

Valuation of Oil and Gas Entities

Beyond the Reserve Report

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ADAMY VALUATION

Presenters



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Agenda

- ❑ Acceptable Valuation Methodologies
- ❑ Income Approach with the Reserve Report
- ❑ Other Balance Sheet Considerations
- ❑ Discounts and When They Apply
- ❑ IRS Challenges
- ❑ Adequate Disclosure Requirements
- ❑ What to Look For in an Appraiser

Acceptable Valuation Methodologies

☐ Market Approach

- Public Comparisons & Closed Public or Private Transactions
- Apply Multiples (EV / Proved Reserves, EV / Production)

☐ Income Approach

- Discounted Cash Flow (“DCF”)
- Capitalization of Earnings Method

☐ Asset-Based Approach

- Sum of the Parts
- Liquidation Analysis

Market Approach Difficulties

Reserve Characteristics

- Oil vs. Gas Mix
- Daily Production Bbl / Mcf - Boe per day
- Proved Reserves & Composition (PDP / PDNP / PUD)
- Decline Curves

Market Factors

- Market Conditions at Time of Transaction (Futures Pricing)
- WTI & Henry Hub Differentials
- Publicly-Traded vs. Privately Held

Financial Characteristics

- Profit Margins
- Growth vs. Decline
- Well IRRs
- Operator vs. Non-Operator
- Capex Requirements

Reliability of Data

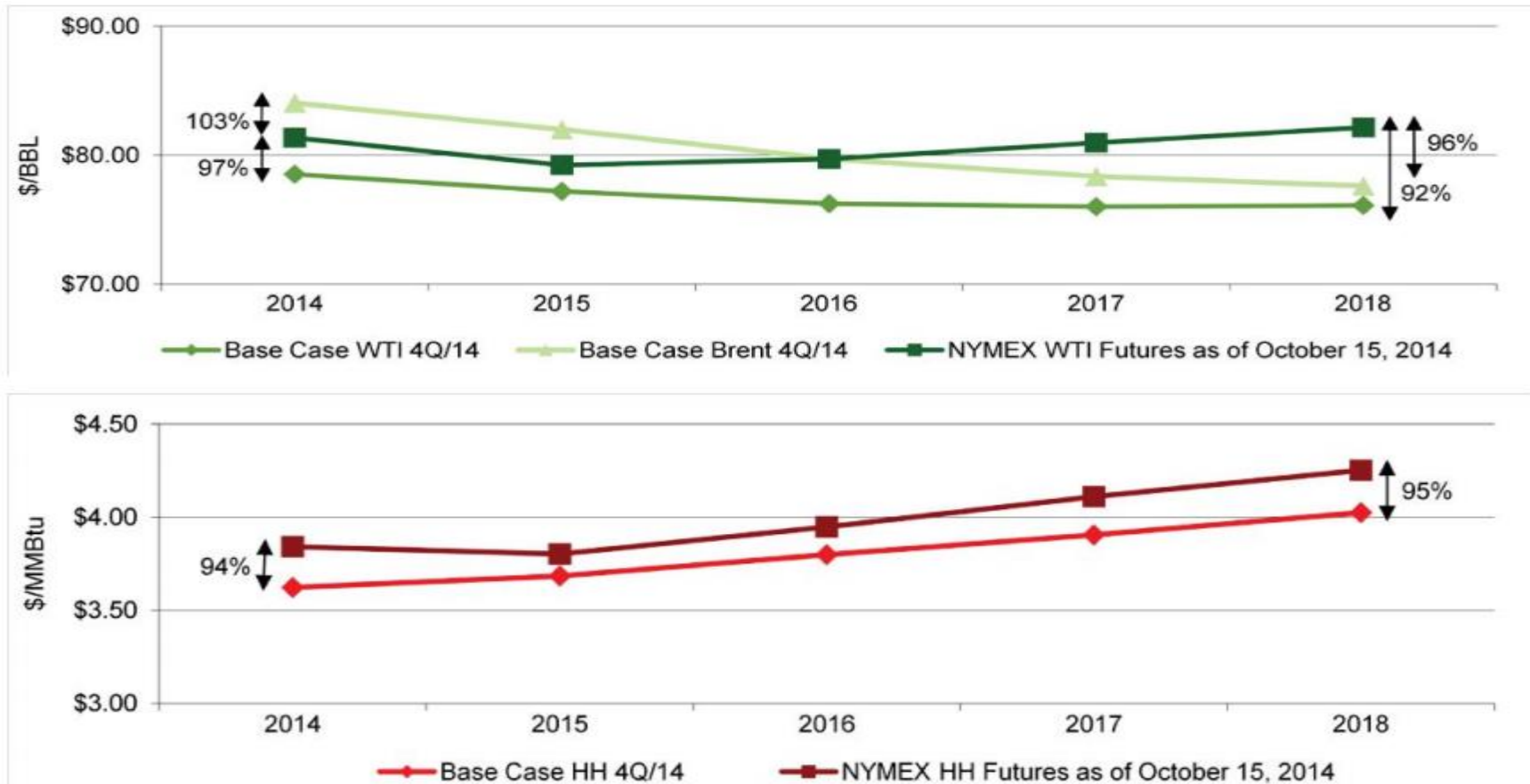
- Reliable Production History
- Reserve Estimate Quality
- Private transactions, proprietary databases, self-reported
- Transaction structure

Income Approach

- ❑ DCF Viewed as More “Scientific”
- ❑ Analysis Specific to Actual Reserves & Actual Estimated Cash Flow
- ❑ Based on Actual Decline Curve History / Estimates
- ❑ Closer to “PV-10” & “PV-15” Analyses Operators Have Seen Before Income Approach
- ❑ Two Main Inputs: Cash Flow & Discount Rate

Income Approach – Futures Pricing

NYMEX Strip vs. Energy Lender Surveys



Income Approach – Reserve Estimates

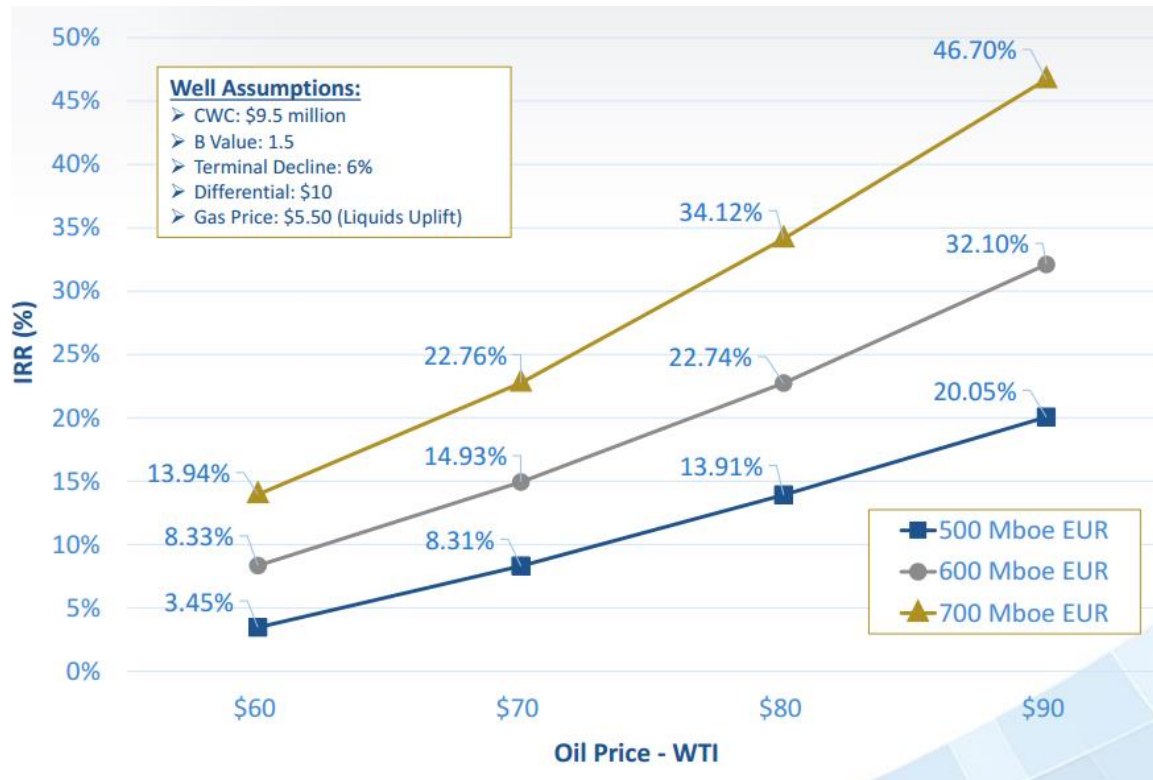
Proved Reserves as of 12/31/2013

<i>(\$ in millions)</i>	Oil (MMBbls)	Gas (Bcf)	Total (MMBoe)
P1 Category			
PDP	26.2	16.5	28.9
PDNP	5.9	4.1	6.6
PUD	43.8	29.5	48.7
Total Proved Reserves	75.8	50.2	84.2

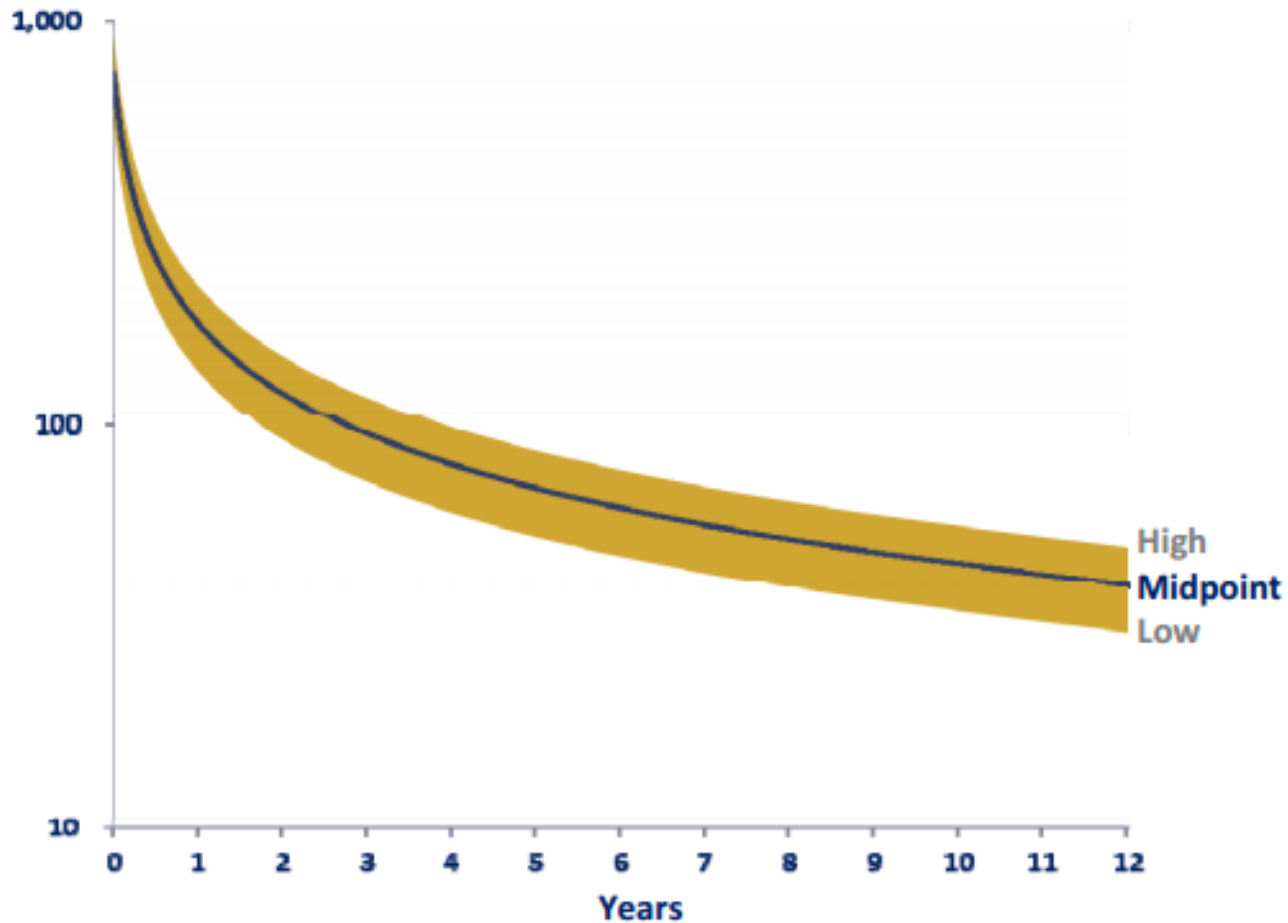


Income Approach – Reserve Estimates

- ❑ Reserve Report Assumes Wells are “Economic”
- ❑ “Economic” Determination is Company Specific



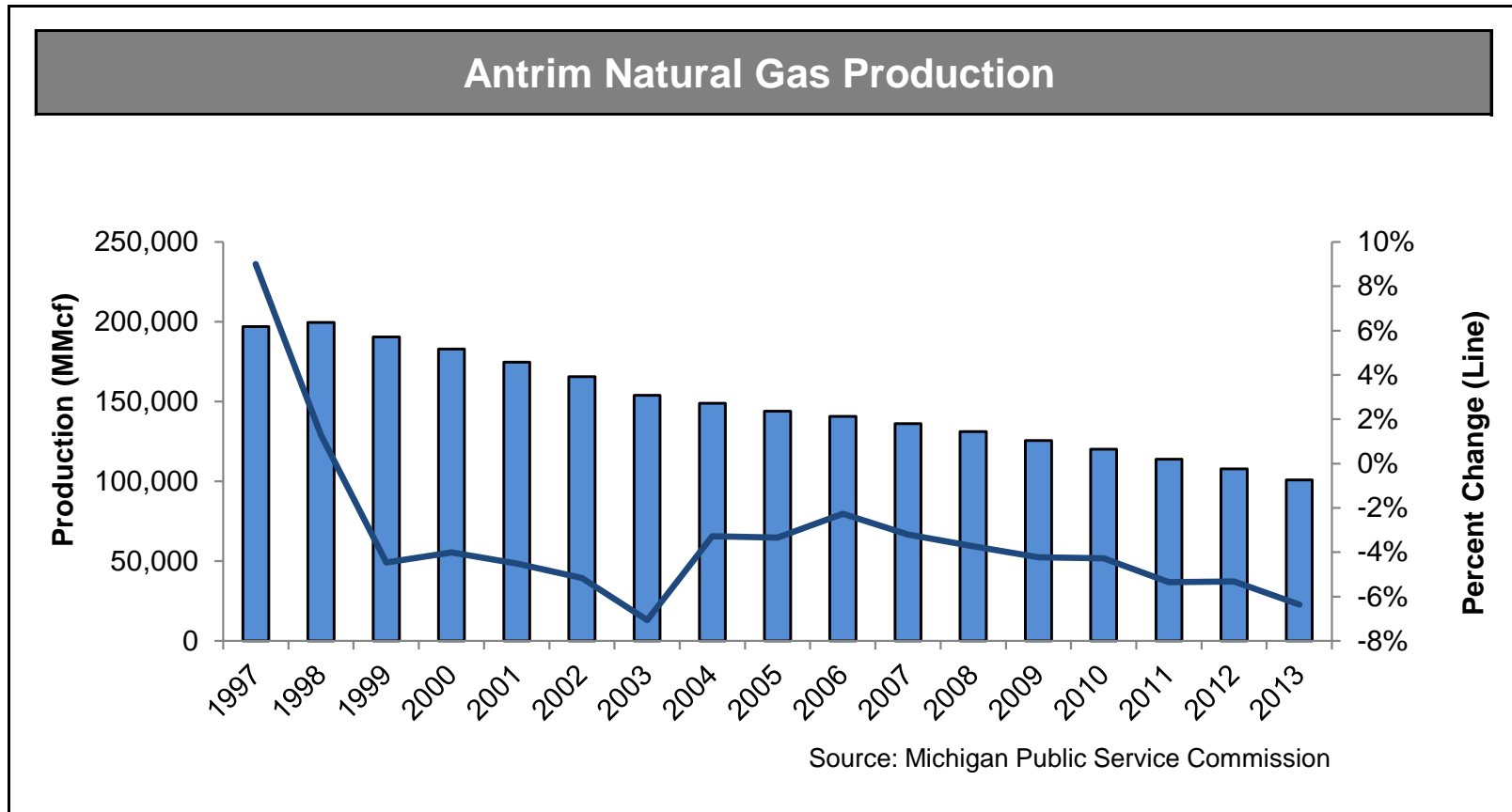
Income Approach – Decline Curves



Income Approach – Decline Curves



Income Approach – Decline Curves



Income Approach - Projections

Financial Projections NYMEX Pricing

	Actual	Fiscal Year Ending December 31,					
	2014	2015	2016	2017	2018	2019	2020
Sales	\$ 40,000,000	\$ 28,000,000	\$ 25,200,000	\$ 22,680,000	\$ 20,412,000	\$ 18,370,800	\$ 16,533,720
<i>Growth Rate</i>	8.4%	-30.0%	-10.0%	-10.0%	-10.0%	-10.0%	-10.0%
Operating Expenses ¹	25,000,000	15,000,000	14,000,000	13,000,000	12,000,000	11,000,000	10,000,000
<i>% of Sales</i>	62.5%	53.6%	55.6%	57.3%	58.8%	59.9%	60.5%
EBITDA	\$ 15,000,000	\$ 13,000,000	\$ 11,200,000	\$ 9,680,000	\$ 8,412,000	\$ 7,370,800	\$ 6,533,720
<i>EBITDA Margin</i>	37.5%	46.4%	44.4%	42.7%	41.2%	40.1%	39.5%
Depreciation	6,416,879	3,360,000	3,024,000	2,721,600	2,449,440	2,204,496	1,984,046
<i>% of Sales</i>	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%
Net Working Capital	2,500,000	2,400,000	2,300,000	2,200,000	2,100,000	2,000,000	1,900,000
<i>% of Sales</i>	4.3%	8.6%	9.1%	9.7%	10.3%	10.9%	11.5%

¹ Calculated excluding depreciation expense and including capital expenditures.

Income Approach – Cash Flow

Projected Cash Flow NYMEX Pricing

Fiscal Year Ending December 31,

	2015	2016	2017	2018	2019	2020
EBITDA	\$ 13,000,000	\$ 11,200,000	\$ 9,680,000	\$ 8,412,000	\$ 7,370,800	\$ 6,533,720
Less: Depreciation	(3,360,000)	(3,024,000)	(2,721,600)	(2,449,440)	(2,204,496)	(1,984,046)
Adjusted Operating Income	9,640,000	8,176,000	6,958,400	5,962,560	5,166,304	4,549,674
Less: Tax Distribution	(3,374,000)	(2,861,600)	(2,435,440)	(2,086,896)	(1,808,206)	(1,592,386)
Net Operating Profit After Taxes	6,266,000	5,314,400	4,522,960	3,875,664	3,358,098	2,957,288
Add: Depreciation & Amortization	3,360,000	3,024,000	2,721,600	2,449,440	2,204,496	1,984,046
Less: Additional Net Working Capital	100,000	100,000	100,000	100,000	100,000	100,000
Enterprise Cash Flow	\$ 9,726,000	\$ 8,438,400	\$ 7,344,560	\$ 6,425,104	\$ 5,662,594	\$ 5,041,334



Income Approach – Cost of Capital

Weighted Average Cost of Capital			
Equity Discount Rate		Cost of Debt	
Risk-Free Rate of Return ¹	3.7%	Long-Term Cost of Debt ⁴	5.0%
Market Equity Risk Premium ²	6.2%	Less: Income Tax Factor at 35% ⁵	<u>-1.7%</u>
Small Stock Risk Premium ²	6.0%		
Company-Specific Risk Premium ³	<u>5.0%</u>		
Concluded Equity Discount Rate	20.8%	Concluded Cost of Debt	3.3%
Weighted Average Cost of Capital			
	<u>Return</u>	<u>Weight</u>	
<i>Equity Allocation of Capital Structure</i> ⁶	20.8%	x 75.0%	= 15.6%
<i>Debt Allocation of Capital Structure</i> ⁶	3.3%	x 25.0%	= <u>0.8%</u>
Weighted Average Cost of Capital			16.4%
<p>¹ 20-year U.S. Treasury bond yield as of the Valuation Date.</p> <p>² Duff & Phelps 2014 Valuation Handbook - Guide to Cost of Capital.</p> <p>³ Based on the Company's size, industry risk, management depth, geographic concentration, and risk of achieving projected results.</p> <p>⁴ Moody's Baa rate bond yield as of the Valuation Date.</p> <p>⁵ Effective federal tax rate of 35%.</p> <p>⁶ Based on Ibbotson Cost of Capital 2013 Yearbook (Chicago: Morningstar, Inc., 2013) data for SIC Code 1311 as well as the capital structure of comparable public companies.</p>			

Income Approach – Discounted Cash Flow

Discounted Cash Flow Method NYMEX Pricing

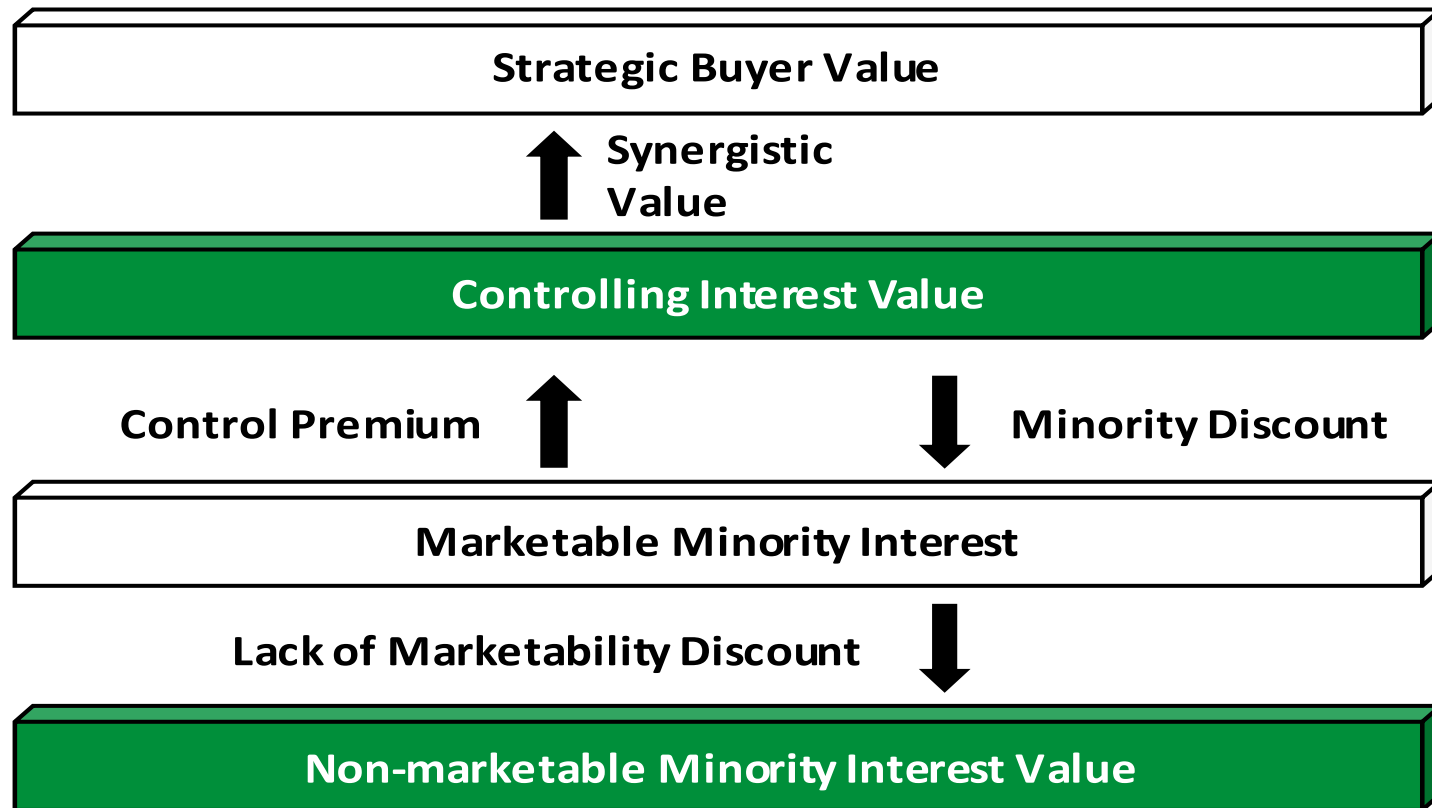
	2015	2016	2017	2018	2019	2020
Projected Enterprise Cash Flow	\$ 9,726,000	\$ 8,438,400	\$ 7,344,560	\$ 6,425,104	\$ 5,662,594	\$ 5,041,334
Weighted Average Cost of Capital	16.4%	16.4%	16.4%	16.4%	16.4%	16.4%
Discount Period	0.50	1.50	2.50	3.50	4.50	5.50
Present Value Factor	0.93	0.80	0.68	0.59	0.50	0.43
Present Value of Projected Cash Flow	9,013,190	6,715,724	5,019,807	3,771,289	2,854,392	2,182,389
Residual Value					Energy Lender Pricing	NYMEX Pricing
All Residual Period Cash Flow					\$ 554,557	\$ 763,985
Weighted Average Cost of Capital					16.4%	16.4%
Discount Period ¹					18.50	18.50
Present Value Factor					0.06	0.06
Present Value of Residual Cash Flow					\$ 33,181	\$ 45,711
Enterprise Value						
Present Value of Cash Flow (Through 2030)					\$ 62,193,251	\$ 38,454,708
Present Value of Residual Cash Flow (After 2030)					33,181	45,711
Enterprise Value (Rounded)					\$ 62,230,000	\$ 38,500,000

Other Balance Sheet Considerations

- ❑ Cash & Equivalents
- ❑ Other Investments
- ❑ Non-Operating Assets
- ❑ Debt Balances

Adjustments to Enterprise Value	
<i>Cash and Equivalents</i>	
Cash And Equivalents	\$ 20,000,000
Less: Cash Required for Hedging Activities	(2,000,000)
Total Cash and Equivalents	\$ 18,000,000
<i>Non-Operating Assets & Liabilities</i>	
Non-Cash Hedging Gains	\$ 10,000,000
Potential Environmental Liability - (P&A Cost Reserve)	(20,000,000)
Total Non-Operating Assets	\$ (10,000,000)
<i>Interest-Bearing Debt</i>	
Bank Debt	\$ 20,000,000
Total Interest-Bearing Debt	\$ 20,000,000
Total Cash and Equivalents	18,000,000
Total Non-Operating Assets	(10,000,000)
Total Interest-Bearing Debt	(20,000,000)
Net Equity Adjustments	\$ (12,000,000)

Valuation Discounts



Valuation Discounts – Key Points

- ❑ When determining an appropriate discount for lack of control (“DLOC”), discount for lack of marketability (“DLOM”), lack of voting rights, etc. for operating or holding companies, the analysis should be customized for that specific asset
- ❑ IRS will not always accept application of “rules-of-thumb” 15% DLOC and 20% DLOM or combined 35% discount



Discount for Lack of Control (DLOC)

- Adamy most often utilizes the following:
 - Control Premium Analysis
 - Closed-End Fund Analysis
 - Partnership Profiles – Real Estate Holding, LLC

Discount for Lack of Control (DLOC)

Discount for Lack of Control Analysis - Transaction Premiums

Transaction Date	Target	Transaction Value (\$ millions)	Target Stock Premium 1 Day Prior
03/25/2013	Equal Energy Ltd.	\$ 216.2	39.0%
02/26/2013	Emerald Oil & Gas NL (ASX:EMR)	1.5	38.9%
03/18/2013	Invicta Energy Corp.	50.1	37.8%
03/01/2013	Valiant Petroleum plc	423.7	37.5%
11/19/2013	Coastal Energy Company	2,199.4	28.3%
06/25/2013	Enterprise Energy Resources Ltd.	3.4	25.0%
11/08/2013	PT Capitalinc Investment Tbk (JKSE:MTFN)	4.9	24.4%
10/15/2013	Angle Energy Inc.	531.5	23.6%
12/16/2013	AWE Limited (ASX:AWE)	685.0	23.5%
10/01/2013	Emerald Oil & Gas NL (ASX:EMR)	1.8	16.7%
07/31/2013	Waldron Energy Corporation (TSX:WDN)	47.7	11.0%
04/30/2013	Crimson Exploration Inc.	392.8	7.8%
11/19/2013	Exillon Energy plc (LSE:EXI)	106.6	5.4%
12/24/2013	RH PetroGas Limited (SGX:T13)	5.1	1.8%
12/09/2013	Equal Energy Ltd.	243.3	1.1%
Median Premium			23.6%
Implied Discount			19.1%

Discount for Lack of Control (DLOC)

- ❑ Closed-end investment funds are publicly traded investment companies and can be used as a guideline for an appropriate discount for lack of control.

Discount for Lack of Control Analysis as of December 31, 2013			
Fund Name	Share Price	Net Asset Value	Discount
Source Capital Inc	67.10	73.94	9.3%
Special Opportunities Fund	17.46	18.71	6.7%
Tri-Continental Corporation	19.98	23.11	13.5%
Zweig Fund	14.86	16.93	12.2%
BlackRock Energy and Resources	24.30	27.05	10.2%
Cushing Renaissance Fund	25.04	27.92	10.3%
First Trust Energy Infra. Fund	21.15	22.84	7.4%
Petroleum & Resources Corp.	27.38	32.26	15.1%
Tortoise Pipeline & Energy	24.38	31.42	22.4%
75th percentile			13.5%
Median Discount			10.3%
25th percentile			9.3%

Discount for Lack of Marketability (DLOM)

- ❑ There are dozens of “studies”...
- ❑ Adamy most often utilizes the following:
 - Restricted Stock Studies
 - Pre-IPO Studies
 - Long-Term Equity Anticipation Securities or (“LEAPS”) Analysis
 - Mandelbaum Factors

LEAPS Analysis

- Long-term equity anticipation securities (LEAPS) provide an investor with the option to sell a stock at any time for a given price for a period of up to two years. These options, with strike prices equal to the current market price of the underlying stock, can provide a market indication of the value that investors place on marketability.

Discount for Lack of Marketability - LEAPS Analysis

Company Name	Stock Symbol	Stock Price 12/31/13	Jan 2015 LEAP Put				Jan 2016 LEAP Put			
			Strike Price	Cost	Distance Weighted Cost	Discount / Cost	Strike Price	Cost	Distance Weighted Cost	Discount / Cost
ConocoPhillips	COP	\$ 70.65	\$ 70.00 72.50	\$ 6.23 7.70	\$ 6.61	9.35%	\$ 70.00 72.50	\$ 10.20 11.83	10.62	15.04%
Anadarko Petroleum Corporation	APC	79.32	77.50 80.00	8.35 9.65	9.30	11.72%	75.00 80.00	10.70 13.28	12.92	16.29%
Chesapeake Energy Corporation	CHK	27.14	27.00 30.00	3.43 5.25	3.51	12.93%	27.00 30.00	4.78 6.60	4.86	17.91%
EOG Resources, Inc.	EOG	83.92	82.50 85.00	9.41 10.69	10.14	12.08%	82.50 85.00	13.29 14.55	14.00	16.69%
		75th percentile				12.3%				17.0%
		Median				11.9%				16.5%
		25th percentile				11.1%				16.0%

Source: Market Data Express Historical Options Data

IRS Challenges

- ❑ Pessimistic Futures Pricing & Reserve Projections
- ❑ Tax-Affecting S-Corps & LLCs
- ❑ Discounts for Lack of Control & Lack of Marketability
- ❑ Penalties

Adequate Disclosure Requirements

- ❑ **Business appraisal is prepared and signed by individual who:**
 - 1) Holds themselves out to public as appraiser or *regularly* performs appraisals – *IRS asks about appraisal experience*
 - 2) Is qualified to make appraisals of type of property being valued, based on qualifications described in appraisal – *Look for specific valuation designations like ASA, CPA/ABV*
 - 3) is someone other than donor, donee, member of family of donor or donee, or employee of donor, donee, or member

Adequate Disclosure Requirements

❑ Business appraisal provides:

- 1) Date of transfer, date of appraisal, and purpose of appraisal
- 2) Description of transferred property – *For operating companies (history, stock ownership, top customers, competitive environment, key management, etc.)*
- 3) Description of appraisal process – *Facility visit, management interview, analysis of projections*



Adequate Disclosure Requirements

❑ Business appraisal provides:

- 4) Description of assumptions, conditions, and restrictions affecting appraisal – *Who can use report & for what purpose*
- 5) All information considered in determining appraised value – *List of documents relied upon (financials, projections, etc.)*
- 6) Procedures followed and underlying reasoning – *Factors and standards relied upon (IRS Rev. Ruling 59–60 and USPAP)*

Adequate Disclosure Requirements

❑ Business appraisal provides:

- 7) Valuation method used, rationale for method, and procedure used in determining fair market value of transferred property – *Income, market, or asset-based approach*
- 8) Specific basis for valuation – *nonmarketable, minority interest*

What to Look For in an Appraiser

□ Professional Credentials

- Accredited Senior Appraiser (ASA)
- Accredited in Business Valuation (ABV) – CPA/ABV
- Chartered Financial Analyst (CFA)

□ Experience

- Expert witness experience, IRS negotiations
- Practice Area Focus (gift/estate, ESOP, etc.)

□ Access to Top Industry Resources/Databases

- S&P Capital IQ, discount analysis databases

Q&A

