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Valuation in Insolvency and Litigation

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Valuation Methodologies In Bankruptcy

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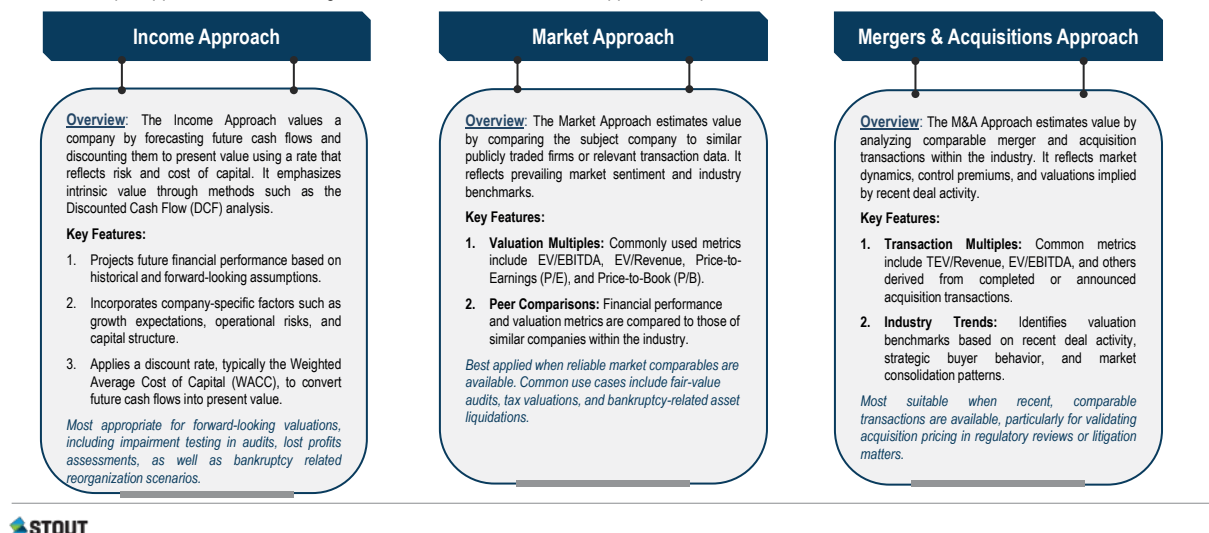
Business Valuation Methodologies (1/2)

The three valuation methodologies presented - Market Approach, Income Approach, and M&A Approach (Transaction Approach) - are widely used in financial analysis and valuation to determine the fair market value of a business, asset, or investment. Each methodology is grounded in distinct principles and has specific applications. In professional contexts such as audits, litigation, and other specialized scenarios, the choice of valuation methodologies depends on the purpose and requirements of the situation.



Business Valuation Methodologies (2/2)

Valuation methodologies provide structured frameworks to estimate the value of a business, asset, or investment. The choice of valuation methodology depends on the purpose of the valuation, the availability and reliability of data, and the specific characteristics of the subject being valued. In many cases, multiple approaches are used together to cross-check results and support a comprehensive conclusion.



Income Approach Valuation – WACC Calculation

This section outlines the calculation of the Weighted Average Cost of Capital (WACC) which represents the average return a company must deliver to its equity and debt holders to finance operations and investments.

Weighted Average Cost of Capital			WACC's key components	
1	Risk-Free Rate of Return	4.7%	1	Risk-free Rate: Represents the yield on long-term U.S. Treasury securities as of the Valuation Date.
2	Long-Term Market Equity Risk Premium	6.0%	2	Selected Equity Beta: Beta for public companies is derived from historical stock returns against a market index, whereas for private companies, beta is estimated using the beta of comparable firms, typically based on the industry median.
2	Selected Equity Beta	1.05	3	Additional Risk Premiums Small Stock Risk Premium: Compensates for size-related risk using empirical market data. Current Market Risk Adjustment: Applied when specific market conditions justify an adjustment beyond long-term averages. Company-Specific Risk Premium: Reflects identifiable risks unique to the subject company, such as management quality, industry position, or financial stability.
3	Small Stock Risk Premium	4.5%	4	Cost of Equity = Risk-Free Rate + (Beta × Equity Risk Premium) + Additional Risk Premiums
3	Current Market Risk Adjustment	-0.5%	5	Corporate bond yield (Bloomberg): Represents a market-based proxy for the company's cost of debt. This benchmark reflects the return required by lenders for companies with similar credit risk profiles.
3	Company-Specific Risk Premium	6.0%	6	Cost of Debt reflects the effective rate a company incurs on its borrowed capital, such as loans or bonds.
4	Indicated Required Return on Equity	21.0%	7	Equity Allocation: The portion of funding sourced from equity, representing ownership in the company. Debt Allocation: The portion of funding sourced from debt, representing borrowed capital.
5	Bloomberg B-rated Corporate Bond Yield	7.8%	8	WACC = Equity Allocation × Cost of Equity + Debt Allocation × Cost of Debt
	Less: Income Tax Factor	-2.0%		
6	Indicated Cost of Debt	5.8%		
7	Equity Allocation of Capital Structure	70.0%		
7	Debt Allocation of Capital Structure	30.0%		
8	Weighted Average Cost of Capital (Rounded)	16.4%		

The Debt-to-Equity ratio can be determined either from the company's current financial statements or from a Market Participant Assumption. Market Participant Assumption reflects how a hypothetical buyer operating at arm's length, with typical industry knowledge, would capitalize the company today. This approach evaluates what an efficient buyer would consider an optimal capital structure that minimizes the WACC and supports value maximization, rather than relying solely on the company's existing or historical capital structure.



Income Approach Valuation – DCF Analysis

This method estimates intrinsic value by forecasting the company's future cash flows and discounting them to present value using WACC, reflecting expected growth, operating performance, and risk.



Income Approach | Advantages & Limitations



Advantages

- **Forward-looking:** Captures intrinsic value based on projected financial performance and long-term cash flow generation.
- **Flexible:** Can incorporate company-specific adjustments, while allowing explicit modeling of capital structure, tax impacts, and reinvestment needs.
- **Independent of market conditions:** Less influenced by short-term market volatility.
- **Ideal for unique businesses:** Suitable for companies with few or no direct comparables.



Limitations

- **Relies on assumptions:** Highly sensitive to forecast accuracy, discount rate selection, and terminal value assumptions.
 - *Litigation or audit teams may challenge the reasonableness, consistency, or bias in these assumptions and forecasts e.g., long-term growth rate assumption, WACC calculation, etc.*
- **Complex:** Requires detailed financial modeling and analysis, which improves transparency but requires robust justification.
 - *Challenges may arise around the validity of the model's structure, underlying calculations, and whether the assumptions are well-supported.*
- **Not ideal for start-ups:** Difficult to apply for businesses with unpredictable cash flows or limited operating history.



Market Approach Valuation – GPC model

This section introduces the Guideline Public Company (GPC) approach and illustrates its application through a representative case study.

Key Statistics											
General Trading Statistics					Key Financial Metrics			Historical Growth			
Company	Price	% of 52 Week High	Market Capitalization	Enterprise Value	LTM Net Sales	LTM EBITDA	LTM EBITDA Margin	Sales 1-Year	Sales 2-Year	EBITDA 1-Year	EBITDA 2-Year
Guideline Public Company 1	\$246.60	61.9%	\$ 153,595	\$ 148,325	\$ 68,483	\$ 11,749	17.2%	1.2%	2.6%	-1.3%	3.1%
Guideline Public Company 2	\$498.78	84.8%	10,970	13,783	8,628	973	11.3%	12.6%	13.5%	22.9%	17.2%
Guideline Public Company 3	\$282.16	95.3%	262,837	311,633	64,040	14,183	22.1%	1.4%	1.8%	1.2%	9.4%
Guideline Public Company 4	\$118.46	87.5%	23,647	22,802	6,590	1,644	24.9%	4.9%	1.6%	10.1%	9.6%
Guideline Public Company 5	\$37.38	95.7%	9,333	14,556	5,168	1,477	28.6%	-10.4%	7.3%	-6.1%	15.2%
Guideline Public Company 6	\$163.75	97.6%	13,242	17,070	60,007	1,668	2.8%	1.6%	-3.2%	-2.6%	-1.8%
Median			18,444	19,936	34,318	1,656	19.7%	1.5%	2.2%	-0.1%	9.5%
Average			78,937	88,028	35,486	5,262	17.8%	1.9%	4.0%	4.0%	8.8%
Subject Company					\$ 30,252	\$ 2,778	9.2%	3.4%	-2.0%	-21.2%	-16.1%
Multiples and Projected Growth											
Trading Multiples							Projected Growth				
Company	EV / LTM Sales	EV / 2024 Sales	EV / 2025 Sales	EV / LTM EBITDA	EV / 2024 EBITDA	EV / 2025 EBITDA	Sales LTM-2024	Sales LTM-2025	EBITDA LTM-2024	EBITDA LTM-2025	
Guideline Public Company 1	2.17x	2.10x	1.99x	12.6x	11.0x	10.2x	5.9%	6.0%	32.5%	15.3%	
Guideline Public Company 2	1.60x	1.53x	1.43x	14.2x	13.6x	12.2x	8.6%	7.5%	7.8%	10.6%	
Guideline Public Company 3	4.87x	4.68x	4.48x	22.0x	16.8x	16.0x	8.8%	5.7%	70.3%	23.4%	
Guideline Public Company 4	3.46x	3.41x	3.26x	13.9x	10.8x	10.0x	3.0%	4.0%	62.0%	24.3%	
Guideline Public Company 5	2.82x	2.81x	2.76x	9.9x	8.2x	7.7x	0.5%	1.3%	44.7%	17.9%	
Guideline Public Company 6	0.28x	0.28x	0.26x	10.2x	9.0x	8.6x	6.9%	5.1%	28.5%	12.6%	
Median	2.49x	2.46x	2.37x	13.2x	10.9x	10.1x	6.4%	5.4%	38.6%	16.6%	
Average	2.53x	2.47x	2.36x	13.8x	11.6x	10.8x	5.6%	4.9%	41.0%	17.4%	
Subject Company							22.9%	16.4%	437.1%	97.1%	
Management-provided historical and projected financials form the basis for the subject company's projected growth metrics.											
Selected Sales Multiple: The selected multiple is derived from the GPC analysis and reflects market-based valuation levels observed for comparable, publicly traded companies with respect to metrics such as LTM Sales.											
Range of Indicated Multiples							Selected Multiples			Subject Company Indicated Enterprise Value	
Selected Multiple	Minimum	Mean	Median	Maximum	Median	Low	High	LTM Net Sales	Median	Low	High
EV / LTM Sales	0.28x	2.53x	2.49x	4.87x	1.80x	1.55x	2.05x	\$ 30,252	\$ 54,454	\$ 46,891	\$ 62,017



Income and Market Approach Valuation - Conclusion

The Income and Market Approaches can be combined to derive a final value, integrating intrinsic cash-flow-based analysis with market-based evidence from comparable companies.

Enterprise and Equity Valuation			Important Note
In Thousands of U.S. Dollars			Market and Income Approach Weighting: The weighting selection balances the indications from both approaches. Equal weighting provides a conclusion that incorporates current market evidence and the company's intrinsic cash-flow-generating capacity, offering a well-supported valuation.
		Valuation Date 9/30/2025	
Market Approach Enterprise Value	\$	54,454	Income Approach Valuation Summary <ol style="list-style-type: none"> Project Future Cash Flows and Terminal Value: Estimate the company's Free Cash Flows based on projected revenue, expenses, taxes, and capital needs over a defined forecast period. Account for cash flows beyond the forecast horizon. Determine a Discount Rate: Select an appropriate discount rate (e.g., WACC for FCFF or Cost of Equity for FCFE) to account for risk and time value of money. Discount Cash Flows: Discount the projected cash flows and terminal value to their present value using the chosen discount rate. Calculate Enterprise/Equity Value: Add the present value of forecasted cash flows and the present value of the terminal value to calculate the Enterprise Value. Subtract net debt to derive the Equity Value.
Market Approach Weighting		50.0%	
Income Approach Enterprise Value	\$	52,688	Market Approach Valuation Summary <ol style="list-style-type: none"> Select Guideline Companies: Identify publicly traded companies with comparable business models, industries, and financial characteristics. Benchmark Metrics: Evaluate the subject company's performance and growth characteristics against guideline companies using relevant trading multiples (e.g., EV/EBITDA, EV/Sales). Calculate Enterprise Value: Apply selected guideline company multiples to the subject company's financial metrics to estimate its enterprise value. Derive Equity Value: Subtract net debt from the enterprise value to determine the resulting equity value.
Income Approach Weighting		50.0%	
Concluded Enterprise Value	\$	53,571	
Less: Net Debt		(4,868)	
Concluded Equity Value	\$	48,703	



Market Approach | Advantages & Limitations

Advantages

- **Grounded in market data:** Uses actual observable pricing from comparable companies, improving relevance to current market conditions.
- **Broad market acceptance:** Commonly used by investors, analysts, and advisors, supporting alignment with prevailing valuation practices.
- **Provides benchmarks:** Offers an external reference that can be used to corroborate DCF or transaction-based valuations.

Limitations

- **Limited comparables:** Finding truly comparable companies is difficult, especially in niche sectors or where business models differ materially.
 - Challenges may arise around the selection of comparables, with litigation or audit teams questioning their relevance or representativeness.
- **Market-dependent:** Sensitive to market volatility and short-term fluctuations. Multiples may reflect temporary dislocations, momentum or non-fundamental trading dynamics.
 - Litigation or audit teams may challenge whether the selected multiples accurately reflect fair value in fluctuating or atypical market conditions.
- **Ignores unique factors:** Does not account for company-specific attributes, such as competitive advantages, customer concentration or growth differentials.
 - Teams may argue that the approach oversimplifies valuation by failing to capture critical, unique elements of the company's value.
- **Relies on data availability:** Requires consistent and reliable market data.
 - Challenges may focus on the reliability and quality of data sources, as well as whether the information reflects current or relevant market conditions.



Merger & Acquisitions Approach – Comparable M&A Transactions

This approach estimates value by analyzing recent M&A transactions involving comparable businesses, providing insight into pricing for control, strategic value, and prevailing deal terms.

Comparable M&A Transactions								Important Notes	
In Millions of Reported Currencies									
Target	Acquirer	2 Implied Enterprise Value	1 Target Fundamentals			Indicated Multiples		1	
			LTM Net Sales	LTM EBITDA	LTM EBITDA Margin	EV / LTM Net Sales	EV / LTM EBITDA		
Target Company 1	Acquirer 1	\$ 4,588	\$ 634	\$ 210	33.2%	7.2x	21.8x		
Target Company 2	Acquirer 2	\$ 1,570	\$ 203	\$ 21	10.2%	7.7x	76.1x		
Target Company 3	Acquirer 3	\$ 6,303	\$ 655	\$ (155)	nmf	9.6x	nmf		
Target Company 4	Acquirer 4	\$ 10,107	\$ 666	\$ 60	9.1%	15.2x	167.5x	2	
Target Company 5	Acquirer 5	\$ 2,167	\$ 609	\$ 152	25.0%	3.6x	14.2x		
Target Company 6	Acquirer 6	\$ 1,414	\$ 202	\$ 13	6.3%	7.0x	111.3x		
Target Company 7	Acquirer 7	\$ 8,776	\$ 282	\$ 93	33.1%	31.1x	94.0x		
Target Company 8	Acquirer 8	\$ 300	\$ 44	\$ 3	5.7%	6.7x	118.0x	3	

Target Fundamentals: Represents the target company's historical financial performance as of the acquisition date, used as the basis for deriving transaction multiples.

Implied Enterprise Value: Represents the total value paid for the target company on a control basis, including equity purchase consideration and assumed debt, calculated on a "cash-free, debt-free" basis.

Target Companies: The number of comparable transactions selected should balance relevance and data quality. Typically, 3-10 transactions are used, focusing on deals involving targets with similar size, business model, and industry characteristics.



M&A Approach | Advantages & Limitations

Advantages

- **Industry Insights:** Draws on real-world acquisition data reflecting negotiated prices, control premiums, and strategic synergies.
- **Market-Driven:** Captures competitive dynamics and transaction-specific motivations that may not be evident in public market multiples.
- **Relevance for M&A Activity:** Ideal for businesses preparing for mergers, acquisitions, or divestitures.

Limitations

- **Data Dependency:** Requires access to detailed transaction data, which may be limited, proprietary or inconsistently disclosed.
 - Litigation or audit teams may challenge the reliability, completeness, or accuracy of the transaction data used.
- **Limited Comparability:** Transaction multiples may not fully reflect the standalone value of a company due to deal-specific factors (e.g., synergies, strategic considerations).
 - Challenges may focus on whether adjustments for deal-specific factors are adequately justified or whether the transactions selected are truly comparable.
- **Market Volatility:** Transaction pricing may reflect short-term market trends or external economic conditions that are not indicative of standalone value.



Allocation Valuation Methodologies (1/2)

Why Pro-Rata Allocation Does Not Always Work in Bankruptcy

- Capital structures are rarely uniform; each class holds distinct economic rights as defined in the Certificate of Incorporation or LLC Agreement:
 - Debt and equity securities have varying seniorities, participation and conversion mechanics, dividend provisions, liquidation preferences etc.
 - Thresholds, caps, performance-based awards, vesting conditions and catch-up provisions alter how recovery flows.
- Preferred equity, convertible instruments, and warrants introduce option-like payoffs.
- Bankruptcy outcomes (reorganization, sale, liquidation) create multiple scenarios with different recoveries.
- Fair value requirements under GAAP mandate valuation based on contractual terms and market participant assumptions. Relevant codifications include:
 - ASC 820: Fair Value Measurement
 - ASC 718: Stock Compensation
 - ASC 852: Reorganization
 - ASC 805: Business Combination

More Advanced Methodologies can be Required

- Advanced methodologies model the legal priority of claims, liquidation preferences, and other contractual features through a detailed waterfall.
- Forward-looking valuation techniques incorporate uncertainty, exit timing, and strategic alternatives relevant in bankruptcy.
- Methodologies such as the Option Pricing Method allow analysts to evaluate non-linear, option-like payoffs across classes.
- The Probability-Weighted Expected Return Method is necessary to reflect multiple, discrete exit scenarios and probabilities.
- These methodologies support compliance with GAAP requirements and valuation best practices for distressed entities.
- They provide a defensible, market-aligned framework for multi-class valuation in distressed situations.



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Allocation Valuation Methodologies (2/2)

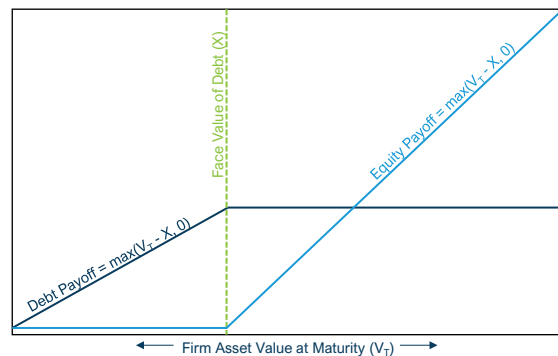
Equity and debt can be valued as options

Given the economic rights of equity and debt, we can derive the payoff functions against the future asset value, as shown in the plot below.

Important Notes



- V refers to the company's assets, X is the face value of debt and T is the term to until an assumed liquidity event.
- Debt payoff is capped by the face value of X .
- Equity payoff is uncapped and resembles the payoff structure of financial options written on the stock price of a firm. Therefore, the value of equity can be modeled as a long position on a call option with maturity T and strike X .
- The option-like payoff structures of equity are captured in forward-looking allocation methodologies such as the Option Pricing Method, the Probability-Weighted Expected Return Method, and the Hybrid Method. By contrast, the Current Value Method is not forward-looking and is generally used when an imminent sale or liquidity event is anticipated.



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Current Value Method

Overview:

- ❖ Waterfall analysis based on the equity value and outstanding capital structure of the company as of the current date.
- ❖ Applicable when there is an immediate liquidity event, thus the expectations about the future of the company as a going concern are irrelevant.

Advantages:

- ❖ Considers the rights and privileges of various security classes in the capital structure as of any given date as defined in the Certificate of Incorporation or LLC Agreement.
- ❖ No consideration of qualitative assumptions related to potential future exit timing strategies or multiple scenarios to determine the forward-looking path of the company.
- ❖ Easy to implement and usually not computationally intensive.

Disadvantages:

- ❖ Not forward looking and not reflecting any material business achievements or fundamental company milestones that might affect the overall value of the company.
- ❖ Does not capture option-like payoffs, and thus, underestimates the values of equity incentive awards, such as options, warrants, or profit interests
- ❖ Highly sensitive to changes in the waterfall assumptions.



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Capitalization Table

Summary of the company's equity structure, including outstanding securities, ownership percentages and economic rights of each security class.

Capitalization Table				
In Thousands of U.S. Dollars and Number of Shares, Except Price Per Share				
	Total Capital Contribution	Shares Outstanding	%	Original Issue Price
1 Preferred Stock	\$ 36,000	1,200	36.4%	\$30.00
2 Common Stock		2,000	60.6%	n/a
3 Options @ \$20.00		100	3.0%	\$20.00
4 Total Shares (Fully-Diluted Basis)		3,300	100.0%	

The product of the number of shares outstanding multiplied by the original issue price.

The price at which the company initially sold these shares to investors.

Preferred stockholders have priority over common stockholders remain subordinate to debt holders.

After preferred stockholders receive their liquidation preference, remaining value accrues to common stockholders.

The amount that is paid out to preferred stockholders before any distributions are made to common stockholders.

A holder exercises an option once it is in-the-money to capture any value above the exercise price.

The total shares outstanding under the assumptions that all convertible securities have been exercised or converted into shares.



Breakpoint Analysis

A step-by-step analysis identifying the value thresholds at which different security holders begin participating in distributions.

Breakpoint Analysis		
In Thousands of U.S. Dollars and Number of Shares, Except Price Per Share		
Breakpoint 1 - Starting Point		
1	Strike Price Option 1	\$ 0
Breakpoint 2 - Preferred Stock Receive Liquidation Preference		
2	Preferred Stock Liquidation Price	\$30.00
3	Multiplied by: Number of Preferred Stock	1,200
4	Total Liquidation Preference of Preferred Stock	\$ 36,000
5	Strike Price of Option 2	\$ 36,000
Breakpoint 3 - Options @ \$20.00 Exercise		
6	Incremental Price Per Share	\$20.00
7	Multiplied by: Number of Participating Shares	2,000
8	Total Incremental Distribution Amount	\$ 40,000
9	Strike Price of Option 3	\$ 76,000
Breakpoint 4 - Preferred Stock Convert to Common Stock		
10	Incremental Price Per Share	\$10.00
11	Multiplied by: Number of Participating Shares	2,100
12	Total Incremental Distribution Amount	\$ 21,000
13	Strike Price of Option 4	\$ 97,000

Identifies the specific value thresholds that must be reached before certain security holders begin participating in proceeds.

As the company's equity value increases, preferred shares convert and options exercise at their respective thresholds.

The preferred liquidation preference is typically equal to the capital contributed plus any accrued dividend payable before common shareholders receive proceeds.

Participating shares at each breakpoint include the original common shares plus any additional common shares issued through preferred conversion or option exercise.



Current Value Method

A step-by-step analysis of how equity value is allocated across security holders under the assumption of an immediate liquidation scenario.

Allocation of Equity Value - Liquidation Scenario				
In Thousands of U.S. Dollars				
Calculation of Threshold Values				
	Threshold 1	Threshold 2	Threshold 3	Threshold 4
1	Equity Value Threshold	\$ 0	\$ 36,000	\$ 76,000
2	Total Equity Value	45,000	45,000	45,000
3	Remaining Equity Value	\$ 45,000	\$ 9,000	\$ 0
Participating Distribution Ratios				
	Incremental Equity Value	Preferred Stock	Common Stock	Options @ \$20.00
4	Threshold 1 minus Threshold 2	\$ 36,000	100.0%	0.0%
5	Threshold 2 minus Threshold 3	9,000	0.0%	100.0%
6	Threshold 3 minus Threshold 4	0	0.0%	95.2%
7	Threshold 4	0	36.4%	60.6%
8	Indicated Value of Share Classes	\$ 45,000	\$ 36,000	\$ 9,000
9	Divided by: Number of Outstanding Shares	1,200	2,000	100
10	Indicated Value Per Share	\$30.00	\$4.50	\$0.00

Shows the incremental participation claims of each security class based on its seniority and conversion or exercise thresholds in the distribution waterfall.

Under the Current Value Method, equity value is allocated using the incremental participation thresholds applicable to each security class.

If the total equity value does not reach a particular threshold, a certain security class may receive no value under the CVM.

When equity value exceeds all thresholds, preferred shares convert to common and participate pro rata with other fully-diluted shares.



Option Pricing Method (1/2)

Overview: The OPM is used to calibrate to the value of a company's equity and allocate that value among different security classes based on the respective rights and privileges.

Key Inputs: (i) Volatility (ii) Expected Term and (iii) Risk-Free Rate

- ❖ **Volatility:** Determined by utilizing a set of Guideline Public Companies or similar method.
- ❖ **Expected Term :** Based on management indications of potential exit plans and the progress towards those plans.
- ❖ **Risk-Free Rate:** Based on the U.S. Treasury Yields that correspond to the assumed term.

Advantages:

- ❖ The OPM reflects the rights and privileges of the various security classes as defined in the Certificate of Incorporation or LLC Agreement.
- ❖ The framework recognizes the option-like payoff structure of various security classes, which is a key driver for subordinated equity claims.
- ❖ It is a forward-looking method that takes into consideration any appreciation or depreciation of value in terms of the overall equity value of the company as it progresses to a future liquidity event.
- ❖ Unlike scenario-based approaches, the OPM does not require the explicit specification of a single exit equity value, allowing for a valuation framework that inherently integrates a continuous range of potential outcomes.

Disadvantages:

- ❖ The OPM framework is sensitive to key assumptions, such as volatility or the expected time to a liquidity event.
- ❖ It is only a good approximation when considering non-vanilla market-vesting conditions (i.e., linear interpolation between certain Multiple of Invested Capital (MOIC) or Internal Rate of Return (IRR) hurdles).
- ❖ It is not a dynamic framework: It does not adjust for potential future dilution, funding amounts or changes in the capital structure.
- ❖ The OPM is inherently dependent on the assumed probability density function, thereby constraining outcomes to that statistical distribution.



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Option Pricing Method (2/2)

A step-by-step analysis of how equity value is allocated across security holders under the assumption of a future sale scenario.

Allocation of Equity Value - Sale Scenario					
In Thousands of U.S. Dollars and Number of Shares, Except Price Per Share					
<div> <div> <div>1. Strike Price: The participation threshold for each security class, derived from the breakpoint analysis.</div> <div>2. Total Equity Value: Typically based on the income/market/M&A approach or the Company's latest arm's length transaction.</div> <div>3. Term: The expected time to a liquidity event based on management's assumptions.</div> <div>4. Volatility: Estimated by utilizing a set of Guideline Public Companies</div> <div>5. Risk-Free Rate of Return: Based on the U.S. Treasury Yields that correspond to the assumed term.</div> </div> <div> <div>1 Strike Price</div> <div>2 Total Equity Value</div> <div>3 Expected Term (Years)</div> <div>4 Volatility</div> <div>5 Risk-free Rate of Return</div> </div> </div>					
<div> <div>6 Call Option Value</div> </div>					
Calculation of Option Values					
	Option 1	Option 2	Option 3	Option 4	
1 Strike Price	\$ 0	\$ 36,000	\$ 76,000	\$ 97,000	
2 Total Equity Value	120,000	120,000	120,000	120,000	
3 Expected Term (Years)	5.00	5.00	5.00	5.00	
4 Volatility	60.0%	60.0%	60.0%	60.0%	
5 Risk-free Rate of Return	3.8%	3.8%	3.8%	3.8%	
6 Call Option Value	\$ 120,000	\$ 95,639	\$ 78,396	\$ 71,651	
<div> <div>7 Option 1 minus Option 2</div> <div>8 Option 2 minus Option 3</div> <div>9 Option 3 minus Option 4</div> <div>10 Option 4</div> </div>					
Participating Distribution Ratios					
Allocation of Option Values	Incremental Option Value	Preferred Stock	Common Stock	Options @ \$20.00	Total
7 Option 1 minus Option 2	\$ 24,361	100.0%	0.0%	0.0%	100.0%
8 Option 2 minus Option 3	17,243	0.0%	100.0%	0.0%	100.0%
9 Option 3 minus Option 4	6,745	0.0%	95.2%	4.8%	100.0%
10 Option 4	71,651	36.4%	60.6%	3.0%	100.0%
11 Indicated Value of Share Classes	\$ 120,000	\$ 50,416	\$ 67,092	\$ 2,492	\$ 120,000
12 Divided by: Number of Outstanding Shares		1,200	2,000	100	
13 Indicated Value Per Share		\$42.01	\$33.55	\$24.92	



Probability-Weighted Expected Return Method (1/2)

Overview: The PWERM is used to determine the value of multi-class equity structures in an IPO scenario when there is access to specific information about the pre-IPO equity value of the company.

Key Inputs: (i) Discount Rate and (ii) Expected Term to IPO.

- ❖ **Discount Rate:** Determined based on broader research of the private market trends as well as consideration of company specific idiosyncratic properties and risk/return expectations.
- ❖ **Expected Term to IPO:** Determined based on management/investment bankers' indications.

Advantages:

- ❖ The PWERM is a forward-looking method, since it contemplates a specific liquidity event in a short timeframe and incorporates expectations about future outcomes into the estimated present value.
- ❖ The PWERM is an appropriate method to use when the expected exit timing is short (usually less than 12 months) and the possible future outcomes are easy to predict.

Disadvantages:

- ❖ The PWERM requires detailed documentation and appropriate quantitative & qualitative assessment of future possible outcomes (i.e., certain pre-IPO exit values and concrete timing after consideration of a potential S-1 filing).
- ❖ Justifying the appropriate discount rate might be challenging considering various risk assumptions incorporated into the expected IPO outcomes provided by the various investment bankers.



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Probability-Weighted Expected Return Method (2/2)

A step-by-step analysis of how equity value is allocated across security holders under a future IPO scenario.

Allocation of Equity Value - IPO Scenario

In Thousands of U.S. Dollars and Number of Shares, Except Price Per Share

IPO Scenario

1 Equity Value at IPO Date\$ 250,000

2 Add: Cash Proceeds - Exercise of Options @ \$20.002,000

3 Adjusted Equity Value, Post-Exercise\$ 252,000

4 Probability of Scenario60.0%

5 Expected Timing of IPO Scenario2.00

6 Discount Rate25.0%

Under the IPO scenario, the equity value is different than under the sale scenario.

Cash proceeds from in-the-money options are added to equity value, upon exercise.

Scenario probabilities and expected timing are typically provided by management.

We do not apply a risk-neutral framework here (as used in the OPM), thus a risky discount rate is used.

The risky discount rate is applied to bring the future fully diluted value to its present value.

	Converted Shares	%	Indicated Value of Share	Net Value Per FD Share	Discount Factor	Present Value Per FD Share
7 Preferred Stock	1,200	36.4%	91,636	\$76.36	0.6400	\$48.87
8 Common Stock	2,000	60.6%	152,727	76.36	0.6400	48.87
9 Options @ \$20.00	100	3.0%	7,636	56.36	0.6400	36.07
10 Total	3,300	100.0%	\$ 252,000			\$ 160,000

For options, the exercise price is deducted when computing value per fully diluted share

We do not apply a risk-neutral framework here (as used in the OPM), thus a risky discount rate is used.

Under the IPO scenario, the equity value is different than under the sale scenario.

Cash proceeds from in-the-money options are added to equity value, upon exercise.

Scenario probabilities and expected timing are typically provided by management.

The risky discount rate is applied to bring the future fully diluted value to its present value.

For options, the exercise price is deducted when computing value per fully diluted share



Hybrid Method (1/2)

Overview: The hybrid method combines two or more valuation or exit scenarios to determine the value of multi-class equity structures. In this case, we present a hybrid method with the following 2 scenarios.

- ❖ an IPO scenario using PWERM, and
- ❖ a Sale scenario using OPM.

Key Inputs: Scenario Weight

- ❖ Determined based on management indications of potential exit plans and the progress towards those plans.

Advantages:

- ❖ Provides a balanced valuation framework that accounts for multiple potential exit scenarios.
- ❖ Aligns market research insights with management expectations for a more robust and actionable equity valuation.
- ❖ Typically reduces asset value deltas between risk-neutral valuations and market participants' risky valuations.

Disadvantages:

- ❖ Requirement for better documentation of supporting assumptions for each scenario/valuation outcome considered.
- ❖ Might be difficult to justify subjective assumptions for each scenario. Depending on the assumptions, valuation may vary, which presents difficulties from an audit perspective.
- ❖ Depending on business stage of company, a single scenario might be more appropriate to avoid any overvaluation concerns.



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Hybrid Method (2/2)

Integrates probability-weighted scenario values with the capital structure to determine implied per-share value.

Conclusion of Value				
In Thousands of U.S. Dollars and Number of Shares, Except Price Per Share				
	IPO Scenario		Sale Scenario	
<u>Implied Equity Value Calculation</u>				
1	Indicated Equity Value (Marketable Basis)	\$ 160,000	\$ 120,000	
2	Multiplied by: Probability of Scenario	60.0%	40.0%	
3	Probability Adjusted Implied Equity Value	\$ 96,000	\$ 48,000	
4	Implied Equity Value (Marketable Basis)	\$ 144,000		
The probability-weighted implied equity value before applying any discount for lack of marketability (DLOM).				
		Preferred Stock	Common Stock	Options @ \$20.00
5	Fair Value Per Share (Rounded)	\$46.13	\$42.74	\$31.61

The probability-weighted implied equity value before applying any discount for lack of marketability (DLOM).



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Stout is a trade name for Stout Risius Ross, LLC and Stout Risius Ross Advisors, LLC, a FINRA registered broker-dealer and SIPC member firm.



THANK YOU!

Faculty

Joel E. Cohen is the managing partner of Stout Risius Ross, LLC's New York region. He has more than 20 years of experience in the dispute, forensic and insolvency practice areas, most specifically focused in the financial services and asset-management industries. His experience encompasses a number of significant cross-border insolvency and litigation matters, where he has served as financial advisor and consulting expert to fiduciaries, court-appointed receivers, monitors, offshore liquidators, and bankruptcy and litigation trustees. Mr. Cohen has assisted these clients in a variety of litigation consulting services, including asset-tracing, fraud, Ponzi schemes, industry custom and practice for investment managers, and forensic analysis. He also has led several internal investigations within the context of family office, investment advisors and various corporate structures. Before joining Stout, Mr. Cohen was a managing director at a boutique financial advisory and consulting firm. Prior to that, he spent a number of years with a global financial advisory firm in its Dispute & Investigations group, where he helped manage a team of CPAs, economists, attorneys and finance professionals in executing a diverse array of complex engagements related to the various hedge fund/private equity fraud, insolvencies, and litigations that characterized the global financial crisis of 2008-09. He also served as Assistant U.S. Attorney in the Eastern District of New York from 1992-99, where he supervised its Business/Securities Fraud Unit. Mr. Cohen was a leader in the disputes practice at a Big 4 accounting firm and senior vice president at a prominent investment bank in charge of internal investigations. He also has worked with premier law firms on accounting malpractice, business insurance disputes, fraud detection and economic investigations. Mr. Cohen has expertise in managing the expectations of various stakeholders involved in insolvency proceedings, liquidations, litigation settlements and receiverships, namely in his capacity of assisting a board, trustee, receiver or official liquidator with their duties, including U.S. and cross-border considerations. He has experience within the offshore world, regularly handling cases out of the Caribbean. Mr. Cohen received his B.A. in economics with a focus on accounting from Rutgers University.

Robert Crockett is a partner and Regional Valuations, Modeling & Economics leader for EY's Region of The Bahamas, Bermuda British Virgin Islands and Cayman Islands, based in Camana Bay, Grand Cayman, Cayman Islands. He leads a team of valuation and capital-structure professionals and oversees the valuation of privately held portfolio company investments. Mr. Crockett reviews work by fund managers and external specialists, providing valuation services for illiquid debt, equity and option instruments across sectors, regions and development stages. His work supports financial reporting, transactions, litigation and disputes, and restructuring, and he also advises on lead advisory engagements, buy- and sell-side diligence, decision analytics, strategic alternatives and financial modeling to help clients better understand financial and economic drivers. Mr. Crockett leads a global team of more than 20 valuation professionals and contributes to the profession through his work with the International Valuation Standards Council's Business Valuation Board. He received his B.A. in economics from the University of the West of England and his B.Sc. in applied accounting from Oxford Brookes University, and a Certificate in Advanced Valuation from NYU Stern School of Business in 2022.

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Keith E. Whitson is a partner in the Litigation Practice Group of Raines Feldman Littrell LLP in Pittsburgh, where he concentrates his practice in general commercial litigation, professional liability, product liability, environmental litigation, appellate advocacy and mediation. He represents corporations facing significant potential liabilities, including claims of environmental contamination, antitrust violations, misappropriation of trade secrets, unfair competition, breach of contract and product liability, and he regularly defends lawyers and law firms against professional negligence and breach of fiduciary duty claims. Mr. Whitson also represents design professionals in construction-defect and professional-liability matters and advises companies of all sizes in shareholder disputes, alleged breaches of fiduciary duty, acquisition-related disputes and insurance-coverage litigation. An approved mediator and early neutral evaluator with the U.S. District Court for the Western District of Pennsylvania, he serves in a variety of ADR roles, including settlement counsel. Mr. Whitson is a member of the Member: Allegheny County Bar Association's Gender Equality and served as president of the Allegheny County Bar Foundation from 2021-23, and he is a member of the Pittsburgh Legal Diversity & Inclusion Coalition, Claims and Litigation Management Alliance, Professional Liability Defense Federation, Leadership Pittsburgh XXVI and the Third Circuit Bar Association. He received his B.S. in 1990 from Duke University and his J.D. in 1993 from Washington University School of Law.