AMERICAN BANKRUPTCY INSTITUTE

2017 Annual Spring Meeting

CONCURRENT SESSION

How to Value Anything: The Most Difficult Valuations

Daniel F. Dooley, Moderator
MorrisAnderson; Chicago

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CONSOR Intellectual Asset Management; La Jolla, Calif.

Tyler Cowan
Lazard; Chicago

Hon. Barbara J. Houser
U.S. Bankruptcy Court (N.D. Tex.); Dallas

Yvette Austin Smith
The Brattle Group, Inc.; New York

2017

How to Value Anything: The Most Difficult Valuations

Dan Dooley – CEO of MorrisAnderson – Chicago

Weston Anson – Chairman of Consor Intellectual Asset Management – La Jolla, CA

Tyler Cowan – Managing Director of Lazard – Chicago

Honorable Barbara J. Houser – U.S. Bankruptcy Judge – (N.D. Texas) - Dallas

Yvette Austin-Smith – Principal of The Brattle Group – New York

2017 ABI ANNUAL SPRING MEETING

Panel: How to Value Anything - The Most Difficult Valuations

Valuing Commodity & Cyclical Businesses During Bankruptcy — Topics For Discussion

- **What are the best practices for developing a defensible business plan in a volatile and uncertain business environment?**
  - Forecast must be bottoms-up
  - Key inputs (*i.e.*, prices) must have substantial third-party support
    - Carefully assess the landscape of third-party forecasts and understand how the business plan inputs compare
  - Focus on developing rational and defensible views of:
    - Performance over the cycle
    - "Mid-cycle" or "steady-state" earnings and cash flows
- **How should courts view forecasts for commodity prices, a key driver of a company's value?**
  - Single expert versus portfolio of independent research views
  - Relevance of historical prices when assessing future price projections
- **How should a valuation practitioner weigh/consider the three traditional valuation approaches for a going-concern commodity/cyclical business?**
  - Discounted Cash Flow Analysis
    - Typically the preferred approach given its focus on long-term "intrinsic" value, though this methodology is only as reliable as the underlying business plan forecast
    - Careful assessment of terminal value calculations is required
      - Terminal year EBITDA/cash flows should be premised on "mid-cycle" or "steady-state" performance
      - Perpetuity growth rate methodology is typically more defensible than EBITDA exit multiples
    - Make sure WACC appropriately reflects the inherent risk and volatility in the underlying industry
      - Be wary of using historical betas of peer companies when deriving WACC to the extent the industry environment has experienced a seismic change in the recent past including instances where a substantial portion of an industry is in distress

Valuing Commodity & Cyclical Businesses During Bankruptcy — Topics For Discussion (cont'd)

- **How should a valuation practitioner weigh/consider the three traditional valuation approaches for a going-concern commodity/cyclical business? (cont'd)**
  - Comparable Company Analysis
    - Can be a helpful barometer of "mark-to-market" value, but can be dislocated from long-term intrinsic value at certain points in a commodity cycle
      - Behavioral economic theory and market observations suggest that cyclical companies are often undervalued at the trough and overvalued at the peak given perception bias (*i.e.*, the current environment will continue as opposed to revert to the mean), among other factors
    - Carefully analyze the commodity price forecasts of the analysts whose projections are being used to derive implied valuation multiples of the comparable companies
      - Use consensus estimates to the extent possible to limit the impact of any outliers
    - For industries with substantial Pension, OPEB, and/or ARO obligations, consider assessing multiples of "adjusted" enterprise value to EBITDAPOR (EBITDA before Pension expense, OPEB expense and asset Retirement expense) whereby these debt-like obligations are capitalized on a tax-effected basis
  - Precedent Transaction Analysis
    - Not a particularly useful methodology unless the transactions relied upon occurred at the same point in the business cycle as the current environment in which valuation is being performed
      - Price fluctuations, among other factors, can result in substantial variance in earnings from one year to the next, or even one quarter to the next
      - Applying a multiple for a transaction that occurred at a cycle trough when earnings were low and multiples were high to a company's earnings at a cycle peak would overstate a company's valuation
    - Nonetheless, this valuation methodology should be assessed if only to be used as a reference or ultimately discarded

Case Study: Peabody Energy — Chapter 11 Filing Context

($ in millions)

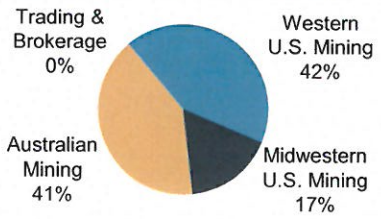
Peabody Energy Corporation ("Peabody"), the world's largest private sector coal company, filed for chapter 11 protection in the U.S. Bankruptcy Court for the Eastern District of Missouri on April 13, 2016 following a precipitous decline in the prices of thermal and metallurgical coal

Business Description

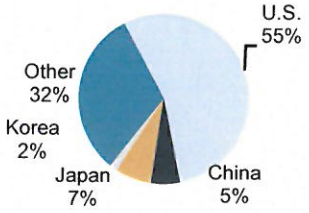
- **Peabody Energy is the world's largest private-sector coal company, with a diversified asset portfolio consisting of active coal mining operations located in the U.S. and Australia**
- **Peabody conducts business through four principle segments: Western U.S. Mining, Midwestern U.S. Mining, Australian Mining and Trading & Brokerage**
  - Peabody produces thermal coal in the U.S. and thermal, metallurgical, and pulverized coal injection ("PCI") coal in Australia; the company is the largest seaborne low-vol PCI supplier
  - The Trading and Brokerage segment engages in direct and brokered trading of coal and freight-related contracts through a number of international offices
- **Headquartered in St. Louis, MO, Peabody had ~7,600 employees as of December 31, 2015**

Business Mix (FY'16)

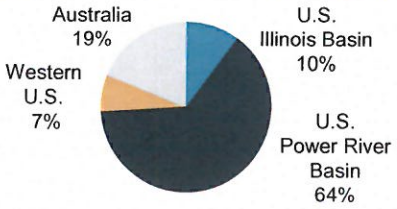
Revenue by Segment



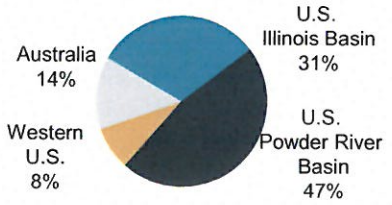
Revenue by Geography



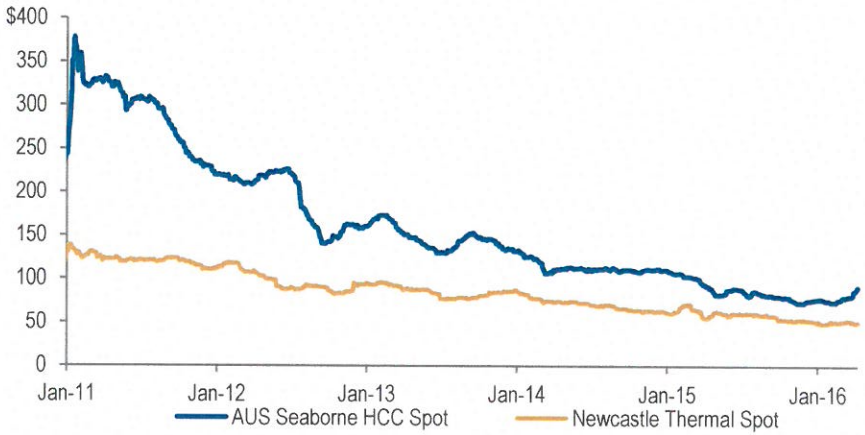
Coal Production by Geography



Coal Reserves by Geography



Historical Seaborne Coal Pricing ($/t)



- **Prices of seaborne metallurgical and thermal coal declined steadily in the months and years leading up to Peabody's April 2016 bankruptcy filing**
  - Slowing global economic growth drove a wide range of resources and energy prices lower in 2015, resulting in the largest broad market decline for these products since 1991
  - In addition to declining demand and prices, the coal industry faced low natural gas prices (causes coal-to-gas switching) and increased regulatory hurdles
  - From 2011-2015, coal's share of total U.S. electricity generation fell from ~42% to ~33%, with 2015 having the lowest amount of generation from coal power plants since 1985
- **Declining coal prices put substantial pressure on Peabody's balance sheet and liquidity position, leaving the company highly leveraged**
  - Peabody levered-up in 2011 to fund the acquisition of Macarthur Coal for ~$5 billion at the peak of the market
  - Peabody had ~$8.6 billion of funded debt obligations and was levered ~20x upon its chapter 11 filing based on reported FY'15 EBITDA of $434 million

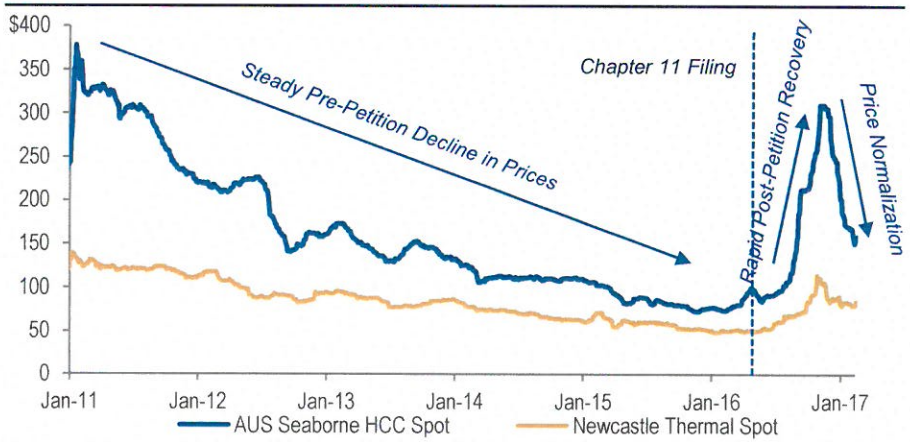
Source: Bloomberg, FactSet.

Case Study: Peabody Energy — Changing Industry Environment Post-Petition

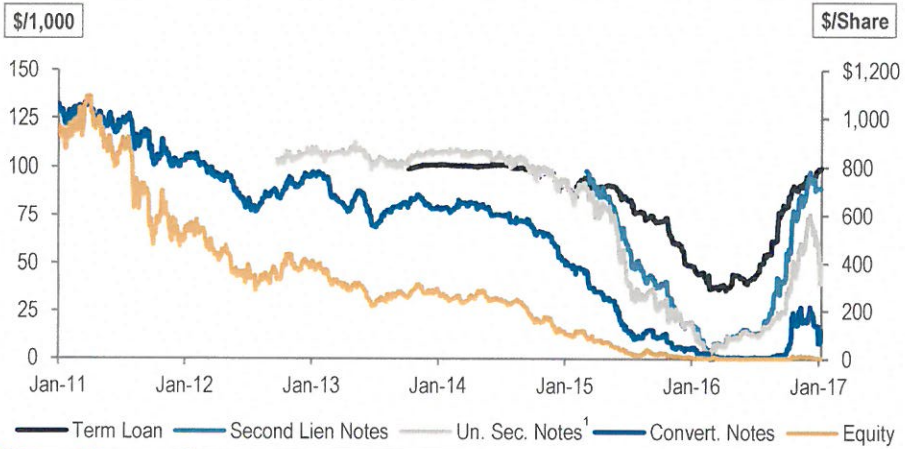
($ in millions, except price data)

In September 2016, approximately five months following Peabody's chapter 11 filing, the industry environment began to change driven by certain coal policy changes in China (the largest importer of seaborne coal) and supply disruptions in Australia (the largest producer of seaborne metallurgical coal), among other factors, that drove a rapid and near exponential recovery in coal prices and, as a result, market participants' views on the valuation of Peabody

Historical Seaborne Coal Pricing ($/Mt)



Selected Peabody Securities Prices



Source: Bloomberg.

1 Senior Unsecured Notes due 2018, which is indicative of all tranches of Senior Unsecured Notes.

Selected Comments

- **At the time of its bankruptcy filing, coal prices were at levels not seen in almost a decade and the industry outlook remained muted**
  - Peabody's securities prices implied the company was only valued at ~$1 billion whereby the first lien lenders were believed to be substantially undersecured and the fulcrum security
- **Beginning in September 2016, however, seaborne coal prices rose rapidly from their trough due to the following factors (among others):**
  - China implemented a 276-day production rule that triggered an increased need for imported seaborne coal
  - Supply disruption in Australia due to longwall moves, train derailments and roof collapses
  - Supply disruption in Inner Mongolia due to heavy rains/flooding
  - Global supply rationalization as a result of a period of prolonged industry distress
- **As a result, market participants' views on Peabody's outlook and valuation improved whereby at its peak Peabody's implied enterprise valuation was ~$6.5 billion**
  - Second Lien Notes traded up 90 pts to a high of 98
  - Unsecured Notes traded up 67 pts to a high of 75
  - Convertible Notes traded up 26 pts to a high of 27
  - Peabody's stock increased to a peak of $15 per share
- **In light of the changing price and valuation environment, Peabody's chapter 11 case took a dramatic turn**
  - First liens were now fully secured
  - Fulcrum shifted down to the Second Lien Notes
  - Certain of Peabody's creditors showed an interest in investing new equity capital to recapitalize the business upon emergence
- **Furthermore, certain Peabody stakeholders began to push aggressive views on value**
  - A motion for an equity committee was filed on December 8, 2016

Case Study: Peabody Energy — Plan of Reorganization

Following a drastic improvement in seaborne coal prices in late 2016, Peabody was able to raise approximately $3.5 billion of new capital to facilitate a largely consensual plan of reorganization

POR Timeline

- **December 22, 2016: Plan of Reorganization and Disclosure Statement filed, along with a Plan Support Agreement, Backstop Commitment Agreement and Private Placement Agreement**
  - The Plan was premised on raising upwards of $3.5 billion of new capital to provide distributions to certain secured creditors and fund emergence costs
    - $1.95 billion of new debt and $1.5 billion of new equity ($750 million common stock rights offering, $750 million private placement of mandatorily convertible preferred stock)
- **January 26, 2017: Disclosure Statement, Backstop Commitment Agreement and Private Placement Agreement approved; solicitation commences**
- **February 15, 2017: Peabody secured debt financing totaling $1.95 billion of senior secured debt**
  - $1 billion of bonds
  - $950 million of term loans
- **March 16, 2017: Confirmation hearing**
- **Early April 2017: Expected emergence assuming Plan confirmation**

Post-Emergence Capital Structure

	Amount	Rate
Senior Secured Term Loan	$950	L+450bps (1% floor)
Senior Secured Notes due 2022	500	6.000%
Senior Secured Notes due 2025	500	6.375%
Capital Leases	20	
Total Debt	**$1,970**	
Convertible Preferred Equity	750	
Common Equity[1]	1,555	
Total Capitalization[1]	**$4,275**	
Cash at Emergence[1]	(800)	
Net Capitalization	**$3,475**	

Source: Public filings.

1 Based on Plan Enterprise Value and Plan Equity Value.

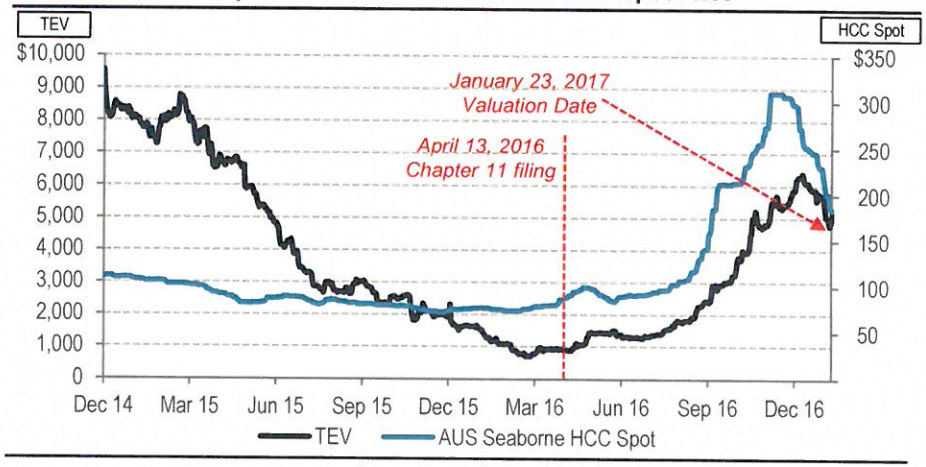
Case Study: Peabody Energy — Selected Valuation Issues

($ in millions, except price data)

Peabody's valuation presented a variety of complex issues, which were exacerbated by an ever-changing industry landscape during the chapter 11 cases

- **Coal Price Volatility**
  - Seaborne prices rebounded dramatically post-filing, but began to decline from their peak in December 2016
  - Differing views on long-term "mid-cycle" or "steady-state" prices
- **Price Forecasting**
  - Peabody's EBITDA is highly sensitive to changes in seaborne thermal and metallurgical coal prices
  - The appropriate source for price forecasts became the subject of litigation with a prospective equity committee movant (*i.e.*, forwards, research average, single expert)
- **Foreign Exchange Forecasting**
  - Given Peabody's large Australian mining operations, the company's financial results were highly sensitive to changes in assumptions regarding the USD/AUD exchange rate
  - Differing views between the Company and junior stakeholders on the merits of using foreign exchange forwards or independent expert forecasts

Implied Total Enterprise Value[1] & AUS Seaborne HCC Spot Price



- **Production Forecast**
  - Peabody's business plan contemplated a 50% reduction in metallurgical coal production over the forecast period driven by certain mines running out of economically mineable reserves
  - Differing views between the Company and junior stakeholders regarding whether prices would be sufficient to induce the development of new mines to replace lost production
- **Multiples-based Valuation**
  - Junior stakeholders argued for higher valuations by assuming the elevated price environment would continue for the foreseeable future and by applying historical average trading multiples to such elevated EBITDA levels
- **Other Valuation Challenges**
  - The extended period of distress in the industry, and the unique nature of mining assets, created challenges in the selection of similar companies for a comparable company analysis and in determining a peer group beta for calculating WACC for the discounted cash flow analysis

Source: Bloomberg, Public Filings.

1 **Total enterprise value as implied by the trading prices of Peabody's securities. Net debt calculated with ending cash balances** for any given month. Trading price of Revolver assumed to equal trading price of the First Lien Term Loan until the Revolver began actively trading on July 15, 2016.

How to Value Anything

The Most Difficult Valuations

April 21, 2017

Washington, D.C.

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Trademark and Brand Valuation Discussion

- What are the types of valuation methods that are preferred for valuing trademarks and brands?
- How can you bundle IP assets in order to facilitate the valuation process?
- What are the types of assets that can be categorized into a Trademark Bundle?
- Is there a useful life or lifespan of a brand that can be used to help determine value?
- What role does licensing take in determining trademark and brand value?

Asset Identification Trademark/Brand Bundle

Bundles of Intellectual Properties (IP), each contain Intangible Assets (IA)

Trademark/Brand Bundle	
• Primary Trademark	• Worldwide trademark registrations
• Corporate Name and Logo	• Patterns
• Sub-Brand Names	• Designs
• Copyrights	• Characters
• Packaging Design	• Vendor Relationships
• Marketing Umbrella Campaign	• Vendor Contracts
• Corporate Colors	• Website
• Secondary Trademarks	• Advertising Concepts
• Trade dress	• Graphics

Standard Valuation Methodologies

	Cost	Income	Market
Application	Reproduction Cost Replacement Cost IRS - CPM	DCF Price or Market Premium IRS – CPM, CUT	Comparable transactions Benchmarking IRS - CPM

	Relief from Royalty
Application	DCF Comparable licensing and other third party transactions IRS - CUT

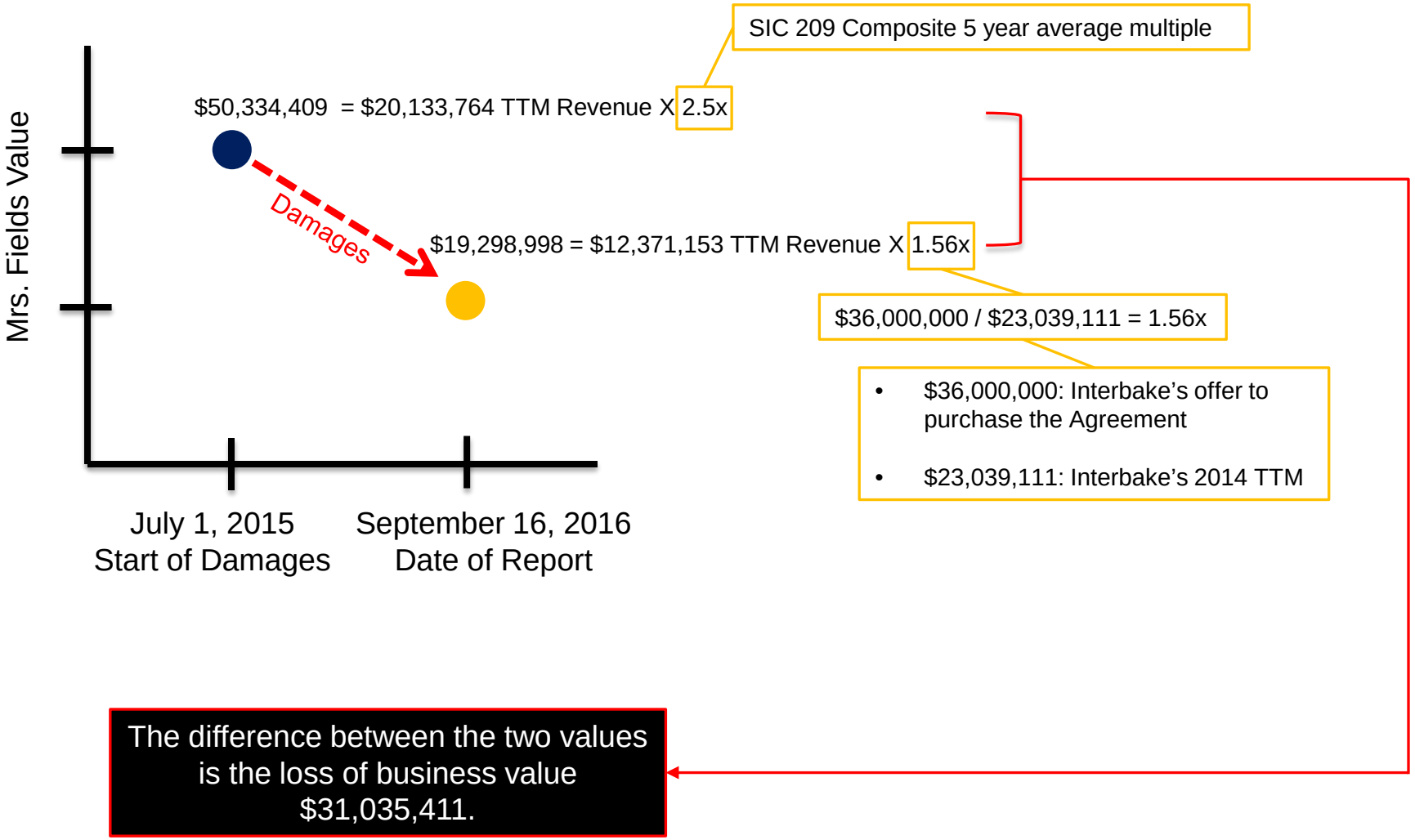
Case Study: Mrs. Fields Cookies

- We were asked to determine the damages sustained by Mrs. Fields, assuming that licensee is found liable for breach of contract.
- Two methodologies were employed
  - Market Multiple
  - Relief from Royalty - DCF

Market Approach: Summary

- Method Used
  - Revenue Multiple Approach
- Value Base
  - Revenue
    - Used licensee's TTM revenues
- Dates Selected
  - July 1, 2015: start of damages
    - Per counsel.
    - Indication of internal discussions about seeking an early exit from the Agreement.
  - September 16, 2016: Valuation/Report Date
- Value Multiplier Selected
  - July 1, 2015 (But-For): 2.5x from the Duff & Phelps SIC 209 Composite 5-year average
  - September 16, 2016 (As-Is): 1.56x from the licensee offer

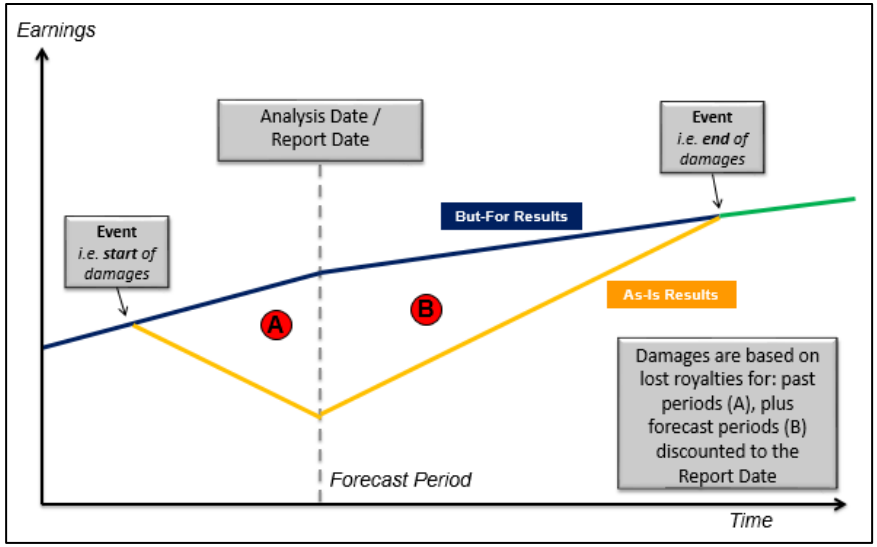
Market Approach: Damages



But-For Analysis: Relief From Royalty

- As a second indication of damages, we implemented an alternative methodology, the Relief from Royalty Approach.
- A relief from royalty approach calculates the present value of lost royalty income that could have been generated by the asset.
- The damages calculation is equal to the present value of the difference between the But-For Scenario royalty cash flows, and the As-Is Scenario royalty cash flows.

- In order to calculate the lost royalties, we employ two sets of assumptions:
  - A "But-For Scenario" that calculates the expected royalty stream had licensee been successful in achieving its revenue forecasts and continued to renew its license.
  - An "As-Is Scenario" that calculates the royalty stream that was actually generated by licensee during the Agreement, as well as the royalties that would be generated by a new licensee after the Agreement and until revenues reach parity with the But-For Scenario.



Related Party and Intercompany Transactions

Impact on Valuation and Solvency Analysis

ABI Annual Spring Meeting

Yvette R. Austin Smith

April 20-23, 2017

THE Brattle GROUP

Common Characteristics of Related Party Transactions

- Price and terms of related party transactions may reflect considerations outside of the immediate transaction
  - Parent/sub guarantees (explicit and implicit)
  - Cross default provisions
  - Tax structuring
- Revenue synergies and cost allocations among divisions may be difficult to precisely quantify
- Related-party debt may be challenged as more economically consistent with equity
- Cash flows within a corporate family may be:
  - Differently obligated on third-party debt
  - Subject to different tax or corporation law regimes that restrict intercompany (esp. cross border) transfers
- Documentation of related party transaction may lack formality

Case Study #1:

Solvency Analysis for Fraudulent Conveyance

- U.S. parent company and two wholly-owned subsidiaries: one U.S. and one foreign
- Parent and U.S. sub are obligors on third-party debt; foreign sub is not
- Transfer of funds from foreign sub to U.S. parent (e.g., intercompany loans, dividends) are limited by thin capitalization rules
- Eventually, two debtor estates: U.S. parent/U.S. sub and foreign sub

Issue: In a fraudulent conveyance suit brought against the U.S. debtor estate, how should the assets and cash flow of the foreign sub be considered under each of the three tests of solvency?

Case Study #2:

Debt Recharacterization to Determine Priority of Claim

- U.S. parent and wholly-owned foreign sub
- Foreign sub commenced court supervised restructuring (in non-U.S jurisdiction)
- Foreign sub creditors sought to recharacterize U.S. parent company debt as equity

Issue: Need the U.S. parent company debt be structured as third-party debt to survive the challenge? Can the related party nature of the parent/sub relationship provide economic rationale for structuring the debt on terms that differ from arm's length, third-party terms? Should traditional "multi-factor" analyses be modified?

Case Study #3:

Retrospective Solvency Analysis

- Foreign parent and indirect, wholly-owned U.S. sub (Sub A). Sub A was direct obligor and foreign parent was guarantor for third-party debt
- Centralized treasury resulted in ordinary course cash sweeps from all worldwide subs to parent, leaving minimal cash balance at subs and an uncertain sub claim on cash at parent.
- Frequent transactions across subs facilitated by intercompany credits/debits, minimal actual cash transfers
- Upon Chapter 11 (in U.S.), Sub A was substantively consolidated within a larger corporate group

Issue: In claim related to Sub A third-party debt, can the balance sheet test of solvency be meaningfully applied? If balance sheet insolvent but with access to capital from corporate family, does this equate to solvency?

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Ms. Austin Smith specializes in M&A and bankruptcy disputes with subject matter expertise in valuation and credit and solvency analysis. She provides testifying and consulting expert services in litigation matters related to mergers and acquisitions, dissenting shareholder actions, leveraged buyouts, recapitalization, debt recharacterization and avoidance actions. Ms. Austin Smith testified as a solvency expert on behalf of JPMorgan Chase in *Lehman Brothers Holdings Inc. and Official Committee of Unsecured Creditors of Lehman Brothers Holdings Inc. v. JPMorgan Chase Bank N.A.* She has also been retained as a solvency or valuation expert in connection with the bankruptcies of Caesars Entertainment Operating Company, Energy Future Holdings, and U.S. Steel Canada. Ms. Austin Smith also recently testified as a valuation expert in *Owens v. Cannon* before the Delaware Court of Chancery and is currently retained as a valuation expert in pending appraisal and other M&A litigation matters before the same court. She has also been retained as a valuation expert in similar dissenting shareholder matters in New York.

About Brattle

The Brattle Group provides consulting and expert testimony in economics, finance, and regulation to corporations, law firms, and governments around the world. We aim for the highest level of client service and quality in our industry.

We are distinguished by our credibility and the clarity of our insights, which arise from the stature of our experts, affiliations with leading international academics and industry specialists, and thoughtful, timely, and transparent work. Our clients value our commitment to providing clear, independent results that withstand critical review.

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Criteria for Comparable Transactions

Avoiding one-size fits all criteria

1. The licenses involve commercialization of the IP.
2. The intellectual property comes from the same family, (e.g. patents or trademarks or copyrights).
3. The comparable transactions involve the same geography, be it U.S. or international.
4. The comparable pieces of IP are equally well-known or equally valuable.
5. The licensors be of relatively the same size.
6. The license agreements cover similar products and services.
7. The license agreements have similar lives and renewal terms.
8. The licenses have similar exclusivity or non-exclusivity clauses.
9. The licenses should cover products that are similarly priced and sold through similar channels of distribution.
10. The licenses do not cover internal licenses or agreements between related entities.
11. The licenses were negotiated at a date relevant to the date at which the infringement damages are being fixed.
12. The comparable transactions have been negotiated between willing buyers and willing sellers, not under compulsion to license.
13. The IP covered by the comparable transactions had similar remaining useful lives.
14. The licenses have comparable non-royalty compensation, both monetary and non-monetary.
15. The agreements do not have what are known as tie-in agreements (arrangements which require the licensee to purchase products or services from the licensor).

Considerations for Hypothetical Negotiations

Crafting hypotheticals to reflect their real-world counterparts

1. What additional investment would be required to commercialize the IP?
2. What investment rate of return would the IP owner have from alternatives?
3. What is the dollar value of the IP that is the subject of this negotiation?
4. What other assets and activities would be needed to commercialize the IP including marketing requirements, manufacturing requirements?
5. What are the other risks in taking the license, including factors such as competing technologies, start-up issues, governmental regulations, etc.?
6. What are the expected market size, and the probability of capturing a given share of that market?
7. What are the competing products or technologies or trademarks against which the licensee would have to compete?
8. What profit margins would the licensee be likely to earn?
9. What are the licensee's alternatives, as well as the licensor's?
10. What is the relative strength of the two parties at the time of the negotiation? Was the licensee much larger and more powerful and therefore in a stronger bargaining position, for example?
11. What other compensation might the licensee be required to provide, either in the form of other monetary compensation for design fees (e.g.), or non-monetary compensation?
12. What technological assistance from the licensor would be necessary to ensure the success of the licensee at the time of the negotiation?
13. Finally, know your BATNA!

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Intellectual Asset Management

Alternative Royalty / Fee Arrangements

	Analytical Alternative	Group	Group Rationale
1	Percentage royalty rate on sales	Single Component Fee	Payment based on one primary component
2	Per unit royalty rate	Single Component Fee	
3	Fully paid-up license, also known as a single up-front payment	Single Component Fee	
4	Annual flat fee	Single Component Fee	
5	Annual fixed fee plus per unit payments	Tiered Fee	Payment changes as variable changes
6	Annual cap on percentage or per unit fees	Tiered Fee	
7	Fees vary per SKU	Tiered Fee	
8	Cumulative cap on fees for each contract period (i.e., 3 or 5 years)	Tiered Fee	
9	Fees declining over time	Tiered Fee	
10	Royalties based on components of value	Future Dependent	Payment changes based on future, non-financial events
11	Royalties based on percentage utilization within a product	Future Dependent	
12	Fees plus royalties on new markets or new product developments	Future Dependent	
13	Fee, plus % for each new upgrade/design	Future Dependent	
14	Royalty on any increase in sales when applied to an existing product	Results-based	Payment changes based on future financial performance
15	Royalties based on profits or margins	Results-based	
16	Royalties (% or $/unit) declining with sales or unit volume	Results-based	
17	Royalty on sales less deductions for marketing costs, or other allocation of relevant expenses	Results-based	
18	Royalty on gross sales less direct manufacturing costs	Results-based	
19	Royalties on cost of product	Results-based	
20	Royalty with per unit and fixed fee elements	Mixed Fee	Total fee includes multiple components
21	Cost-plus fee with contingent royalties	Mixed Fee	
22	Tri-level or multi-level fees	Mixed Fee	