

# Purchase Price Allocation 101



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# PPA 101 – Agenda Outline

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## ◆ Overview (~ 1.0 to 1.5 hours)

Introduction to Purchase Price Allocation

- ▶ Background and Purpose
- ▶ Purchase Price Allocation Process
- ▶ Appropriate valuation methodologies
- ▶ Diagnostic tools (IRR, WARA)

## ◆ Case Study (~ 1.0 to 1.5 hours)

Acquisition of Potato Chips Manufacturer/Seller (Cheesy Chips)

Valuation of customers and trademarks

Customer retention rate discussion and cost to service support

Analysis of selected royalty rate (benchmarks and profit split analysis)

Discussion of IRR analysis and market participant assumptions

Use of WARA relative to WACC and IRR

## ◆ Q & A (time permitting)

# General Overview

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- ◆ In a nutshell, what is It?
- ◆ Allocate purchase price paid for acquired company to its tangible and intangible assets
- ◆ Deal-based
- ◆ Purpose – Financial reporting
- ◆ Regulation/Oversight – SEC
- ◆ Guidelines – SFAS 141, 141(R), 142, 157
  - ▶ SFAS 141, 142 Effective Mid-2001;
  - ▶ 141(R) Effective in 2009;
  - ▶ SFAS 157 Effective 2008/2009 (based on circumstances)

# Why PPA Valuations Matter to Companies

- ◆ Most intangible assets are amortized over their expected lives; this expense can have a major impact on reported earnings
- ◆ Goodwill typically tested for impairment on an annual basis following the acquisition



# Valuation Process – Overview

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- ◆ Determine purchase price and total asset base
- ◆ Identify components of total asset base
  - Tangible assets
  - Intangible assets
  - Goodwill (remainder)
- ◆ Allocate value to company's asset components
- ◆ Reconciliation of asset conclusions
- ◆ This analysis focuses on intangible asset valuation

# Valuation Process – Purchase Price

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- ◆ To know what to allocate, the purchase price must be identified
- ◆ Focus on market value of acquired company's equity and debt assumed, or market value of invested capital
- ◆ Non-debt liabilities added to MVIC of acquired company, to arrive at its total asset base, or total consideration.
- ◆ New rules (SFAS 141R) impact on purchase price in 2009:
  - ▶ Transaction costs no longer part of purchase price
  - ▶ Contingent payments valued as part of purchase price
  - ▶ In some cases, contingent liabilities will be valued

# Calculation of Purchase Price

*(Numbers in \$US thousands)*

Stock Consideration	40,000
Cash Consideration	125,000
Contingent Earnout Payments	10,000
	<hr/>
<b>Total Equity Purchase Price</b>	<b>175,000</b>
Plus: Assumed Debt	-
	<hr/>
<b>Market Value of Invested Capital</b>	<b>175,000</b>
Plus: Assumed Liabilities *	
Accounts Payable	36,680
Accrued Expenses/Other	14,000
Total	<hr/>
	50,680
<b>Total Purchase Consideration/Total Assets</b>	<b>225,680</b>

# Identify Components of Value

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- ◆ Next Step - identify components that make up total asset base, in this case, \$225.68 million
- ◆ Components of value
  - Tangible assets
    - Value typically estimated by client or through property appraisals
  - ◆ Intangible Assets
    - Separately identifiable assets
    - Remainder = Goodwill



# Identification of Intangible Assets

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- ◆ There are many types of intangible assets
- ◆ A typical case may involve half a dozen intangibles identified and valued
- ◆ Certain intangibles dictated by industry
  - ▶ Recipes valued in food industry
  - ▶ Web site members valued in internet industry
  - ▶ Production processes and patterns valued for manufacturing companies
  - ▶ Subscribers for magazines/newspapers
  - ▶ FCC licenses for television stations or telecom

# Identification of Intangible Assets (cont.)

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- ◆ Common Intangible Assets Include
  - ▶ Trademarks/names (e.g. Coca-Cola, IBM)
  - ▶ Customer Contracts & Relationships
  - ▶ Technology
  - ▶ Workforce
  - ▶ Patents
  - ▶ Databases
  - ▶ Non-compete Agreements
  - ▶ In-process Research and Development (“IPR&D”)
  - ▶ Goodwill

# Identification of Intangible Assets (cont.)

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- ◆ After identification, intangible assets must be classified into two categories:
  - ▶ “Identifiable” intangible assets separable from goodwill
  - ▶ Intangible assets not separable from goodwill
- ◆ Distinction made between assets that have a clearer basis of value vs. assets that have a more ambiguous basis of value

# Identification of Intangible Assets (cont.)

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- ◆ According to accounting guidelines, an intangible asset is identifiable/separate from goodwill if:

It arises from contractual or legal rights

- ▶ Patents
- ▶ Trademarks
- ▶ Customer Contracts

It can be sold, transferred, or licensed separately

- ▶ Technology
- ▶ Customer list
- ▶ Not workforce

Note: SFAS 141(R) has many examples of identifiable intangibles

Source: SFAS 141(R)

# Standards of Value

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- ◆ Standard of value for purchase price allocations for financial reporting is fair value
- ◆ For a comprehensive overview of fair value, please refer to SFAS 157
- ◆ With a few exceptions, fair value is fairly similar to the fair market value standard for tax purposes
- ◆ Fair value focuses on an exit value concept, i.e. what a market participant would pay to buy an asset or transfer a liability
- ◆ For purchase price allocations, must exclude inputs that are unique to a specific buyer and not applicable to other market participants.

# Valuation Approaches

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- ◆ Income Approach
  - ▶ Project cash flows attributable to asset over its useful life
  - ▶ Similar to discounted cash flow analysis
  - ▶ Methods include excess earnings method and relief from royalty method
  
- ◆ Market Approach
  - ▶ Identify transactions of similar assets and use as a guideline to value
  
- ◆ Cost Approach
  - ▶ Cost to replace an asset, net of obsolescence
  
- ◆ See SFAS 157 for full definitions of these approaches

# Income Approach – Excess Earnings

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- ◆ Project future cash flows attributable to asset over estimated economic life
- ◆ Make sure that charges are taken for assets that contribute to the stream of cash flows generated
  - ▶ Typically charges calculated as a percentage of sales
- ◆ Develop a weighted average cost of capital for the asset
- ◆ Projected cash flow streams are discounted to present @ WACC Rate
- ◆ To this value, a tax amortization benefit (“TAB”) factor is applied
  - ▶ Present value of ability to amortize an intangible asset over a 15-year period, for tax purposes

# Excess Earnings Method - Example

(Numbers in \$US thousands)

		Projected Year 1	Projected Year 2	Projected Year 3	Projected Year 4	Projected Year 5	Projected Year 6	Projected Year 7	Etc. →
Existing Customer Revenue		267,750	273,105	278,567	284,138	289,821	295,618	301,530	→
Times: Retention Rate		0.9500	0.8550	0.7695	0.6926	0.6233	0.5610	0.5049	
Net Customer Revenue		254,363	233,505	214,357	196,780	180,644	165,831	152,233	
Less: Cost to Service Existing Customers		(234,014)	(214,824)	(197,209)	(181,038)	(166,193)	(152,565)	(140,054)	
Cost to Service Margin (4)		92.0%	92.0%	92.0%	92.0%	92.0%	92.0%	92.0%	
Pretax Income		20,349	18,680	17,149	15,742	14,452	13,267	12,179	
Less: Provision for Taxes	40.0%	(8,140)	(7,472)	(6,859)	(6,297)	(5,781)	(5,307)	(4,871)	
Net Profit		12,209	11,208	10,289	9,445	8,671	7,960	7,307	
Less: Contributory Asset Charges	%Sales								
Working Capital	0.50%	(1,272)	(1,168)	(1,072)	(984)	(903)	(829)	(761)	
Fixed Assets	0.40%	(1,017)	(934)	(857)	(787)	(723)	(663)	(609)	
Trademark	1.20%	(3,052)	(2,802)	(2,572)	(2,361)	(2,168)	(1,990)	(1,827)	
Workforce in Place	0.10%	(254)	(234)	(214)	(197)	(181)	(166)	(152)	
Net Cash Flow		6,613	6,071	5,573	5,116	4,697	4,312	3,958	
Period		0.5000	1.5000	2.5000	3.5000	4.5000	5.5000	6.5000	
Times: Present Value Factor		0.9449	0.8437	0.7533	0.6726	0.6005	0.5362	0.4787	
Present Value of Cash Flow		6,249	5,122	4,198	3,441	2,820	2,312	1,895	→
						Sum of Discounted Cash Flows	32,894		
						Times: Tax Amort. Benefit Factor	1.2379		
						Value of Customer Relationships	40,722		

<b>Value of Customer Relationships:</b>	<b>\$41,000</b>
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# Income Approach – Relief from Royalty

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- ◆ Estimates value for asset, based on the cost savings realized through ownership (vs. paying licensing fees)
- ◆ Cost savings determined, based on the royalty rate a licensor would pay for the asset
- ◆ Commonly used for trademarks/names and sometimes technology/patents
- ◆ Estimation of an appropriate royalty rate critical to the analysis

# Relief from Royalty Method - Example

	P2008	P2009	P2010	P2011	P2012	P2013	Etc. →
Projected Total Company Revenue	270,000	302,400	338,688	372,557	409,812	426,205	→
Times: % Attributable to Trademarks	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	
Projected Revenue Attributable to Trade names	189,000	211,680	237,082	260,790	286,869	298,343	
Times: Royalty Rate	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	
Company Royalty Savings	3,780	4,234	4,742	5,216	5,737	5,967	
Less: Trademarks Maintenance Expense	(100)	(103)	(106)	(109)	(113)	(116)	
Net Pretax Royalty Savings	3,680	4,131	4,636	5,107	5,625	5,851	
Less: Provision for Taxes	(1,472)	(1,652)	(1,854)	(2,043)	(2,250)	(2,340)	
After-Tax Royalty Income	2,208	2,478	2,781	3,064	3,375	3,511	
Times: Partial Period Factor	0.5041						
Discounted After-Tax Royalty Income	1,113						
Period (Mid-Period)	0.2521	1.0041	2.0041	3.0041	4.0041	5.0041	
Times: Discount Factor	0.9718	0.8924	0.7968	0.7114	0.6352	0.5672	
Discounted After-Tax Royalty Income	1,082	2,212	2,216	2,180	2,144	1,991	→
						Sum of Discounted Royalty Streams	40,477
						Times: Tax Amort. Benefit Factor	1.2379
						Value of Trademarks	50,108

**Value of Trademarks, Rounded: \$50,100**

# Determining Royalty Rates

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- ◆ Sources of guideline royalty rates include
  - ▶ SEC filings
  - ▶ Online databases(e.g., RoyaltySource, RoyaltyStat)
  - ▶ Subject company licensing transactions
  - ▶ Previous engagements
  
- ◆ Profit splitting analysis
  - ▶ Rule of thumb: one quarter to one third of operating profit reasonable proxy for a royalty rate to pay
  - ▶ Often performed as a reasonableness check

# Assessing Guideline Royalty Rates

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- ◆ Comparability
  - ▶ Type of Product(s)
  - ▶ Profit margin of Product(s)
  - ▶ Date of Transaction
  
- ◆ Exclusive vs. non-exclusive
  
- ◆ Remaining life of intangible and term of agreement
  
- ◆ Arm's length transaction? May not be, e.g. could be
  - ▶ Legal settlement
  - ▶ Between related parties
  - ▶ Within same company between different countries
  - ▶ Beware of references to articles!
  
- ◆ Geographic region
  
- ◆ Is transaction for bundled IP vs. single item being valued?

# Asset Life (Economic)

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- ◆ Needed for income approach projection period
- ◆ Definite (amortized) vs. indefinite (not amortized) lives
  - ▶ Definite lives assume a discrete period modeled
  - ▶ Indefinite lives assume a discrete period plus a horizon value modeled
  - ▶ See SFAS 142 for more information on definite vs. indefinite
- ◆ Factors to consider
  - ▶ Mathematical calculation based on historical attrition patterns
  - ▶ Consideration of market, economic, competitive, etc. factors
  - ▶ Discussions with management
  - ▶ Benchmarking (what are other companies reporting)
  - ▶ Final conclusion for accounting lives responsibility of management
- ◆ Indefinite life not appropriate for most intangibles other than goodwill.
  - ▶ Exceptions to the rule do exist, for example many consumer product trademarks

# Useful Life

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- ◆ Per SFAS 142, factors to consider in determining include:
  - ▶ The expected use of the asset by the entity
  - ▶ The expected useful life of another asset or a group of assets to which the useful life of the intangible asset may relate
  - ▶ Any legal, regulatory, or contractual provisions that may limit the useful life
  - ▶ Any legal, regulatory, or contractual provisions that enable renewal or extension of the asset's legal or contractual life without substantial cost (provided there is evidence to support renewal or extension and renewal or extension can be accomplished without material modifications of the existing terms and conditions)
  - ▶ The effects of obsolescence, demand, competition, and other economic factors (such as the stability of the industry, known technological advances, legislative action that results in an uncertain or changing regulatory environment, and expected changes in distribution channels)
  - ▶ The level of maintenance expenditures required to obtain the expected future cash flows from the asset (for example, a material level of required maintenance in relation to the carrying amount of the asset may suggest a very limited useful life)

# Cost Approach

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- ◆ Cost estimated to replace asset
  - ▶ Adjustments made for obsolescence
  
- ◆ May be used to value:
  - ▶ Workforce in place
  - ▶ Internally developed software
  - ▶ Magazine or telecom subscribers (maybe)
  
- ◆ Problems with Cost Approach
  - ▶ Unique attributes of asset ignored
  - ▶ May understate the asset's value
  - ▶ Validity increasingly questioned
  - ▶ May need to consider opportunity costs (cash flow lost due to time needed to recreate asset)
  
- ◆ Note: Tax-effecting and amortization benefit factor use subject to debate (i.e., some do it and some don't – I do)

# Cost Approach - Example (Workforce)

(Numbers in \$US thousands)

Employee Category	Total Number of Employees	Aggregate Salary	Average Salary	Non-Salary	Fully	Recruitment Costs		# Months Training	Training Costs (3)		\$ Amount	Total Replacement Costs
				Costs % Salary	Burdened (FB) Salary	% Salary	\$ Amount		Initial Prod. Level	% FB Salary		
Executive / Management	8	1,000	125	35.0%	1,350	30.0%	300	6.0	50%	25.0%	169	469
Sales and Marketing	10	800	80	35.0%	1,080	25.0%	200	6.0	50%	25.0%	135	335
Administrative	12	600	50	20.0%	720	20.0%	120	3.0	60%	12.5%	36	156
Manufacturing/Warehouse	110	4,000	36	20.0%	4,800	10.0%	400	3.0	50%	12.5%	300	700
Purchasing	12	700	58	20.0%	840	20.0%	140	3.0	75%	12.5%	26	166
Other	30	1,200	40	20.0%	1,440	15.0%	180	3.0	50%	12.5%	90	270
<b>Total</b>	<b>182</b>	<b>8,300</b>			<b>10,230</b>	<b>N/A</b>	<b>1,340</b>			<b>N/A</b>	<b>756</b>	<b>2,096</b>

Employee Replacement Costs	2,096
Less: Value of Tax Shield 40.0%	(838)
After-Tax Employee Replacement Costs	1,258
Times: Tax Amortization Benefit Factor	1.2702
Value of Workforce in Place	1,597

**Value of Workforce in Place, Rounded: \$1,600**



# Market Approach

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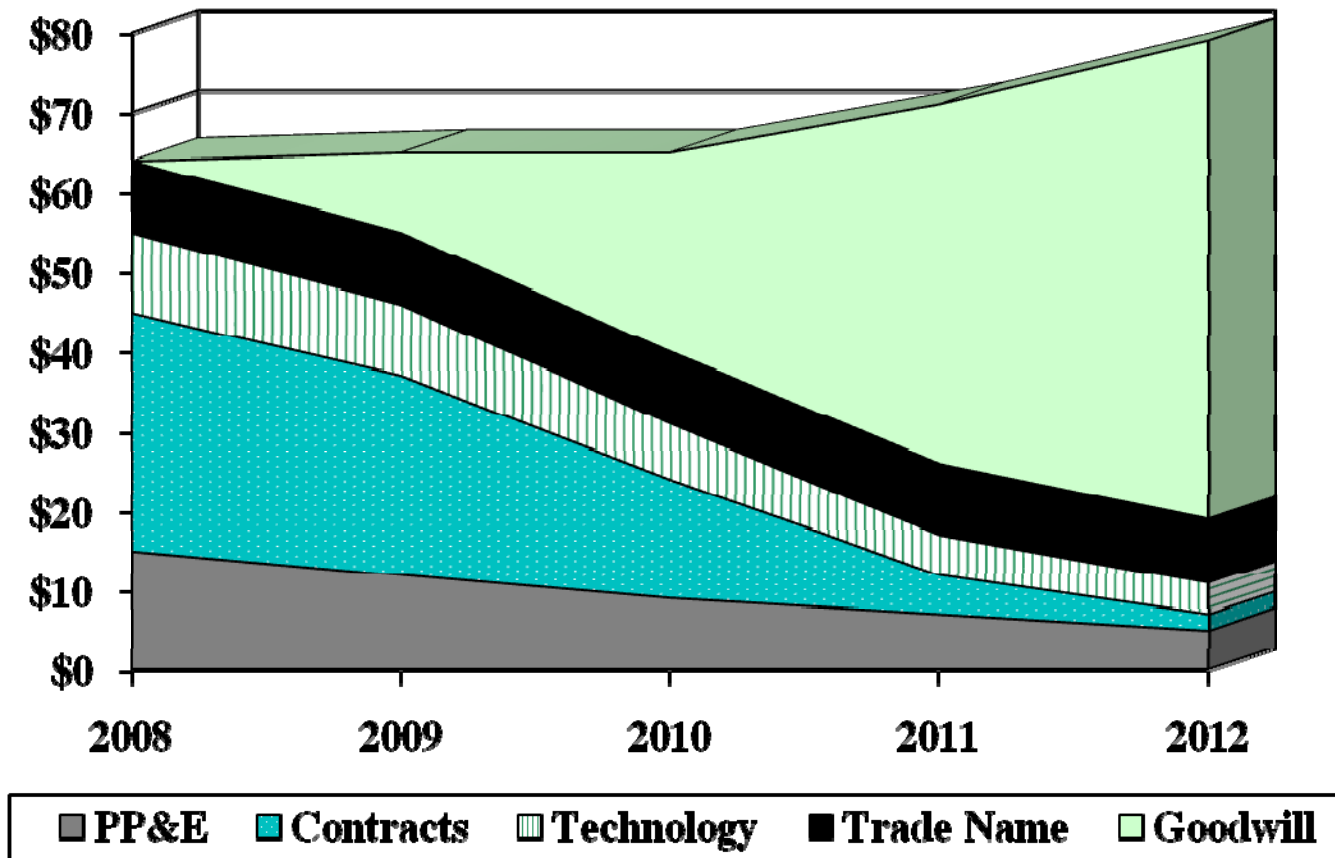
- ◆ Limited applicability, given lack of data available for intangible assets
- ◆ Examples where information could be found include FCC licenses or domain name transactions
- ◆ Useful for certain inputs, such as royalty rates used in relief from royalty method
- ◆ Given focus of SFAS 157 on market-based guidelines and inputs, important to use market data when possible, with the hopes of achieving the highest level of value/inputs possible.

# Remaining Step - Goodwill

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- ◆ Goodwill = Amount paid in excess of identified assets
- ◆ Value Goodwill = Total asset base - identified assets
- ◆ Goodwill is the value remaining, or the “plug number”
- ◆ Reasons for goodwill include expected synergies, future assets, assets not identified, mgmt. hubris, and other factors difficult to quantify
- ◆ Negative goodwill: Value assets > purchase price
  - ▶ Starting in 2009 will be booked as an extraordinary gain on the income statement
  - ▶ (Previously long-term assets were written down on a pro rata basis to get goodwill value to zero)

# Goodwill Cash Flows Increase Over Time



# Example – Summary of Values

(Numbers in \$US thousands)

<b>Balance Sheet Item</b>	<b>Fair Value</b>	<b>% Total Assets</b>	<b>Discount Rate</b>	<b>Valuation Approach</b>
<b>Tangible Assets *</b>				
Current Assets	80,767	35.8%	-	Per Management
Net Property and Equipment	15,000	6.6%	-	Per Management
Other Long-Term Assets	500	0.2%	-	Per Management
<b>Total *</b>	<b>96,267</b>	<b>42.7%</b>		
<b>Intangible Assets</b>				
Customer Relationships	41,000	18.2%	12.0%	Income
Trademarks	50,100	22.2%	12.0%	Income
<b>Total Intangible Assets (Excluding Goodwill)</b>	<b>91,100</b>	<b>40.4%</b>		
<b>Implied Goodwill *</b>				
Workforce in Place	1,600	0.7%	10.0%	Cost
Implied Residual Goodwill *	36,713	16.3%	15.3%	Remainder
<b>Total</b>	<b>38,313</b>	<b>17.0%</b>		
<b>Total Assets Acquired *</b>	<b>225,680</b>	<b>100.0%</b>	-	Sum Value
Less: Assumed Liabilities (Excluding Debt) *	(50,680)	-22.5%	-	Per Management
Market Value of Invested Capital	175,000	77.5%	11.0%	
Less: Debt Outstanding *	-	0.0%		Per Management
<b>Company Equity Value (Purchase Price)</b>	<b>175,000</b>	<b>77.5%</b>	11.0%	Per Management

# Supplemental Analyses – Rates of Return

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- ◆ Company and intangible WACC rates
  - ▶ Typically a rate is developed independently for the Company, and adjustments are made to this rate to reflect risks inherent to the intangibles
  
- ◆ Transaction Internal Rate of Return
  - ▶ Compared to independently developed WACC to test for reasonableness
  - ▶ Should exclude buyer-specific synergies
  
- ◆ Weighted Average Return on Assets (“WARA”)
  - ▶ Determine goodwill rate required for WARA to equal company rate
  - ▶ Typically goodwill rate expected to be highest rate of return
  
- ◆ Many auditors expect to see a gap of no more than 1% between the WACC and IRR
  - ▶ Otherwise, a detailed explanation is required as to the gap
  - ▶ Sometimes rates will not converge (for example, with a bargain purchase or when too high a price is paid)

# Supplemental Analyses – TAB

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- ◆ TAB represents ability to amortize intangible on a straight line basis over 15 years for tax purposes
- ◆ Can be exceptions – See IRC Section 197 for more details
- ◆ Doesn't matter if acquisition was an equity deal or an asset deal, either way you still apply a TAB to the value of the intangible asset.
- ◆ Remember, 15 year period is based on treatment for tax purposes (even goodwill is amortized for tax purposes)
- ◆ Rules/TABs often vary for acquisitions in foreign countries

# Supplemental Analyses – TAB

- ◆ Factor calculation assuming 12% WACC/40% tax rate:

Year	Discount Period	Mid-Year Discount Factor	Amortization Benefit/Year	Present Value of Amortization
1	0.5000	0.9449	2.6667	2.5198
2	1.5000	0.8437	2.6667	2.2498
3	2.5000	0.7533	2.6667	2.0087
4	3.5000	0.6726	2.6667	1.7935
5	4.5000	0.6005	2.6667	1.6014
6	5.5000	0.5362	2.6667	1.4298
7	6.5000	0.4787	2.6667	1.2766
8	7.5000	0.4274	2.6667	1.1398
9	8.5000	0.3816	2.6667	1.0177
10	9.5000	0.3407	2.6667	0.9087
11	10.5000	0.3042	2.6667	0.8113
12	11.5000	0.2716	2.6667	0.7244
13	12.5000	0.2425	2.6667	0.6468
14	13.5000	0.2165	2.6667	0.5775
15	14.5000	0.1933	2.6667	0.5156
Total:			40.00	19.22
Base Value				100.00
Less: PV of Amortization Benefits				19.22 [1]
				<u>80.78</u> [2]
Sample Tax Amortization Premium				0.2379 [1]/[2]

# Supplemental Analyses - CACs

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- ◆ Represent contribution of other assets to projected cash flow streams
- ◆ Must account for “return on” and “return of” asset
  - ▶ Often the return on is calculated by the appraiser, and the return of is considered to be included in the projected expenses for the intangible/company
  - ▶ Return of represents cost to replenish; return on represents holding costs (another way to think of this: Return on = interest, return of = principal)
  - ▶ Land and working capital always get “return on” charges only as these assets do not deteriorate
- ◆ When royalty rate used to value an asset, often this rate can be used as a proxy for the charge on the asset



# Supplemental Analyses – CACs (cont.)

- ◆ Some guidance is available on calculating charges
  - ▶ Appraisal Foundation Work Group Discussion Draft “The Identification of Contributory Assets and the Calculation of Economic Rents”
    - > Still out in draft with potential for changes
  - ▶ AICPA Practice Aid Series, “Assets Acquired in a Business Combination to Be Used in Research and Development Activities: A Focus on Software, Electronic Devices and Pharmaceutical Industries”



# Here are a few tips

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- ◆ Understanding the deal value drivers critical; do so through
  - ▶ Discussions with management (of acquirer and target)
  - ▶ Review of due diligence documents including board presentations
  - ▶ Review of press releases
  
- ◆ Auditor Reviews
  - ▶ Often the work gets reviewed by a valuation specialist at the accounting firm
  - ▶ It is very easy to become defensive when answering their questions
  - ▶ Try to be cooperative and open-minded, as it allows for the opportunity to learn best practices and is more likely lead to future referrals
  
- ◆ Outline your game plan in advance
  - Doing so will avoid difficulties down the road
  
- ◆ Have as much support as possible for critical inputs, e.g. attrition rates, projected growth/profit margins, etc.

# Case Study

- ◆ Target Company: Cheesy Chips, Inc.
- ◆ Business: Snack Products
- ◆ Acquisition Date: June 30, 2008
- ◆ Type of Transaction: Purchase of Equity
- ◆ Scope of Assignment: Valuation of identifiable intangible assets pursuant to SFAS 141.  
(In this case, all other values estimated by management or provided by other third party appraisers).
- ◆ Company manufactures some product and uses co-packers for some production
- ◆ 30% of sales private label

**CHEESY CHIPS**



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# Thank You!

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- ◆ Please feel free to ask any questions after the session or you can contact me:

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