

# EXECUTIVE RISK ASSESSMENT THE THREAT OF SHAREHOLDER LITIGATION

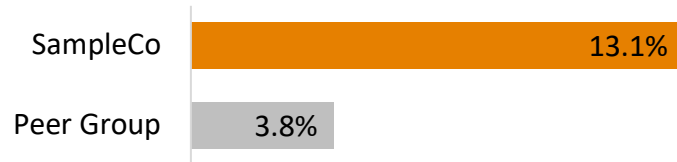
## SampleCo Specific Exposure & Peer Group Benchmarking

Andrew Banasiewicz, PhD

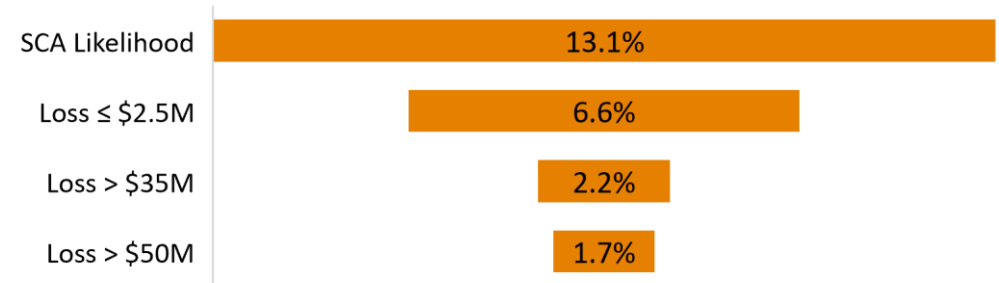


# Shareholder Litigation Likelihood Topline: SampleCo vs. Peer Group

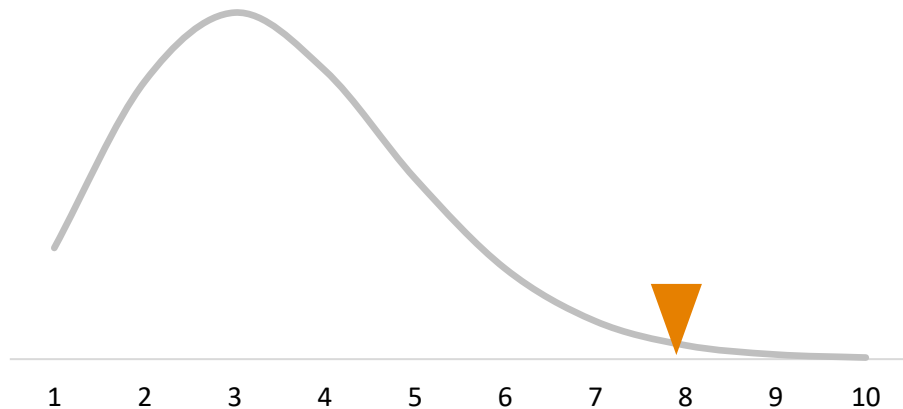
## PROBABILITY OF LITIGATION



## SAMPLECO'S LOSS SCENARIO ESTIMATES



## DECEILED SCA LIKELIHOOD DISTRIBUTION

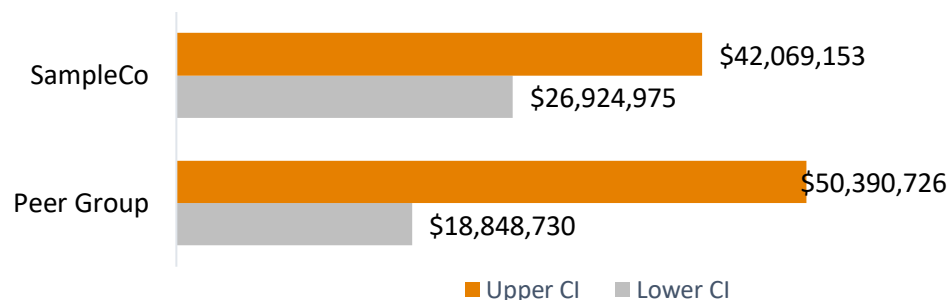


- ❖ SampleCo's SCA likelihood is elevated, in relation to its peer group, but it is not outlying.
- ❖ The likelihood of exceeding the current \$35M/\$50M D&O limits is approximately 2%.

# Shareholder Litigation Severity Topline: SampleCo vs. Peer Group

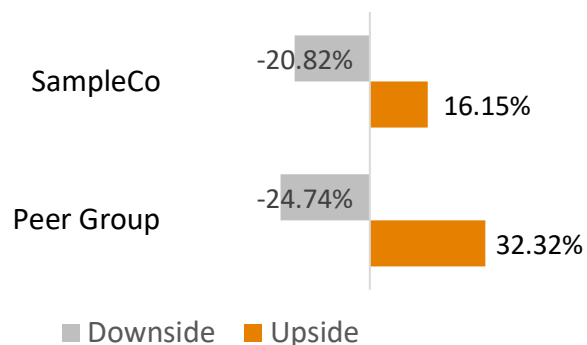
## COMPARATIVE PROBABLE LOSS ANALYSIS

95% Confidence Intervals (CI)



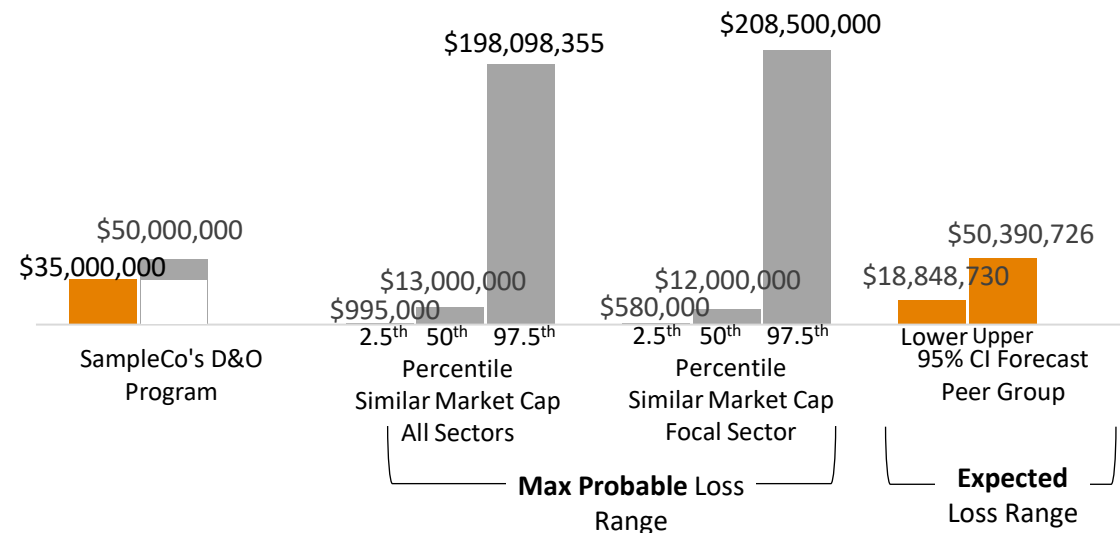
## SHARE PRICE VOLATILITY

5-Year Moving Avg



❖ **Impact of Share Price Volatility:** SampleCo's comparatively high downside share price volatility can be expected to positively impact (i.e., reduce) potential severity of securities litigation losses, under the principle of *loss causation*.

## COVERAGE & EXPOSURE: PAST SCA SETTLEMENTS BASED ANALYSIS



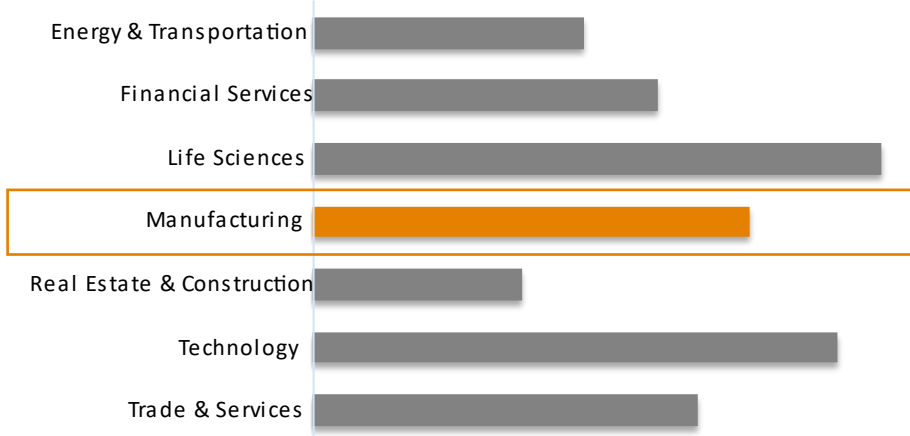
See the Core Methodological Considerations section for description of 'Expected' vs. 'Max Probable' loss scenario estimate differences.

- ❖ **Expected Loss:** SampleCo's projected SCA security litigation loss range (net of defense costs) of \$26.9M to \$42.1M falls on the higher end of the 95% confidence interval of SampleCo's peer group's \$18.8M to \$50.4M estimated expected loss range.
- ❖ **Max Probable Loss:** Companies in SampleCo's peer group face approximately 2% probability of incurring securities litigation losses (net of defense costs) as high as about \$200M.

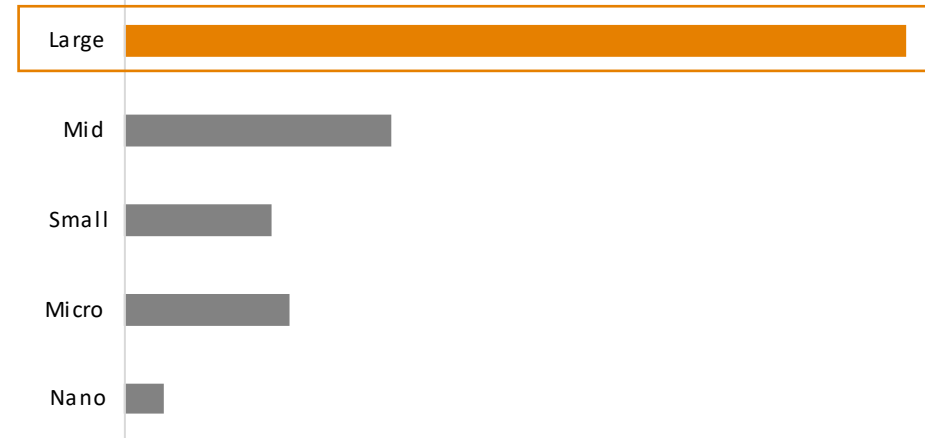
# Sector & Peer Group Shareholder Likelihood & Severity Benchmarks

## RECENCY-WEIGHTED SCA LIKELIHOOD

### CROSS-SECTOR DIFFERENCES



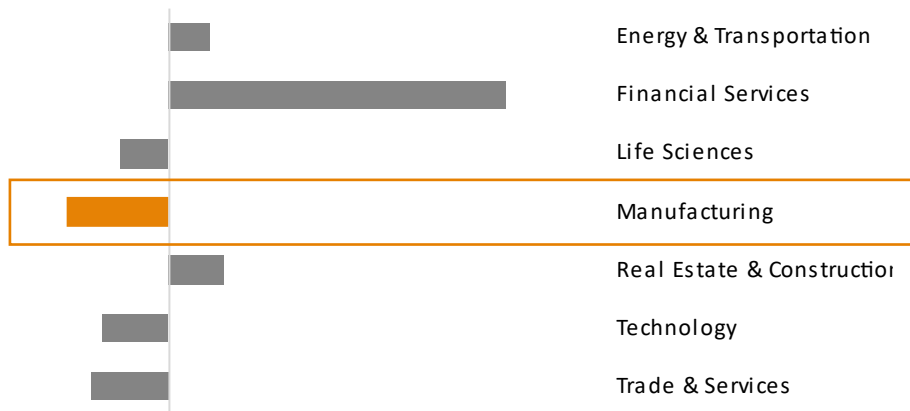
### SECTOR-SPECIFIC DRILL-DOWN



## INDEXED SCA SEVERITY

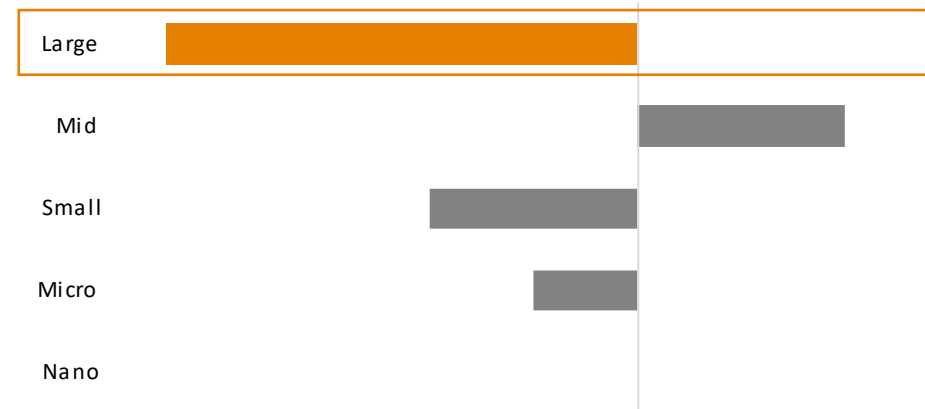
### CROSS-SECTOR DIFFERENCES

(0% = AVERAGE)



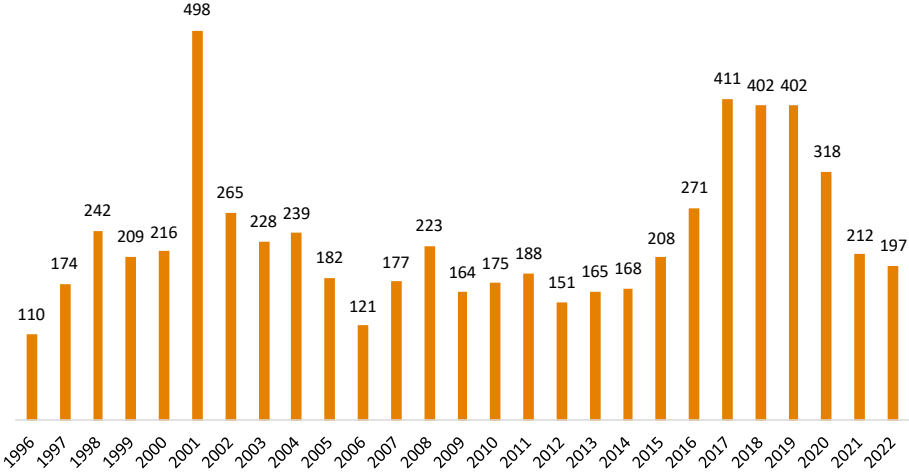
### SECTOR-SPECIFIC DRILL-DOWN

(0% = AVERAGE)

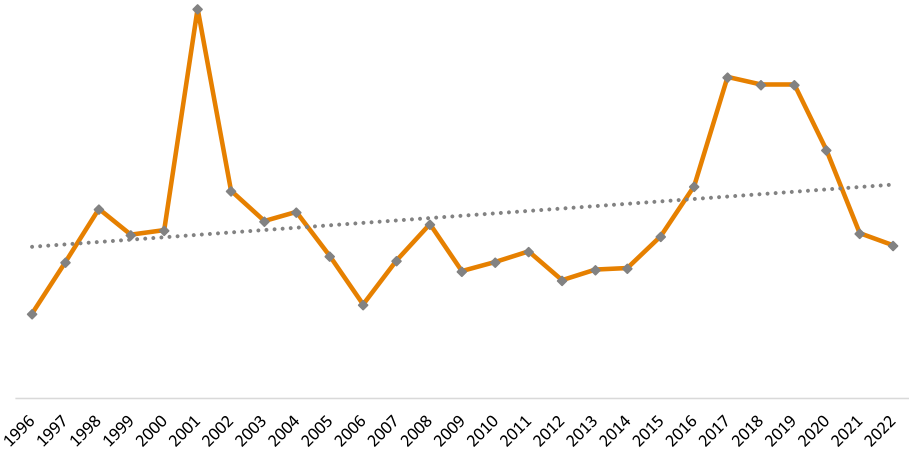


# Long-Term Shareholder Litigation Likelihood & Severity Trends

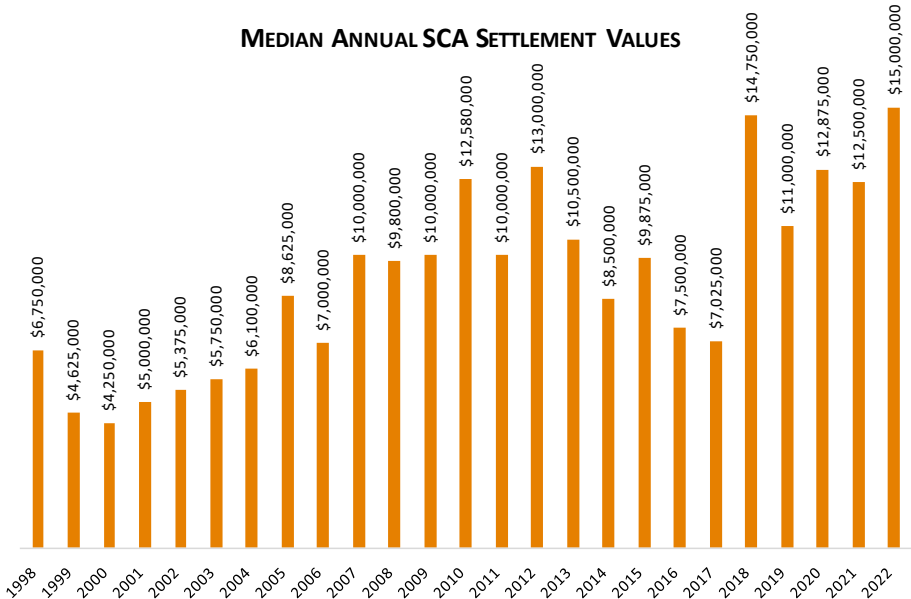
ANNUAL SCA FILINGS



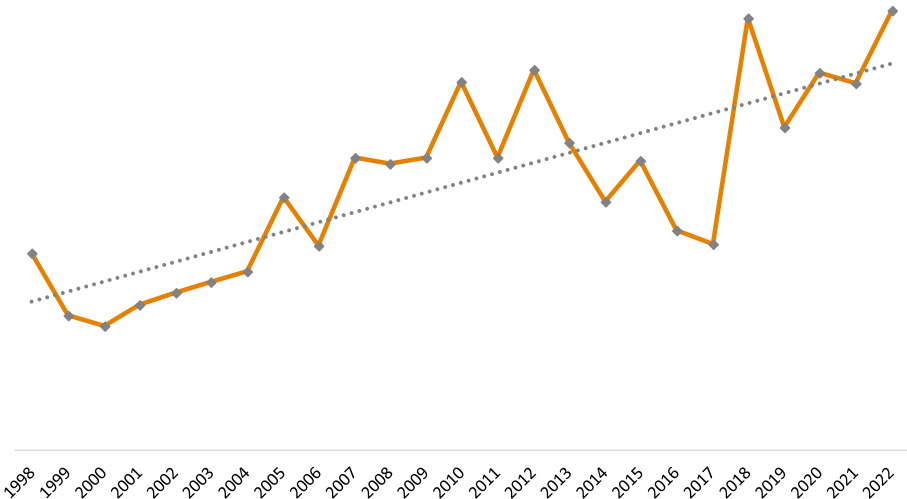
ANNUAL SCA FILINGS TREND



MEDIAN ANNUAL SCA SETTLEMENT VALUES



MEDIAN ANNUAL SCA SETTLEMENT VALUE TREND



**CORE METHODOLOGICAL SPECIFICS**

# Peer Group Framing and Data Sources

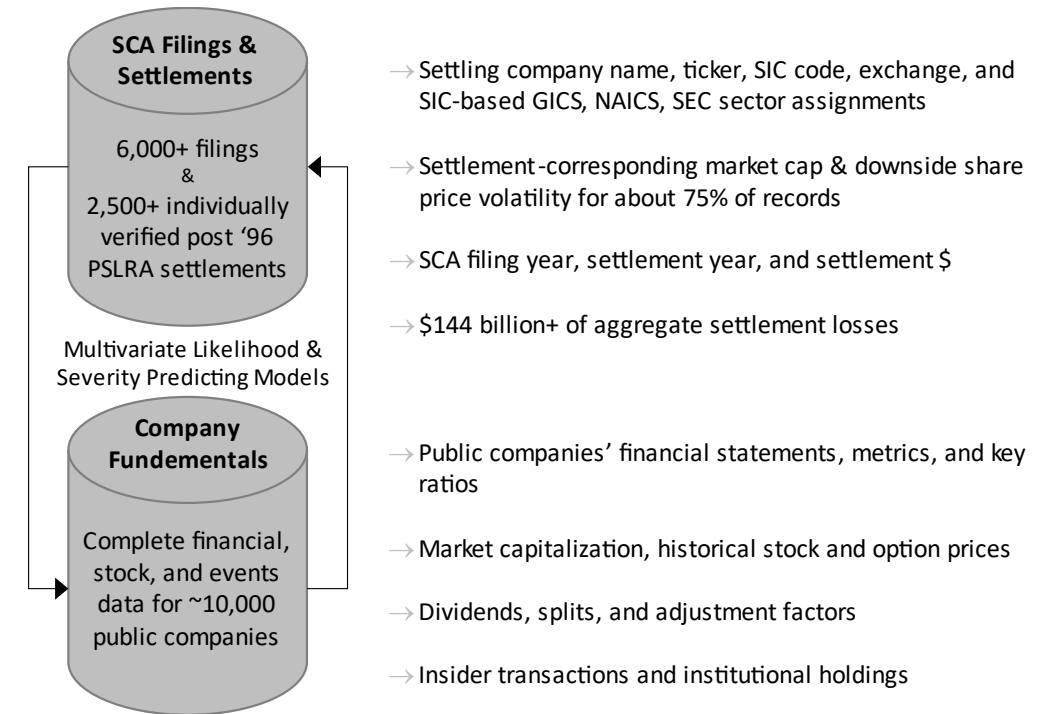
## Peer Groups

Mutually exclusive & collectively exhaustive schema built around SEC-defined industry segments and FINRA-defined market cap tranches

SEC Industry Sectors	Energy & Transportation	Energy & Transportation Nano	Energy & Transportation Micro	Energy & Transportation Small	Energy & Transportation Mid	Energy & Transportation Large
	Financial Services	Financial Services Nano	Financial Services Micro	Financial Services Small	Financial Services Mid	Financial Services Large
	Life Sciences	Life Sciences Nano	Life Sciences Micro	Life Sciences Small	Life Sciences Mid	Life Sciences Large
	Manufacturing	Manufacturing Nano	Manufacturing Micro	Manufacturing Small	Manufacturing Mid	Manufacturing Large
	Real Estate & Construction	Real Estate & Construction Nano	Real Estate & Construction Micro	Real Estate & Construction Small	Real Estate & Construction Mid	Real Estate & Construction Large
	Technology	Technology Nano	Technology Micro	Technology Small	Technology Mid	Technology Large
	Trade & Services	Trade & Services Nano	Trade & Services Micro	Trade & Services Small	Trade & Services Mid	Trade & Services Large
		FINRA Market Cap Tranches				
	<\$50M	\$50M-\$250M	\$250M-\$2B	\$2B-\$10B	\$10B+	

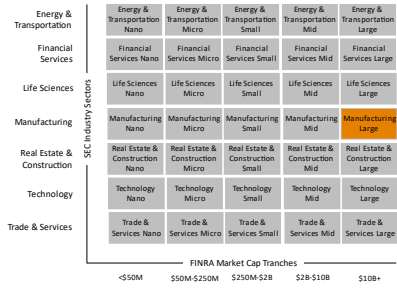
## Data Sources

Running repository of **all** post-PSLRA ('96) securities litigation filings and settlements + full set of company-specific fundamentals & stock details

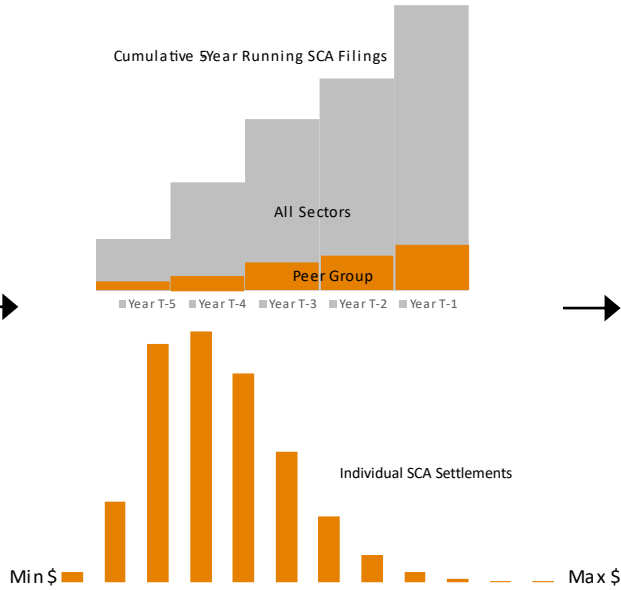


# General Logic of Company-Specific Likelihood & Severity Estimation

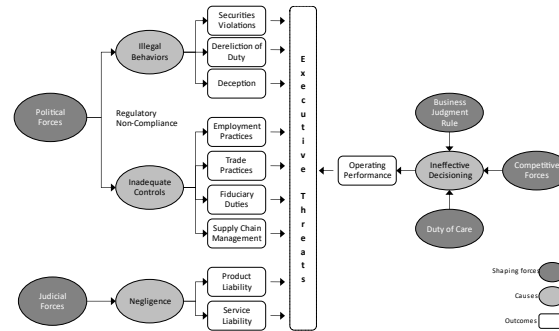
## Focal Peer Group



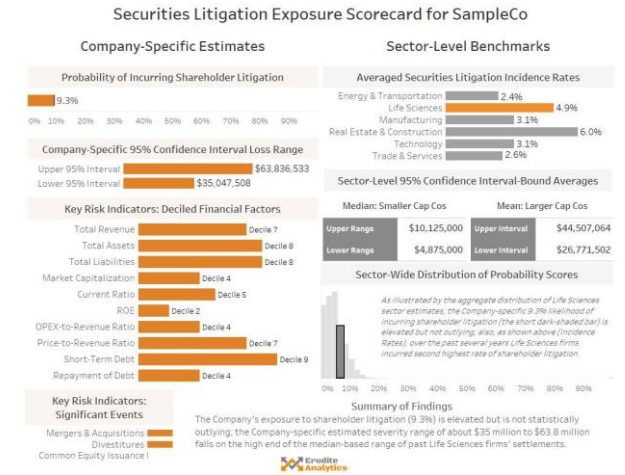
## SCA Filings & Settlement Details



## Multivariate Predictive Modeling



## Company-Specific Scoring



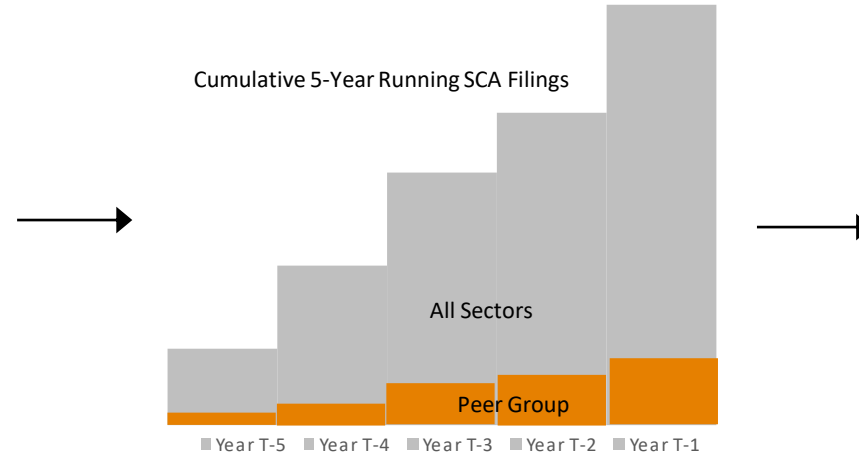


# General Logic of Peer Benchmarking: Likelihood of Shareholder Litigation

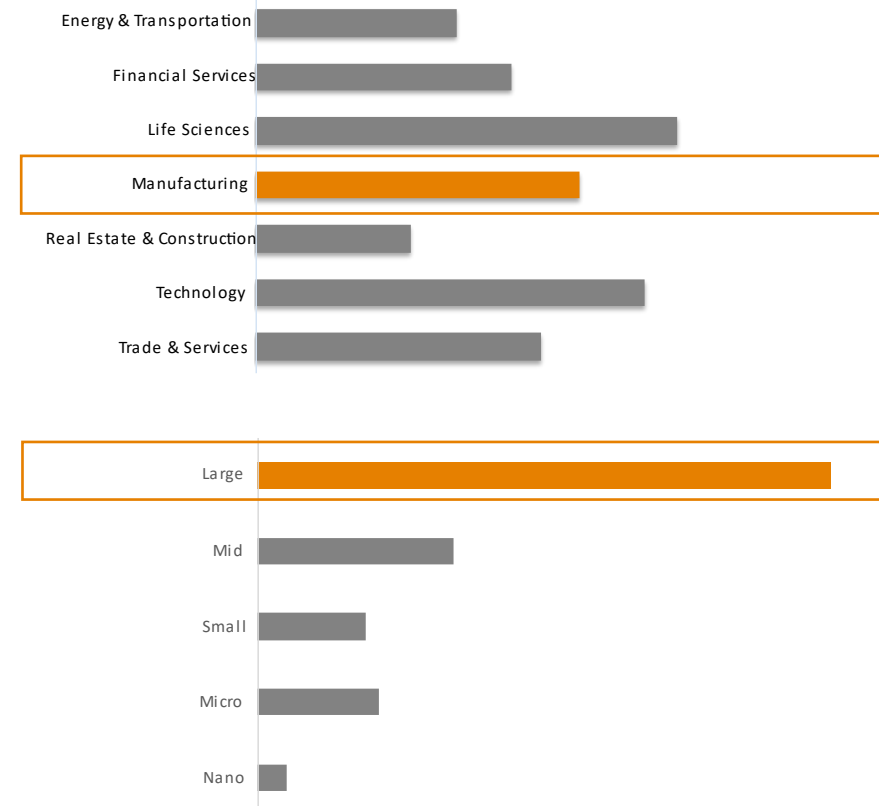
## Peer Group of Interest

SEC Industry Sectors	FINRA Market Cap Tranches				
	<\$50M	\$50M-\$250M	\$250M-\$2B	\$2B-\$10B	\$10B+
Energy & Transportation	Energy & Transportation Nano	Energy & Transportation Micro	Energy & Transportation Small	Energy & Transportation Mid	Energy & Transportation Large
Financial Services	Financial Services Nano	Financial Services Micro	Financial Services Small	Financial Services Mid	Financial Services Large
Life Sciences	Life Sciences Nano	Life Sciences Micro	Life Sciences Small	Life Sciences Mid	Life Sciences Large
Manufacturing	Manufacturing Nano	Manufacturing Micro	Manufacturing Small	Manufacturing Mid	Manufacturing Large
Real Estate & Construction	Real Estate & Construction Nano	Real Estate & Construction Micro	Real Estate & Construction Small	Real Estate & Construction Mid	Real Estate & Construction Large
Technology	Technology Nano	Technology Micro	Technology Small	Technology Mid	Technology Large
Trade & Services	Trade & Services Nano	Trade & Services Micro	Trade & Services Small	Trade & Services Mid	Trade & Services Large

## 5-Year Recency-Weighted Filings Trend

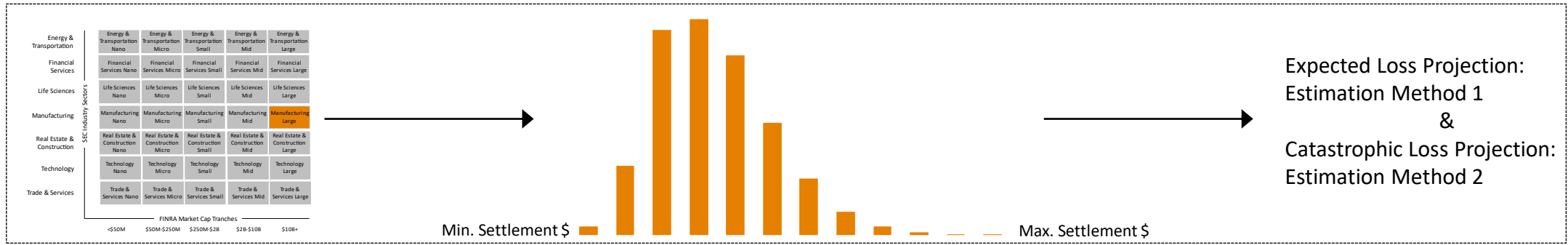


## 2-Tier Comparative Frequency Assessment



# General Logic of Peer Benchmarking: Severity of Shareholder Litigation

## SCA Settlements for Sector-Market Cap Tranche Framed Peer Group



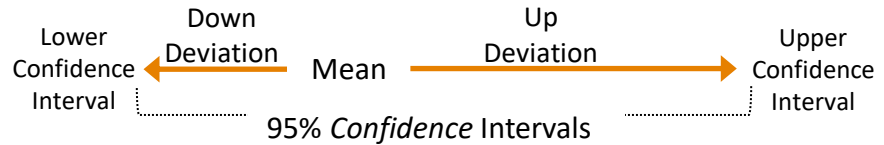
Expected Loss Projection:  
Estimation Method 1  
&  
Catastrophic Loss Projection:  
Estimation Method 2

**Estimation Method 1: Distribution Derived Projection**  
(commonly known as frequentist approach)

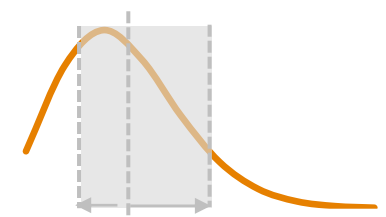
**Estimation Method 2: Marginal Likelihood Optimization**  
(also known as empirical Bayes)

Mean  $\pm$  Averaged Up and Down Variance  
(trimmed mean; separately estimated up and down variance)

(Minimum value – Smallest 2.5%) – (Maximum value – Largest 2.5%)

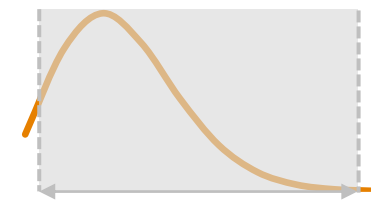


**Captures the *Most Likely* Loss Range**



**Expected Scenario**

**Captures the *Maximum Probable* Loss Range**



**Catastrophic Scenario**