AICPA Forensic and Valuation Services Section

Understanding and Implementing the Income Approach

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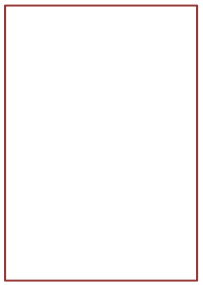
Panelists



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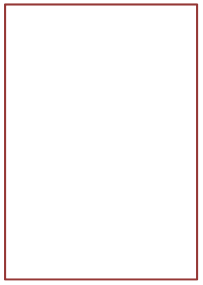

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Focus of Today's Presentation

- **Understanding the theory supporting the income approach**
- **Understanding when to use the income approach**
- **Understanding and implementing the primary methods within the income approach**
  - Discounted Cash Flow (DCF, or "yield capitalization")
  - Capitalized Cash Flow (CCF, or "direct capitalization")
  - Capitalized Excess Cash Flow (CECF)

Key Premises for Today's Presentation

- **Relevant standard of value is fair market value**
  - Price, expressed in terms or cash equivalents
  - Motivating property exchange
  - Between hypothetical willing and able buyer/seller
  - Acting at arm's length in an open and unrestricted market
  - Neither acting under compulsion
  - Both with reasonable knowledge of relevant facts
- **Controlling, or enterprise, basis (i.e., total value of invested capital – debt and equity)**
- **Going-concern premise (i.e., ongoing operating business enterprise)**

Income Approach Theory

- **Premised on the risk-return concept**
- **The value of an asset (i.e., business or ownership interest therein) is based on the returns the asset is expected to provide during the time that it is owned**
- **The income approach is a standard valuation process utilized to convert expected returns to a present value**
  - Requires estimation of expected (i.e., future) returns
  - Requires analysis and estimation of risk inherent in expected returns (i.e., estimation of a risk-adjusted discount rate)
  - Requires analysis and estimation of expected growth in returns

When to use the Income Approach

- Typically relevant when the subject company is expected to generate positive cash flows (based on a history of positive cash flow generation and/or reasonable expectations regarding future profitability/cash flow generation)
- Typically relevant when the subject company has an operating focus rather than an asset-holding focus (e.g., retail grocery chain versus a real estate holding company)
- Typically relevant when the subject company is service-oriented (e.g., accounting, engineering, healthcare)

Income Approach Methods - DCF

Standard steps in the DCF (yield capitalization) method

- Develop projected earnings (management projection)
- Convert projected earnings to expected cash flow
- Estimate the “terminal” value
- Develop a risk-adjusted discount rate
- Discount the discrete cash flows
- Discount the terminal value
- Sum the present value of the discrete cash flows and the terminal cash flow
- Subtract interest-bearing debt (assuming cash flows represent returns available to both debt and equity investors)

Income Approach Methods – DCF, contd.

Standard steps in the DCF method, contd.

- Consider the impact of nonoperating items (e.g., excess working capital, nonoperating assets)
- Adjust to achieve the relevant level of value (e.g., controlling vs. noncontrolling, marketable vs. nonmarketable)

Income Approach Methods – DCF Steps

Develop projected earnings

- Ideally, projections are developed and provided by management
- There is no “typical” or “standard” projection period (e.g., 3-yr., 5-yr., 10-yr.)
- Absent management projections, a long-term projection is sometimes developed in conjunction with management input
- Objective is to incorporate into the DCF analysis projected operating results through a stabilization point (i.e., growth levels to a sustainable, long-term rate by the end of the discrete projection period)
- Implied growth and margins can be tested via industry and/or guideline company comparisons

Income Approach Methods – DCF Steps

Convert projected earnings to expected cash flow

- DCF analysis typically assumes that returns are in the form of cash flow
- Operating earnings, or earnings before interest and taxes (EBIT), represent the starting point, based on the fact that the initial objective is to estimate the enterprise value (total value of debt and equity)
- Converting projected earnings to cash flow typically requires consideration of
  - Taxes (i.e., converting EBIT to debt-free net income)
  - Noncash charges, such as depreciation and amortization
  - Capital investments required to sustain/advance the infrastructure needed to achieve projected results
  - Working capital changes required to achieve projected results

Income Approach Methods – Conversion to Cash Flow

Conversion of Earnings to Cash Flow:						
						Terminal
	Fiscal Years					**Cash Flow**
	2012	**2013**	**2014**	**2015**	**2016**	**2017**
	$000	**$000**	**$000**	**$000**	**$000**	**$000**
EBIT	1,601	1,778	1,955	2,112	2,239	
Tax Rate	40.0%	40.0%	40.0%	40.0%	40.0%	
Tax-affected EBIT (Debt-free Net Income)	961	1,067	1,173	1,267	1,343	
Debt-free Net Income	961	1,067	1,173	1,267	1,343	1,397
Plus: Depreciation and Amortization	470	480	490	490	500	500
Less: Capital Expenditures	(390)	(400)	(430)	(470)	(500)	(500)
Less: Working Capital Requirements	(80)	(70)	(60)	(50)	(40)	(40)
Net Cash Flow	961	1,077	1,173	1,237	1,303	1,357
Months Remaining in Initial Projected Year	12.0					
Adjusted Net Cash Flow	961					

Income Approach Methods – DCF Steps

Estimate the "terminal" value

- The "terminal," or residual, value represents the total cash flow anticipated for all periods subsequent to the discrete projection period
- Estimating the terminal value requires the "normalization" of expected cash flow in the period immediately following the end of the discrete projection period
- The "normalized" level of cash flow anticipated in the period immediately following the end of the discrete projection period, and for all following periods, is converted to a "terminal value," typically through a capitalization/value multiple process

Income Approach Methods – DCF, Calculation of Terminal Value

							Terminal
		Fiscal Years					Cash Flow
		2012	2013	2014	2015	2016	2017
		$000	$000	$000	$000	$000	$000
EBIT		1,601	1,778	1,955	2,112	2,239	
Tax Rate		40.0%	40.0%	40.0%	40.0%	40.0%	
Debt-free Net Income		961	1,067	1,173	1,267	1,343	1,397
Depreciation and Amortization		470	480	490	490	500	500
Capital Expenditures		(390)	(400)	(430)	(470)	(500)	(500)
Working Capital Requirements		(80)	(70)	(60)	(50)	(40)	(40)
Net Cash Flow		961	1,077	1,173	1,237	1,303	1,357
Calculation of Terminal Value:							
Fiscal 2017 Net Cash Flow	1,357						
Capitalization Multiple	10.0						
Terminal Value	13,569						
Present Value Factor @ 14%	0.5545						
Present Value of Terminal Cash Flow		7,524					

Income Approach Methods – DCF Steps

Develop a risk-adjusted discount rate

- After-tax cash flows available to both debt and equity investors should be discounted to a present value by a risk-adjusted required rate of return (i.e., the weighted-average cost of capital, or WACC)

$$WACC = (k_e \times W_e) + [k_d (1-t) \times W_d]$$

- The WACC requires estimation of the cost of equity capital (k_e) and the cost of debt capital (k_d) for the subject company
- The estimated k_e and k_d are multiplied by each component's relative weight in the long-term capital structure for the subject company (i.e., W_e and W_d, respectively)
- The K_d is tax-affected at the subject company's effective tax rate (t)

Income Approach Methods – WACC Calculation

Weighted-average Cost of Capital Calculation	
Cost of Equity Capital:	
Total Cost of Equity	**19.0%**
Cost of Debt Capital:	
Average Cost of Debt	3.3%
Income Tax Rate	40%
After-tax Cost of Debt	2.0%
Capital Structure:	
Equity / Invested Capital	70.0%
Debt / Invested Capital	30.0%
Total Invested Capital	100.0%
Weighted Average Cost of Capital (rounded)	**14.0%**
Less: Long-term Growth Rate	4.0%
Equals: Capitalization Rate	10.0%

Cost of Equity Capital Calculation		
Method #1		
Cost of Equity Capital: (Capital Asset Pricing Model)		
Risk-free Rate of Return		3.1%
Long-term Equity Risk Premium	6.7%	
Beta	0.85	
Beta-adjusted Equity Risk Premium		5.7%
Small Stock Risk Premium (*Ibbotson*)		4.1%
Company-specific Risk Premium		4.5%
Total Cost of Equity		17.4%
Method #2		
Cost of Equity Capital: (Build-up Model)		
Risk-free Rate of Return		3.1%
Long-term Equity Risk Premium		6.7%
Small Stock Risk Premium (*Duff & Phelps*)		8.1%
Company-specific Risk Premium		4.5%
Total Cost of Equity		21.4%
Concluded Cost of Equity Capital (rounded)		**19.0%**

Income Approach Methods – DCF Steps

Discount the discrete cash flows

- Each discrete period cash flow is discounted to a present value based on the estimated WACC and the number of periods the cash flow is anticipated to be received in the future
- Barring unusual circumstances, the cash flows typically can be assumed to be realized evenly throughout each discrete period
- Such an assumption warrants the application of the "midyear" discounting convention to the anticipated discrete cash flows:

$$PV = \frac{CF_1}{(1+k)^{0.5}} + \frac{CF_2}{(1+k)^{1.5}} + \frac{CF_3}{(1+k)^{2.5}} + \frac{CF_4}{(1+k)^{3.5}} + \frac{CF_5}{(1+k)^{4.5}}$$

CF = anticipated cash flow (i.e., after-tax cash available to debt/equity investors anticipated over a 5-year projection)
k = estimated discount rate (i.e., WACC)

Income Approach Methods – DCF, Present Value of Discrete Cash Flows

	Fiscal Years					Terminal Cash Flow
	2012	2013	2014	2015	2016	2017
Present Value of Discrete Net Cash Flows:	**$000**	**$000**	**$000**	**$000**	**$000**	**$000**
EBIT	1,601	1,778	1,955	2,112	2,239	
Tax Rate	40.0%	40.0%	40.0%	40.0%	40.0%	
Tax-affected EBIT (Debt-free Net Income)	961	1,067	1,173	1,267	1,343	
Debt-free Net Income	961	1,067	1,173	1,267	1,343	1,397
Depreciation and Amortization	470	480	490	490	500	500
Capital Expenditures	(390)	(400)	(430)	(470)	(500)	(500)
Working Capital Requirements	(80)	(70)	(60)	(50)	(40)	(40)
Net Cash Flow	961	1,077	1,173	1,237	1,303	1,357
Months Remaining in Initial Projected Year	12.0					
Adjusted Net Cash Flow	961					
Discounting Periods	0.5000	1.5000	2.5000	3.5000	4.5000	
Present Value Factor @ 14%	0.9366	0.8216	0.7207	0.6322	0.5545	
Present Value Interim NCF	900	884	846	782	723	
Total Present Value of Discrete Cash Flows	$ 4,135					

Income Approach Methods – DCF Steps

Discount the terminal value

- The terminal cash flow is discounted to a present value based on the estimated WACC and the number of periods the terminal cash flow is anticipated to be received in the future
- The terminal value is assumed to represent the *beginning of the period* value of total anticipated cash flow for all periods following the end of the discrete projection period
- Therefore, the terminal value typically is discounted for the same number of periods as the last cash flow in the discrete projection period:

$$PV = \frac{TCF}{(1+k)^{4.5}}$$

TCF = terminal cash flow (i.e., anticipated total after-tax cash available to debt/equity investors after 5-year projection)
k = estimated discount rate (i.e., WACC)

Income Approach Methods – DCF, Present Value of Terminal Cash Flow

Present Value of Terminal Cash Flow:		
	($000)	
Fiscal 2017 Net Cash Flow	1,357	
Capitalization Multiple	10.0	
Terminal Value	13,569	
Present Value Factor @ 14%	0.5545	
Present Value of Terminal Cash Flow		7,524

Income Approach Methods – DCF Steps

- **Sum the present value of discrete cash flows and the terminal cash flow**
  - Summing the combined present values of each anticipated cash flow over the discrete projection period, and the present value of the terminal cash flow, produces the total enterprise value of the subject company (i.e., market value of the invested capital – MVIC)
  - The indicated enterprise value represents the going-concern value of all debt and equity capital relating to continuing business operations (i.e., assumed to represent capital financing all long-term assets, including intangible assets)

Income Approach Methods – DCF, Market Value of Invested Capital

Enterprise Value Summary:	($000)
Value of Discrete Cash Flows	4,135
Value of Terminal Cash Flow	7,524
Enterprise Value (i.e., MVIC)	11,659

Income Approach Methods – DCF Steps

Subtract interest-bearing debt

- To convert the indicated enterprise value to equity value, all interest-bearing debt is subtracted from MVIC
- The resulting conclusion represents the controlling, equity value of the subject company, prior to adjustment for the net impact of nonoperating assets/liabilities

Income Approach Methods – DCF, Market Value of Operating Equity Capital

Operating Equity Value Summary:	
	($000)
Enterprise Value	11,659
Less: Interest-bearing Debt	(4,000)
Controlling, Operating Equity Value	7,659

Income Approach Methods – DCF Steps

Consider the impact of nonoperating items

- The initial indication of equity value is assumed to represent a controlling equity value relating to normal business operations (based on the fact that total invested capital was estimated, with interest-bearing debt deducted)

- The net impact of nonoperating assets/liabilities must be considered to arrive at the total equity value
  - Examples of nonoperating assets might include excess working capital, nonessential real estate, investments
  - Examples of nonoperating liabilities might include debt on nonoperating assets, related party debt

Income Approach Methods – DCF, Impact of Nonoperating Assets

Total Equity Value Summary:	
	($000)
Controlling, Operating Equity Value	7,659
Plus: Excess Cash & Investments	2,000
Controlling, Total Equity Value, rounded	9,660

Income Approach Methods – DCF Model

Present Value of Discrete Net Cash Flows:		Fiscal Years 2012 $000	2013 $000	2014 $000	2015 $000	2016 $000	Terminal Cash Flow 2017 $000
EBIT		1,601	1,778	1,955	2,112	2,239	
Tax Rate		40.0%	40.0%	40.0%	40.0%	40.0%	
Tax-affected EBIT (Debt-free Net Income)		961	1,067	1,173	1,267	1,343	
Debt-free Net Income		961	1,067	1,173	1,267	1,343	1,397
Depreciation and Amortization		470	480	490	490	500	500
Capital Expenditures		(390)	(400)	(430)	(470)	(500)	(500)
Working Capital Requirements		(80)	(70)	(60)	(50)	(40)	(40)
Net Cash Flow		961	1,077	1,173	1,237	1,303	1,357
Months Remaining in Initial Projected Year		12.0					
Adjusted Net Cash Flow		961					
Discounting Periods		0.5000	1.5000	2.5000	3.5000	4.5000	
Present Value Factor @ 14%		0.9366	0.8216	0.7207	0.6322	0.5545	
Present Value Interim NCF		900	884	846	782	723	
Total Present Value of Discrete Cash Flows		$ 4,135					

Present Value of Terminal Cash Flow:		
Fiscal 2017 Net Cash Flow	1,357	
Capitalization Multiple [h]	10.0	
Terminal Value	13,569	
Present Value Factor @ 14%	0.5545	
Present Value of Terminal Value	7,524	
Present Value of Terminal Cash Flow		$ 7,524

Value Summary:	
Value of Discrete Cash Flows	$ 4,135
Value of Terminal Cash Flow	7,524
Enterprise Value	11,659
Less: Interest-bearing Debt	(4,000)
Plus: Excess Cash & Investments	2,000
Controlling, Total Equity Value , rounded	$ 9,660

Discounted Cash Flow Sensitivity Analysis:

		Weighted Average Cost of Capital				
		12.0%	13.0%	14.0%	15.0%	16.0%
	2.0%	10,300	9,200	8,280	7,500	6,840
LT	3.0%	11,280	9,970	8,910	8,020	7,270
Growth	4.0%	12,500	10,920	9,660	8,630	7,770
	5.0%	14,070	12,110	10,580	9,360	8,360
	6.0%	16,160	13,630	11,730	10,250	9,060

Income Approach Methods – DCF Steps

Adjust to achieve the relevant level of value

- The final indication of value is assumed to represent a controlling, total equity value (based on the fact that total invested capital was estimated, with interest-bearing debt deducted, and resulting equity was adjusted to reflect the net impact of nonoperating assets/liabilities)

- If the subject interest is a noncontrolling/nonmarketable equity position, appropriate levels of discount for lack of control and lack of marketability should be applied to achieve the appropriate definition of value with regard to the subject interest

Income Approach Methods – Capitalized Cash Flow (CCF)

Standard steps in the CCF method (direct capitalization)

- Develop a “normalized” level of expected earnings
- Convert normalized earnings to expected cash flow
- Develop a risk-adjusted discount rate
- Convert the risk-adjusted discount rate to a direct capitalization rate
- Capitalize expected cash flow
- Subtract interest-bearing debt (assuming cash flows represent returns available to both debt and equity investors)
- Consider the impact of nonoperating items (e.g., excess working capital, nonoperating assets)
- Adjust to achieve the relevant level of value (e.g., controlling vs. noncontrolling, marketable vs. nonmarketable)

Income Approach Methods – CCF Steps

Develop a normalized level of expected earnings

- Expected earnings should reflect “normal” operating results, excluding the impact of material, nonrecurring and/or unusual items
- Expected earnings typically are estimated based on consideration of
  - The fundamental position of the subject company
  - Historical earnings (e.g., latest 12 months, 3-yr., or 5-yr., averages or weighted averages)
  - Expectations regarding the performance of the relevant industry
  - Expectations regarding the performance of the general economy and the regional economy

Income Approach Methods – CCF Normalized Earnings

	Calendar Years					5-Year
	2007	2006	2005	2004	2003	Wtg. Average
	$000	$000	$000	$000	$000	$000
Revenue	5,936	5,570	3,868	2,869	4,731	4,935
Reported Pretax Income	1,954	1,887	1,023	323	1,916	1,530
Adjustments to Pretax Income:						
Interest and Dividend Income	(221)	(146)	(59)	(19)	(68)	
Legal and Professional Fees	99	-	-	-	-	
Contingent Liability Related to Lawsuit	50	-	-	-	-	
Executive Compensation	700	697	700	697	705	
Normalized Executive Compensation	(225)	(220)	(192)	(188)	(194)	
Total Adjustments	403	331	448	491	443	407
Adjusted Pretax Income	2,357	2,218	1,471	814	2,358	1,937
(1 - tax rate)	0.60	0.60	0.60	0.60	0.60	
Adjusted Net Income	1,414	1,331	883	488	1,415	1,162
Market Value of Invested Capital Fundamentals:						
Adjusted Pretax Income	2,357	2,218	1,471	814	2,358	
Plus Interest Expense	180	240	300	360	420	
Equals Earnings before Interest and Taxes (EBIT)	2,537	2,458	1,771	1,174	2,778	2,197
(1 - tax rate)	0.60	0.60	0.60	0.60	0.60	
Equals Debt-Free Net Income (DFNI)	1,522	1,475	1,063	704	1,667	1,318
Earnings before Interest and Taxes (EBIT)	2,537	2,458	1,771	1,174	2,778	
Plus Depreciation/Amortization	468	496	377	317	305	
Equals Earnings before Interest, Taxes, Depr. & Amort. (EBITDA)	3,004	2,954	2,148	1,490	3,083	2,623
Debt-Free Net Income (DFNI)	1,522	1,475	1,063	704	1,667	
Plus Depreciation/Amortization	468	496	377	317	305	
Equals Debt-Free Cash Flow (DFCF)	1,990	1,971	1,440	1,021	1,972	1,744

Income Approach Methods – CCF Steps

Convert normalized earnings to expected cash flow

- Net cash flow (NCF) is defined as follows:

Net Income	
Plus:	Depreciation and Amortization Expense
Minus:	Capital Expenditures
Minus:	Working Capital Requirements
Equals:	Net Cash Flow

Net income = tax-affected EBIT, or debt-free income, as it represents earnings available to debt and equity investors

Adjustments for depreciation and amortization expense, capital expenditures, and working capital requirements are “normalized” to the extent that they reflect the amounts required to sustain expected operations

If cash flow to equity is the fundamental incorporated in the CCF method, net income is represented by income after interest expense and taxes, and adjustments to cash flow include projected changes in interest-bearing debt

Income Approach Methods – CCF Normalized CF

			$000
Alternative Estimates of Adjusted, Debt-free Net Income:			
	Latest Fiscal Year-end (2007)		1,522
	3-Yr. Average (2005-07)		1,353
	3-Yr. Weighted Average (2005-07)		1,430
	5-Yr. Average (2003-07)		1,286
	5-Yr. Weighted Average (2003-07)		1,318
Calculation of Normalized, Long-term Debt-free Net Income:			
	Baseline Debt-free Net Income (3-Yr. Weighted Average)		1,430
	Increased by Estimated Long-term Growth Rate	4.0%	
	Normalized, Long-term Debt-free Net Income		1,487
Adjustments to Convert Debt-free Net Income to Cash Flow:			
	Plus: Depreciation Expense		468
	Less: Capital Expenditures		(468)
	Less: Increase in Working Capital (15% of Revenue Growth)		(36)
Total Adjustments			(36)
Normalized, Long-term Expected Cash Flow			1,451

Income Approach Methods – CCF Steps

Develop a risk-adjusted discount rate

- Process is the same as developing the discount rate applicable in the DCF method
- If cash flow to equity is the fundamental incorporated in the CCF method, the discount rate is represented by the cost of equity rather than the WACC

Income Approach Methods – CCF Steps

Convert the discount rate to a direct capitalization rate

- The discount rate is converted to a capitalization rate by deducting estimated long-term growth in cash flow

Capitalization Rate = WACC – g

or

Capitalization Multiple = 1/(WACC – g)

- Growth (g) should represent an achievable, long-term (i.e., assumed to be 20-plus years) growth rate in earnings that is supported by projected capital investments

Income Approach Methods – CCF Steps

Capitalized expected cash flow

- Capitalized expected cash flow in the CCF method represents the "terminal value" calculation in the DCF method:

$$\frac{NCF}{(WACC - g)}$$

- It is important to note that the CCF method is a reasonable replacement for the DCF method when there is little variability anticipated in the earnings/cash flow of the subject company for some period of time into the future (i.e., a future stream of expected cash flow is converted to a "single-period" estimate of cash flow)

Income Approach Methods – CCF Value Calculation

		$000
Normalized, Long-term Cash Flow		1,451
Estimate of Market Value of Invested Capital		
Estimated WACC Capitalization Rate	10.0%	
Implied Capitalization Multiple (i.e., 1 ÷ Cap Rate)	10.0	
Indicated Market Value of Invested Capital (CF ÷ Cap Rate)		14,510

Income Approach Methods – CCF Steps

Subtract interest-bearing debt

- To convert the indicated enterprise value to equity value, all interest-bearing debt is subtracted from MVIC
- The resulting conclusion represents the controlling, equity value of the subject company, prior to adjustment for the net impact of nonoperating assets/liabilities

Income Approach Methods – CCF, Operating Equity Value Calculation

			$000
Indicated Market Value of Invested Capital			14,510
Less: Interest-bearing Debt			(4,000)
Controlling, Operating Equity Value			10,510

Income Approach Methods – CCF Steps

Consider the impact of nonoperating items

- The initial indication of equity value is assumed to represent a controlling equity value relating to normal business operations (based on the fact that total invested capital was estimated, with interest-bearing debt deducted)

- The net impact of nonoperating assets/liabilities must be considered to arrive at the total equity value
  - Examples of nonoperating assets might include excess working capital, nonessential real estate, investments
  - Examples of nonoperating liabilities might include debt on nonoperating assets, related party debt

Income Approach Methods – CCF, Impact of Nonoperating Assets

	$000
Indicated Controlling, Operating Equity Value	10,510
Add: Excess Cash and Investments	2,000
Controlling, Total Equity Value, rounded	12,500

Income Approach Methods – CCF Steps

Adjust to achieve the relevant level of value

- The final indication of value is assumed to represent a controlling, total equity value (based on the fact that total invested capital was estimated, with interest-bearing debt deducted, and resulting equity was adjusted to reflect the net impact of nonoperating assets/liabilities)

- If the subject interest is a noncontrolling/nonmarketable equity position, appropriate levels of discount for lack of control and lack of marketability should be applied to achieve the appropriate definition of value with regard to the subject interest

Income Approach Methods – Capitalized Excess Cash Flow (CECF)

Standard steps in the CECF method (ARM 34/Rev. Rul. 68-609)

- Estimate the fair market value of the subject company's net tangible assets (total tangible assets less current liabilities)
- Estimate a normalized level of expected economic earnings for the subject company
- Estimate a required rate of return on the subject company's net tangible assets
- Multiply the fair market value of the subject company's net tangible assets by the estimated required rate of return to estimate a normal return on net tangible assets
- Subtract the normal return on net assets from normalized cash flow – resulting in the indicated level of "excess" cash flow (ECF)

Income Approach Methods – CECF, contd.

Standard steps in the CECF method, contd.

- Estimate a risk-adjusted, required rate of return that considers the specific operating characteristics of the subject company as pertaining to earnings attributable to intangible assets
- Capitalize the indicated level of ECF by the intangible asset-based, risk-adjusted required rate of return
- Add the value of the subject company's net tangible assets to the indicated value of the subject company's intangible assets
- Subtract interest-bearing debt (assuming cash flows represent returns available to both debt and equity investors)
- Adjust to achieve the relevant level of value (e.g., controlling vs. noncontrolling, marketable vs. nonmarketable)

Income Approach Methods – CECF Steps

- **Estimate the fair market value of the subject company's net tangible assets**
  - The balance sheet of the subject company is adjusted to a fair market value basis as of the valuation date, ideally based on appraised asset values
  - The fair market value balance sheet should also reflect liabilities at their estimated fair market value
  - Because the objective is to estimate the enterprise value, or MVIC, of the subject company, "net tangible assets" are assumed to represent total tangible assets – at fair market value – less noninterest-bearing current liabilities

Income Approach Methods – CECF Steps

- **Estimate a normalized level of expected economic earnings for the subject company**
  - Normalized expected economic earnings typically are represented by the level of long-term (i.e., 20-plus years) expected economic earnings (i.e., NCF)
  - A common valuation objective – i.e., estimation of MVIC – allows the consistent use of NCF, as estimated for the purpose of completing the CCF method

Income Approach Methods – CECF Steps

Estimate a required rate of return on the subject company's net tangible assets

- The required rate of return on net tangible assets generally should reflect a "weighted" return on the subject company's tangible asset base:

Tangible Asset Component	Balance ($000)	Weighted Balance	Required Rate Of Return	Weighted Average Return on Net Tangible Assets
Current Assets	4,000	25.0%	4.0%	1.0%
Noncurrent Assets	12,000	75.0%	8.0%	6.0%
Total	16,000			7.0%
After-tax Return, rounded*				4.0%
*40% tax rate assumed				

Income Approach Methods – CECF Steps

- **Estimate a normal return on the subject company's net tangible assets:**

FMV Net Tangible Assets ($000)	Weighted Average Return on Net Tangible Assets	Required Return on Net Tangible Assets ($000)
16,000	4.0%	640

Income Approach Methods – CECF Steps

Estimate “excess” cash flow

- ECF represents normalized cash flow in excess of the estimated required return on net tangible assets
- Because ECF represents returns above and beyond normal returns on net tangible assets, ECF is assumed to be attributable to “intangible” assets
- The capitalization of ECF, therefore, is assumed to produce an indication of value with regard to total intangible assets of the subject company

Income Approach Methods – Calculation of ECF

Normalized Cash Flow ($000)	Required Return on Net Tangible Assets ($000)	Indicated ECF ($000)
1,620*	640	980

*Includes add-back of $169k in interest and investment returns to normalized CF estimated in the CCF method, representing the 3-year weighted-average return on cash and investments included in the FMV balance sheet.

Income Approach Methods – CECF Steps

Estimate a risk-adjusted, excess cash flow capitalization rate

- The capitalization rate relevant for ECF represents the highest level of risk with regard to the components of the subject company's asset base
- No reference source exists for the purpose of estimating the ECF capitalization rate
- The ECF capitalization rate typically would be assumed to be *at least equal to, but likely greater than*, the required rate of return on an equity investment in the subject company
- Factors to consider include
  - The subject company's tenure, reputation and market position
  - The historical earnings trend of the subject company
  - The subject company's performance relative to its peers
  - Expected industry and economic conditions

Income Approach Methods – CECF Steps

Capitalize excess cash flow by the estimated capitalization rate

- Capitalize the indicated level of excess cash flow by the intangible asset-based, risk-adjusted required rate of return

$$\frac{ECF}{(Cap\ Rate)}$$

Indicated ECF ($000)		ECF Capitalization Rate	Indicated Intangible Asset Value, rounded ($000)
980	÷	25.0%	4,000

Income Approach Methods – CECF Steps

- **Add the indicated intangible asset value to the subject company's net tangible assets**
  - Capitalized ECF produces an indication of the total intangible asset value for the subject company
  - Because the indicated total intangible asset value was not reflected on the FMV balance sheet, adding this "unrecorded" intangible asset value to the FMV of net tangible assets results in a direct increase in the equity value of the subject company
  - Summing the net tangible asset value and indicated total intangible asset value produces the MVIC for the subject company

Income Approach Methods – CECF, Value Calculation

Value Component	Estimated FMV ($000)
Net Tangible Assets	16,000
Indicated Intangible Asset Value	4,000
Indicated MVIC*	20,000

*Represents MVIC based on the fact that net tangible assets represent the FMV of total tangible assets, less current liabilities (excluding interest-bearing debt).

Income Approach Methods – CECF Steps

Subtract interest-bearing debt

- To convert the indicated enterprise value to equity value, all interest-bearing debt is subtracted from MVIC
- The resulting conclusion represents the controlling, equity value of the subject company, prior to adjustment for the net impact of nonoperating assets/liabilities

Income Approach Methods – CECF, Equity Value Summary

Value Component	Estimated FMV ($000)
Net Tangible Assets	16,000
Indicated Intangible Asset Value	4,000
Indicated MVIC*	20,000
Less: Interest-bearing Debt	(4,000)
Controlling, Total Equity Value	16,000

*Represents MVIC based on the fact that net tangible assets represent the FMV of total tangible assets, less current liabilities (excluding interest-bearing debt).

Income Approach Methods – CECF Model

Value Component			Estimated FMV ($000)
Net Tangible Assets			16,000
Normalized, Expected Cash Flow	1,620		
Less: Cash Flow Attributable to Net Tangible Assets ($16,000 x 4%)	*(640)*		
Estimated "Excess" Cash Flow	980		
Estimated Excess Cash Flow Capitalization Rate	25%		
Indicated Intangible Asset Value			4,000
Indicated Business Enterprise Value (i.e., MVIC)*			20,000
Less: Interest-bearing Debt			*(4,000)*
Indicated Controlling, Total Equity Value			16,000

*Represents MVIC based on the fact that net tangible assets represent the FMV of total tangible assets, less current liabilities (excluding interest-bearing debt).

Income Approach Methods – CECF Steps

Adjust to achieve the relevant level of value

- The final indication of value is assumed to represent a controlling, total equity value (based on the fact that total invested capital was estimated, with interest-bearing debt deducted, and the fair market value balance sheet was adjusted to reflect the net impact of nonoperating assets/liabilities)

- If the subject interest is a noncontrolling/nonmarketable equity position, appropriate levels of discount for lack of control and lack of marketability should be applied to achieve the appropriate definition of value with regard to the subject interest

Questions

Relevant Resources

Sources of Equity Risk Premium Data

- *Ibbotson SBBI 2011 Valuation Yearbook: Market Results for Stocks, Bonds, Bills, and Inflation 1926–2010* (Chicago: Morningstar, 2011). This annual book provides rates of return and historical equity risk premium data (including industry premiums and size premiums. The “valuation” edition provides data specific to business valuations.
- *Ibbotson SBBI 2011 Classic Yearbook: Market Results for Stocks, Bonds, Bills, and Inflation 1926–2010* (Chicago: Morningstar, 2011). This annual book provides rates of return and historical equity risk premium data (including industry premiums and size premiums. The “classic” edition provides data for investment professionals in general.
- *Risk Premium Report 2011* (Chicago: Duff & Phelps, 2011). This annual publication provides equity risk premium data over the period 1963 through 2010. It includes a size study using eight different measures of size.

Relevant Resources, contd.

Sources of Betas

- Bloomberg, default betas are based on two years of weekly data, measured against the S&P 500. The measurement period, periodicity, and market proxy can be changed. Bloomberg provides both raw and adjusted betas (0.67 x unadjusted beta) + (0.33 x 1.0).
- Compustat provides five-year, monthly, unadjusted betas, measured against the S&P 500.
- Capital IQ default betas are based on five years of weekly data, measured against the S&P. The market proxy can be changed and the betas can be calculated on monthly data. The betas are unadjusted.
- *ValueLine*, www.valueline.com, provides five-year, weekly adjusted betas, measured against the NYSE Composite Series. The adjustment formula is 0.35 + (0.67 x unadjusted beta).
- *Ibbotson Cost of Capital 2011 Yearbook* (Chicago: Morningstar, 2011) provides industry betas on a quarterly basis.
- Barra betas, www.msci.com, provide predicted betas (forward-looking).

Relevant Resources, contd.

Sources of Guideline Publicly Traded Companies

- Capital IQ database contains information on over 80,000 companies (both public and private) globally. Guideline company searches can be performed using hundreds of different parameters. Company financial information is provided and users can “click through” straight to the public filings (10ks, etc.).
- Mergent database contains information on over 25,000 companies globally. Guideline company searches can be performed using dozens of different parameters.
- Bloomberg database contains information on over 400,000 equities globally. Guideline company searches can be performed using hundreds of different parameters. Company financial information is available back 20 years and SEC filings can be retrieved.
- Morningstar Document Research database contains information on all companies that file documents on the SEC EDGAR database. Guideline company searches can be performed using dozens of different parameters. Company SEC filings can easily be retrieved.

Relevant Resources, contd.

Sources of Earnings and Growth Estimates

- Reuters consensus estimates are available through several different data aggregators (e.g., Capital IQ, Alacra). Estimates of revenue, EBIT, EBITDA, net income, earnings per share, and other fundamentals are available, both on a current basis and on a historical basis. Long-term growth estimates are also available.
- Bloomberg consensus estimates of revenue, EBIT, EBITDA, net income, earnings per share, and other fundamentals are available on a current basis only. Current long-term growth estimates are also available.
- *ValueLine* provides estimates of sales, operating margin, and net income (as well as several other fundamentals). The *ValueLine* reports are issued quarterly.

Relevant Resources, contd.

- **Other Sources (e.g. costs of capital, capital structure, working capital)**
  - *Ibbotson Cost of Capital 2011 Yearbook* (Chicago: Morningstar, 2011), contains various data by SIC code. Data includes capital structure, weighted average cost of capital, industry growth rates, and industry betas. Quarterly updates are also available at ccrc.morningstar.com.
  - *Annual Statement Studies: Financial Ratio Benchmarks 2010-2011* (Philadelphia: The Risk Management Association, 2010) contains widely used ratios, such as working capital turnover, for over 700 industries. The data is compiled from financial institutions' borrowers financial statements, and it is organized by NAICS codes.
  - *IRS Corporate Financial Ratios* (Libertyville, IL: Schonfeld & Associates, 2011) contains commonly used industry ratios, such as working capital turnover, organized by NAICS codes. The data is compiled from data on over 145,000 companies by the Internal Revenue Service. There is some time lag in this publication. The 2011 edition contains data through June 2009.
  - Federal Reserve, federalreserve.gov, publishes various interest rates, including commercial paper, Treasury bonds, prime rate, and corporate bond rate averages. Both current and historical data are available on a daily, weekly, monthly, and annual basis. The risk-free rate (generally, 20-year Treasury bonds) can be found here.

Relevant Resources, contd.

International Cost of Capital Data

- *International Cost of Capital Report 2011* (Chicago: Morningstar, annual), provides international cost of capital data, including country risk ratings, country spreads, and international capital asset pricing model for over 170 countries.
- *International Equity Risk Premia Report 2011* (Chicago: Morningstar, annual) provides both short-term and long-term equity risk premiums for 16 different countries. Data are provided in both local currency and U.S. dollars.

For additional information, please visit:

- **AICPA Forensic and Valuation Services (FVS) Section**
  www.aicpa.org/fvs
- **Accredited in Business Valuation Credential Overview**
  www.aicpa.org/abv
- **Certified in Financial Forensics (CFF) Credential Overview**
  www.aicpa.org/cff

FVS Resources

- **AICPA Forensic and Valuation Services**

  www.aicpa.org/fvs
- **FVS Practice Aids and Other Non-authoritative Guidance - (members only)**

  www.aicpa.org/fvspracticeaids
- **FVS CPE & Events**

  www.aicpa.org/fvs_cpe_events

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- **AICPA National Business Valuation Conference**
  - November 6-8, 2011 in Las Vegas, NV

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Thank You!