.49%	176	154	135	118	103	90	79	69	61	53
Fixed Assets	1.23%	438	384	336	294	257	225	197	173	151	132
Internal Technology	0.10%	35	30	27	23	20	18	16	14	12	10
Assembled Workforce	0.56%	200	175	153	134	117	103	90	79	69	60
Total Capital Charges	2.38%	848	743	650	569	498	436	382	334	293	256
Income from Customer Relationships		2,417	2,116	1,852	1,622	1,420	1,243	1,088	953	834	730
Partial Period Factor		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Mid-Year Convention	Discount Rate	0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5
Present Value Factor	16.0%	0.9285	0.8004	0.6900	0.5948	0.5128	0.4421	0.3811	0.3285	0.2832	0.2441
Present Value		2,244	1,694	1,278	965	728	550	415	313	236	178
Sum of Present Values (4)		8,600									
Plus: Tax Amortization Benefit		1,640									
Fair Value of Customer Relationships		10,240									
Fair Value of Customer Relationships, Rounded		\$ 10,200									

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.

Exhibit T/N

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

Valuation of Trade Name

Relief from Royalty Method

Valuation Date

\$ in 000's

		December 31					Residual
		Year 1	Year 2	Year 3	Year 4	Year 5	Year
Revenue		\$42,000	\$43,260	\$44,558	\$45,895	\$47,271	\$48,690
<i>Growth</i>			3.0%	3.0%	3.0%	3.0%	3.0%
Less: Unbranded Product Revenues	15.0%	6,300	6,489	6,684	6,884	7,091	7,303
Revenues Subject to Royalty		35,700	36,771	37,874	39,010	40,181	41,386
Royalty Rate	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Pre-Tax Royalties		1,785	1,839	1,894	1,951	2,009	2,069
Less: Maintenance Expense		100	100	100	100	100	100
Pre-Tax Royalties after Maintenance Expense		1,685	1,739	1,794	1,851	1,909	1,969
Income Taxes	40.0%	674	695	717	740	764	788
After-Tax Royalties		1,011	1,043	1,076	1,110	1,145	1,182
Capitalized Residual Value (CF / (k - g))							10,742
Partial Period Factor		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Mid-Year Convention	Discount Rate	0.5000	1.5000	2.5000	3.5000	4.5000	4.5000
Present Value Factor	14.0%	0.9366	0.8216	0.7207	0.6322	0.5545	0.5545
Present Value of Cash Flow		947	857	776	702	635	5,957
Sum of Present Values of Cash Flows		9,873					
Plus: Tax Amortization Benefit		2,093					
Indicated Fair Value of Trade Name		11,966					
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

		December 31				
		Year 1	Year 2	Year 3	Year 4	Year 5
Revenue Dependent on Technology (1)		\$ 10,000	\$ 12,000	\$ 15,000	\$ 10,000	\$ 5,000
Royalty Rate (2)	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Pre-Tax Royalties		100	120	150	100	50
Less: Maintenance Expense	0.0%	0	0	0	0	0
Adjusted Pre-tax Royalties		100	120	150	100	50
Income Taxes	40.0%	40	48	60	40	20
Adjusted After-Tax Royalties		60	72	90	60	30
Partial Period Factor		1.0000	1.0000	1.0000	1.0000	1.0000
Mid-Year Convention	Discount Rate	0.5000	1.5000	2.5000	3.5000	4.5000
Present Value Factor	16.0%	0.9285	0.8004	0.6900	0.5948	0.5128
Present Value of Cash Flow		56	58	62	36	15
Sum of Present Values of Cash Flows		227				
Plus: Tax Amortization Benefit		43				
Fair Value of Internal Use Technology		270				
Fair Value of Technology, Rounded		\$ 270				

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.



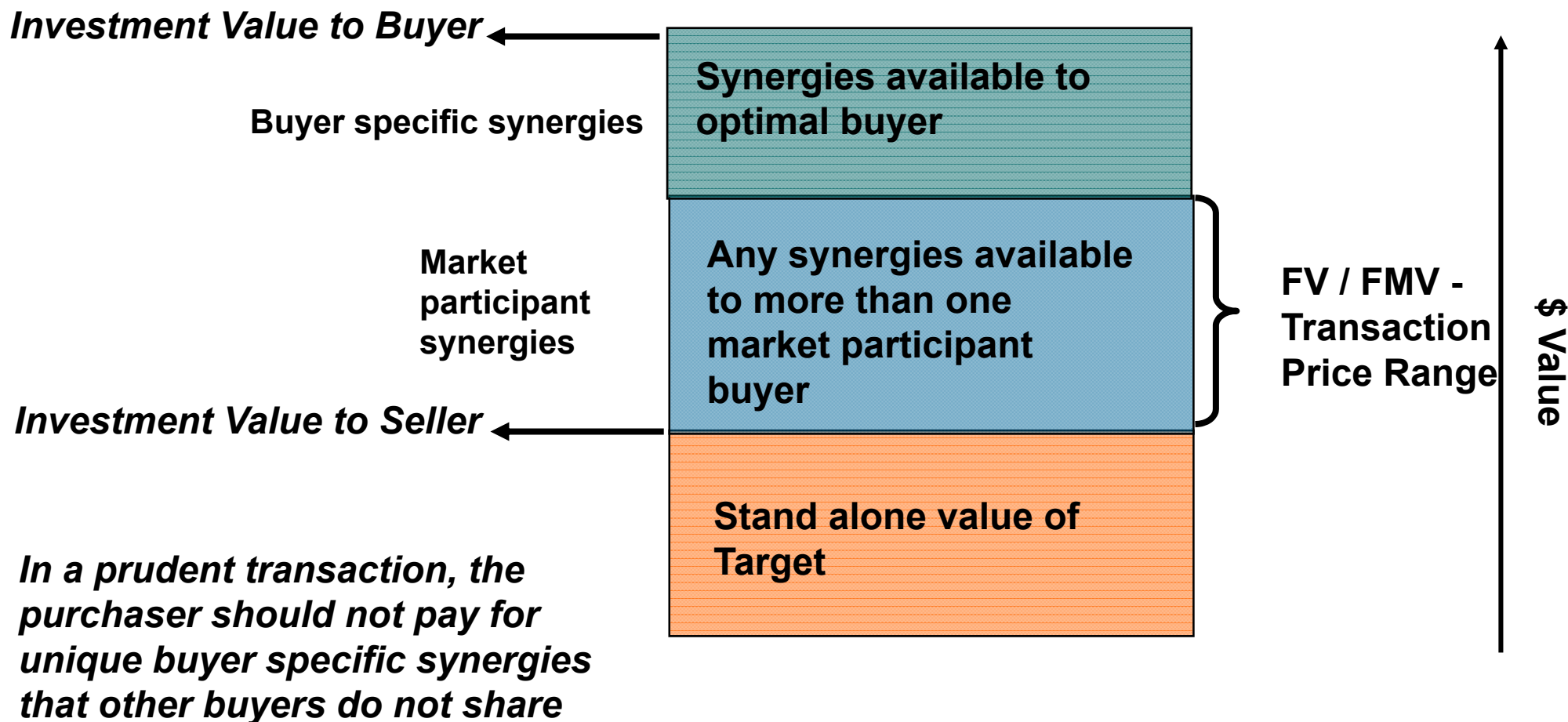
Cash Flow Estimation - Market Participant vs. Entity Specific Assumptions - Example

- 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



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**



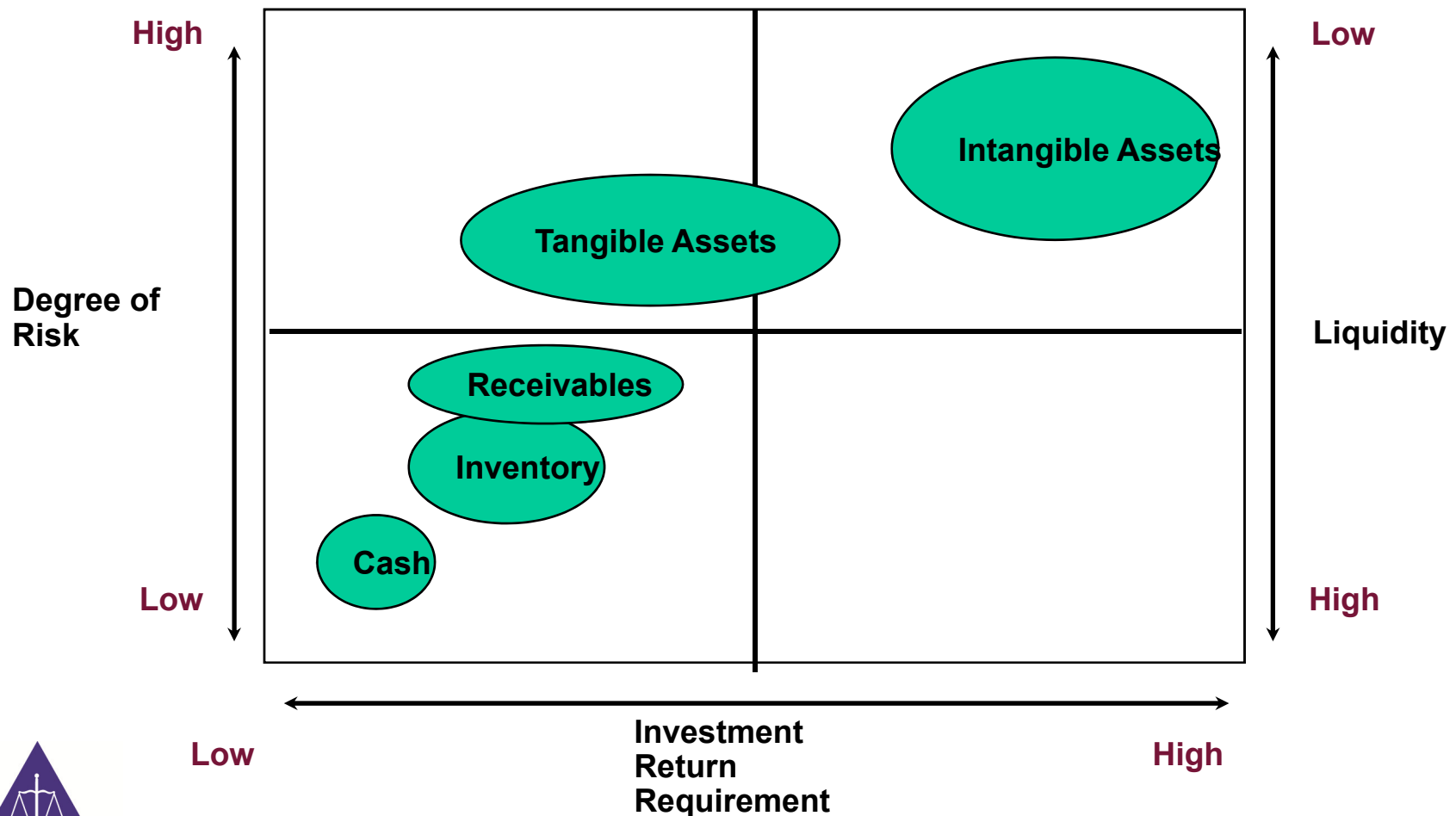
Discount Rate Estimates – Overview

- 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



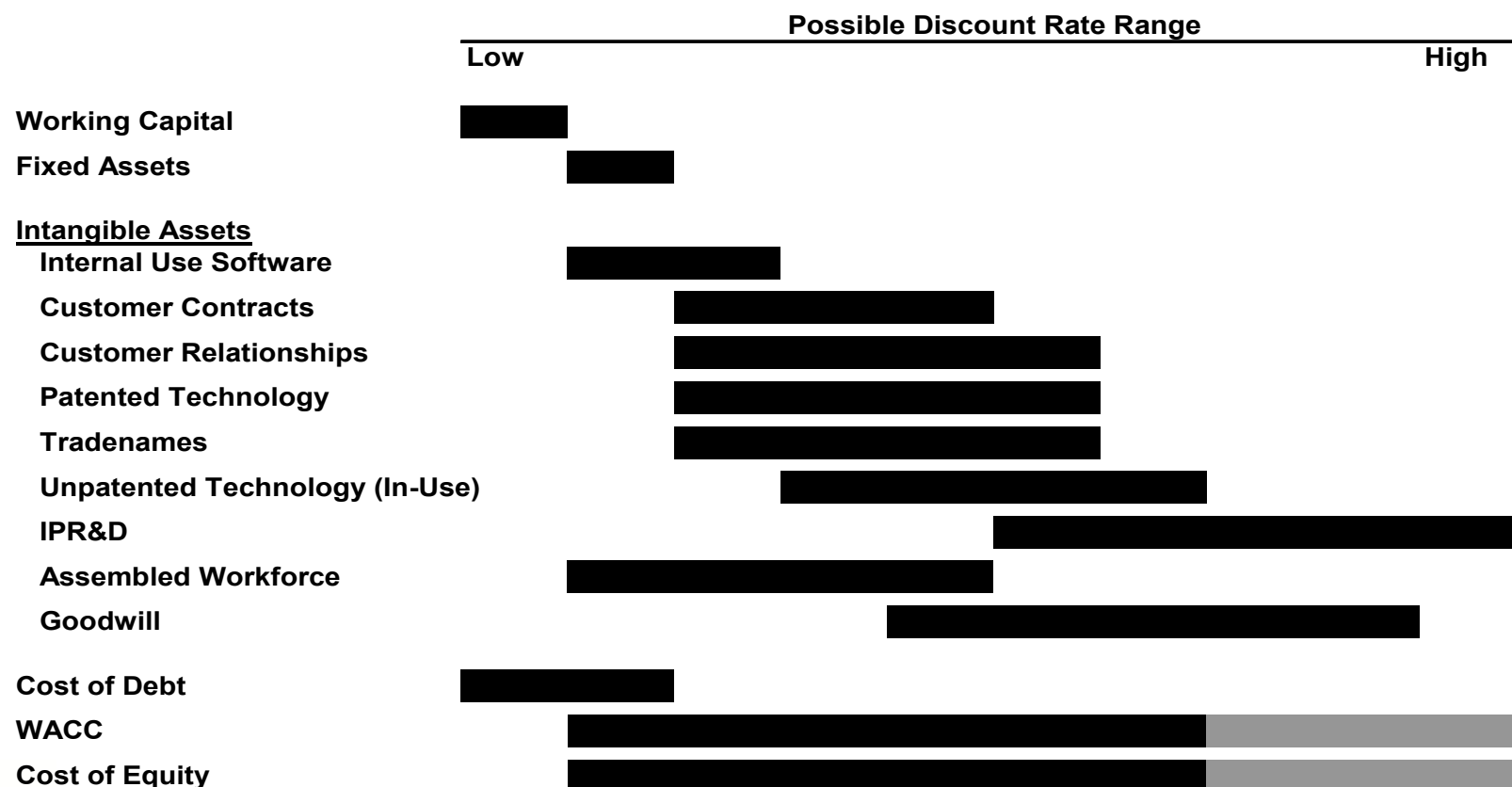
Discount Rate Estimates – Returns on Specific Assets

- 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 Estimates – Illustrative Return Ranges for Various Intangibles

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:



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

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 WARA that is equal to the WACC

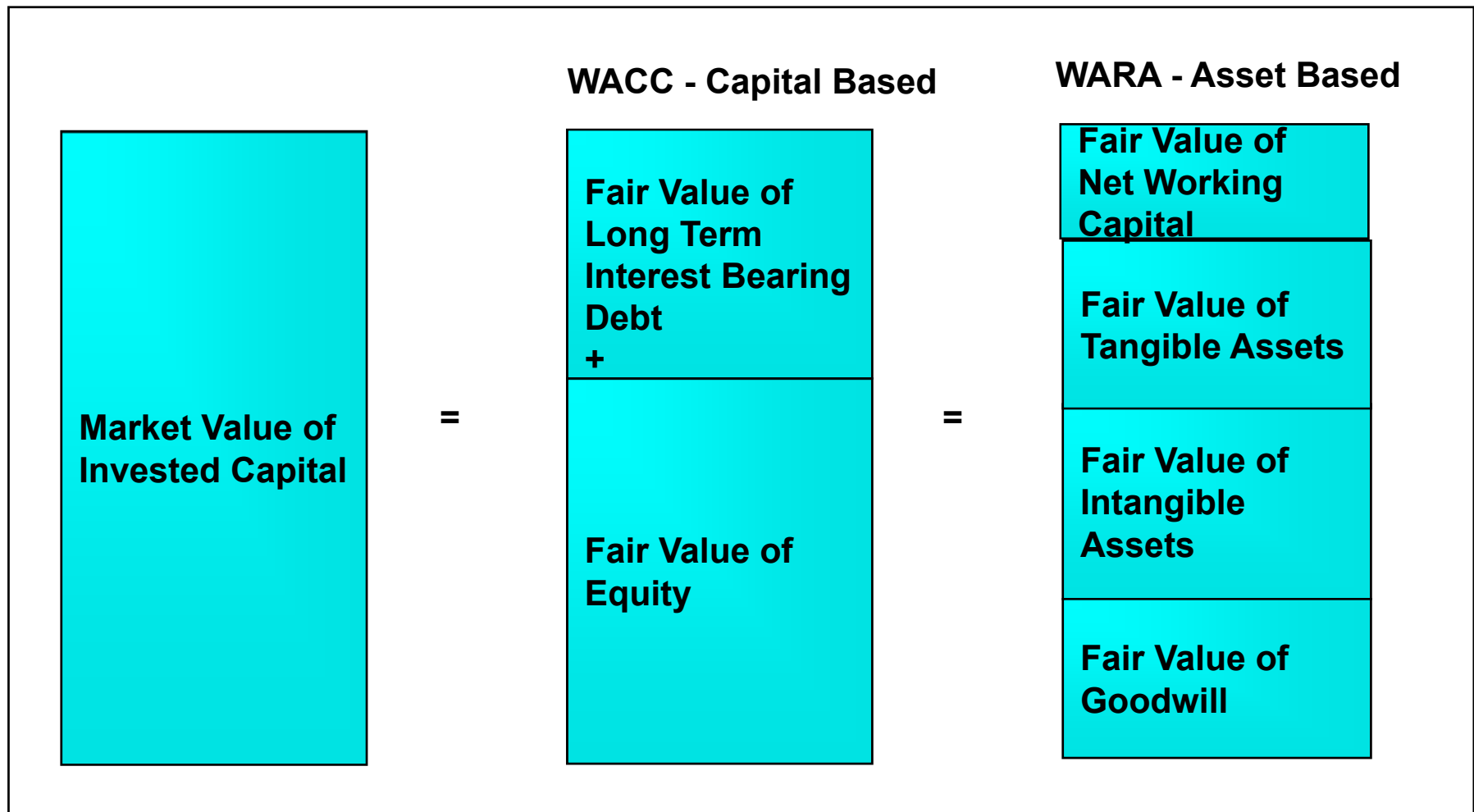


Discount Rate Estimates – Reconciliation Process Can Improve Estimates

- 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)



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

	<u>Weights</u>	<u>After Tax Required Rate of Return</u>	<u>=</u>	<u>Weighted Average Rate of Return</u>
Fair Value of Net Working Capital	11.7%	4%		0.5%
Fair Value of Tangible Assets	15.7%	8%		1.3%
Fair Value of Intangibles	52.9%	15%		8.0%
Fair Value of Goodwill	19.6%	22%		4.3%
	<hr/> 100%			<hr/> 14.1% 14.0% Rounded



Summary Bibliography

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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 help enhance valuation practice.



Contributory Assets – Working Group May 31, 2010 Final Release – CAC Calculations

- 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.”



Contributory Assets – Working Group May 31, 2010 Final Release – CAC Calculations

- 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.”



Contributory Assets – Working Group May 31, 2010 Final Release – Working Capital

- 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.”



Contributory Assets – Working Group May 31, 2010 Final Release – Working Capital (*cont'd*)

- 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.”



Contributory Assets – Working Group May 31, 2010 Final Release – Fixed Assets

- 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.”



Contributory Assets – Working Group Final Document – CAC for Elements of Goodwill

- 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. equity investment in 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

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Residual	
Revenue	\$ 1,000	\$ 1,050	\$ 1,165	\$ 1,306	\$ 1,456	\$ 1,596	\$ 1,718	\$ 1,823	\$ 1,907	\$ 1,976	\$ 2,035	
Gross Profit	90%	900	945	1,049	1,175	1,310	1,436	1,546	1,641	1,716	1,778	1,832
Operating Expenses:												
Maintenance R&D	0.50%	5	5	6	7	7	8	9	9	10	10	10
R&D - Future IP	2.50%	25	26	29	33	36	40	43	46	48	49	51
Trade name advertising	0.50%	5	5	6	7	7	8	9	9	10	10	10
Current customer marketing	3%	27	26	23	18	13	8	4	2	1-	-	-
Future customer marketing		18	22	29	40	53	64	73	80	84	89	92
Total marketing	5%	50	53	58	65	73	80	86	91	95	99	102
Total G&A	7%	70	74	82	91	102	112	120	128	133	138	142
Total Operating Expenses	15%	150	158	175	196	218	240	258	274	286	296	305
EBITDA		750	787	874	979	1,092	1,196	1,288	1,367	1,430	1,482	1,527
Depreciation		222	246	275	311	351	392	436	481	519	545	567
Amortization		-	-	-	-	-	-	-	-	-	-	-
EBIT		528	541	599	668	741	804	852	886	911	937	960
Taxes	38.40%	203	208	230	256	284	308	327	340	350	359	368
Debt Free Net Income		325	333	369	412	457	496	525	546	561	578	592
less: Incremental Working Capital	30%	15	15	35	42	45	42	37	32	25	21	18
add: Depreciation		222	246	275	311	351	392	436	481	519	545	567
less: Capital Expenditures		286	400	450	500	525	541	557	574	591	609	627
Debt Free Cash Flow		246	164	159	181	238	305	367	421	464	493	514
Residual Value												7,343
PV Factor	10%	0.9535	0.8668	0.7880	0.7164	0.6512	0.5920	0.5382	0.4893	0.4448	0.4044	0.4044
PV DFCF		235	142	125	130	155	181	198	206	206	199	2,969
Entity Value		4,746										



Practical Expedient Example – Depreciation – Exhibit B-1a

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

Exhibit B-1a

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:

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Residual
Acquired or Current Fixed Assets	\$186	\$160	\$133	\$106	\$80	\$53	\$27	\$ -	\$ -	\$ -	
Capital Expenditures:											
Year 1	36	36	36	36	36	36	36	36	-	-	-
Year 2		50	50	50	50	50	50	50	50	-	-
Year 3			56	56	56	56	56	56	56	56	-
Year 4				63	63	63	63	63	63	63	63
Year 5					66	66	66	66	66	66	66
Year 6						68	68	68	68	68	68
Year 7							70	70	70	70	70
Year 8								72	72	72	72
Year 9									74	74	74
Year 10										76	76
Residual											78
Total Depreciation	222	246	275	311	351	392	436	481	519	545	567
Fixed Asset Turnover											
Beginning Balance	745	809	963	1,138	1,327	1,501	1,650	1,771	1,864	1,936	2,000
add: Capital Expenditures	286	400	450	500	525	541	557	574	591	609	627
less: Depreciation	222	246	275	311	351	392	436	481	519	545	567
Ending Balance	809	963	1,138	1,327	1,501	1,650	1,771	1,864	1,936	2,000	2,060
Average Fixed Assets	777	886	1,051	1,233	1,414	1,576	1,711	1,818	1,900	1,968	2,030
Fixed Asset Turnover	129%	119%	111%	106%	103%	101%	100%	100%	100%	100%	100%



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

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Residual
Revenue		\$1,000	\$1,050	\$1,165	\$1,306	\$1,456	\$1,596	\$1,718	\$1,823	\$1,907	\$1,976	\$2,035
Gross Profit	90%	900	945	1,049	1,175	1,310	1,436	1,546	1,641	1,716	1,778	1,832
<u>Operating Expenses:</u>												
Maintenance R&D	0.50%	5	5	6	7	7	8	9	9	10	10	10
R&D - Future IP	2.50%	25	26	29	33	36	40	43	46	48	49	51
Trade name advertising	0.50%	5	5	6	7	7	8	9	9	10	10	10
Current customer marketing	3%	27	26	23	18	13	8	4	2	1-	-	-
Future customer marketing		18	22	29	40	53	64	73	80	84	89	92
Total marketing	5%	50	53	58	65	73	80	86	91	95	99	102
Total G&A	7%	70	74	82	91	102	112	120	128	133	138	142
Total Operating Expenses	15%	150	158	175	196	218	240	258	274	286	296	305
EBITDA		750	787	874	979	1,092	1,196	1,288	1,367	1,430	1,482	1,527
Depreciation		222	246	275	311	351	392	436	481	519	545	567
Depreciation of fixed asset step-up		63	54	45	36	27	18	9-	-	-	-	-
Adjusted Depreciation		285	300	320	347	378	410	445	481	519	545	567
Amortization - AWF		20	20	20	20	20	20	20	20	20	20-	20-
EBIT		445	467	534	612	694	766	823	866	891	917	960
Taxes	38%	171	179	205	235	266	294	316	332	342	352	368
Debt Free Net Income		274	288	329	377	428	472	507	534	549	565	592
less: Incremental Working Capital	30%	15	15	35	42	45	42	37	32	25	21	18
add: Adjusted Depreciation Amortization - AWF		285	300	320	347	378	410	445	481	519	545	567
less: Capital Expenditures		286	400	450	500	525	541	557	574	591	609	627
Debt Free Cash Flow		278	193	184	202	256	319	378	429	472	500	514
Residual Value												7,343
PV Factor	10%	0.9535	0.8668	0.7880	0.7164	0.6512	0.5920	0.5382	0.4893	0.4448	0.4044	0.4044
PV DFCF		265	167	145	145	167	189	203	210	210	202	2,969
Adjusted Entity Value		4,872										



Practical Expedient Example – Incremental Depreciation

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

Exhibit B-2a

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.

RUL (Years)	Step-up	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	
1	9	9							
2	18	9	9						
3	27	9	9	9					
4	36	9	9	9	9				
5	45	9	9	9	9	9			
6	54	9	9	9	9	9	9		
7	63	9	9	9	9	9	9	9	
Total (rounded)		252	63	54	45	36	27	18	9

Fixed Asset Turnover

Beginning Balance	1,000	1,001	1,101	1,231	1,384	1,531	1,662	1,774	1,867	1,939	2,003
add: Capital Expenditures	286	400	450	500	525	541	557	574	591	609	627
less: Depreciation from Exhibit B-1a	222	246	275	311	351	392	436	481	519	545	567
less: Incremental depreciation above	63	54	45	36	27	18	9-	-	-	-	-
Ending Balance	1,001	1,101	1,231	1,384	1,531	1,662	1,774	1,867	1,939	2,003	2,063
Average Fixed Assets	1,001	1,051	1,166	1,308	1,458	1,597	1,718	1,821	1,903	1,971	2,033
Fixed Asset Turnover	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%



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.

Year 1	<u>Working Capital</u>		<u>Fixed Assets</u>		<u>Assembled Workforce</u>	
Revenue	\$950	\$1,000		\$1,000		\$1,000
Beginning Balance		285		1,000		200
add: Incremental Investment	30%	15		286 (1)		11 (3)
less: Return Of (depreciation)		n/a		285 (2)		- (4)
Ending Balance		300		1,001		211
Average Balance		293		1,001		206
Mid-period Adjustment Factor		0.9535		0.9535		0.9535
Return On (5)	3%	8	5%	48	10%	20
Percent of Revenue		0.84%		4.77%		1.96%
Total <i>Return On</i> applied as a CAC		7.57%				

(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

Exhibit B-5

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

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Residual
Total Revenue	\$1,000	\$1,050	\$1,165	\$1,306	\$1,456	\$1,596	\$1,718	\$1,823	\$1,907	\$1,976	\$2,035
Customer Relationship Revenue	900	855	770	616	431	259	130	65	33-	-	-
Gross Profit	90.0%	810	770	693	554	388	233	117	59	30-	-
Operating Expenses:											
Maintenance R&D	0.0%-	-	-	-	-	-	-	-	-	-	-
R&D - Future IP	0.0%-	-	-	-	-	-	-	-	-	-	-
Trade name advertising	0.0%-	-	-	-	-	-	-	-	-	-	-
Current customer marketing	3.0%	27	26	23	18	13	8	4	2	1-	-
Future customer marketing	-	-	-	-	-	-	-	-	-	-	-
Total marketing		27	26	23	18	13	8	4	2	1-	-
Total G&A	7.0%	63	60	54	43	30	18	9	5	2-	-
Total Operating Expenses		90	86	77	61	43	26	13	7	3-	-
EBITDA		720	684	616	493	345	207	104	52	27-	-
Adjusted Depreciation		257	244	212	164	112	67	34	17	9-	-
Amortization - AWF		18	16	13	9	6	3	2	1-	-	-
EBIT		445	424	391	320	227	137	68	34	18-	-
less: Trade Name Royalty	5.0%	45	43	39	31	22	13	7	3	2-	-
IP Royalty	10.0%	90	86	77	62	43	26	13	7	3-	-
Adjusted EBIT		310	295	275	227	162	98	48	24	13-	-
Taxes	38.0%	119	113	106	87	62	38	18	9	5-	-
Debt Free Net Income		191	182	169	140	100	60	30	15	8-	-
add: Amortization - AWF		18	16	13	9	6	3	2	1-	-	-
AWF Growth Investment		10	9	16	14	9	5	2	1-	-	-
less: Return On Contributory Assets		68	65	58	47	33	20	10	5	2-	-
Excess Earnings		151	142	140	116	82	48	24	12	6-	-
PV Factor	10.0%	0.9535	0.8668	0.7880	0.7164	0.6512	0.5920	0.5382	0.4893	0.4448	0.4044
PV Excess Earnings		144	123	110	83	53	28	13	6	3-	-
Total PV Excess Earnings		563									
Tax Amortization Benefit		152									
Fair Value - Customer Relationships		715									
Fair Value - Comprehensive Example		719									



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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End



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