



# Overview and Demonstration of **ISO Size-of-Loss Matrix: Researching Market Trends**

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Thursday Product Spotlight  
Presented by ISO Excess & Reinsurance

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### **John Buchanan, FCAS, MAAA**

*Managing Principal*

Excess and Reinsurance Division  
ISO Solutions



# ISO Size-of-Loss Matrix: Researching Market Trends

- A key task for actuaries, underwriters, and product managers is to condense a large amount of data and information, and convert that into actionable research for various opportunistic or problem markets.
- In this session, we will demonstrate a unique primary and excess data and analytics platform designed to graphically and holistically better understand the complexities and results of extensive actuarial analyses and market research.
- Using SOLM, we will do a deeper dive into one of the 54 markets we research.

# ISO Size-of-Loss Matrix Overview



## Overview: Excess and Reinsurance Capabilities



Verisk / ISO's Excess and Reinsurance solution set provides a comprehensive, unique industry leading primary and excess data and analytics platform designed for many varied [research](#) needs. A key by product of all the E&R tools is to create graphic visuals, allowing a rich dialogue between various parts of the organization.

### Typical uses for the E&R tools:

- analyze unmatched extensive data for [benchmarking](#) in:
  - standard lines like commercial auto, general liability, and commercial property
  - non-standard lines like professional, umbrella & excess, and heavy property risks
- **rapidly access detailed triangle (2.5M triangles - \$1.8T 20+ year premiums/losses),** rate monitoring (1.1B policies), and property layering (7M curves) benchmarks
- **produce valuable data sets for holistically analyzing industry layer loss development factors, frequency/severity trends, rate changes, profitability, IELRs, correlations, etc.**
- high level graphical [visualizations](#) for market entry/exit decisions in 54 markets including peer company stratification and analyses
- extensive usage for US or global exposures

### Typical user groups:

- **pricing or reserving actuaries** busily prepare their own extensive analyses that quickly become must-haves and actionable
- **underwriters** find the graphical tools very easy to use for self-exploring and better understand the complexities of actuarial analysis to hone their requests
- **Product managers and executives** can see in a very clean and clear format the results of the market research

# Overview: SOLM and MarketWatch



## ISO Size-of-Loss Matrix

Data-driven solutions to help inform your primary, excess, and reinsurance decision making

ISO's Size-of-Loss Matrix provides extensive granular data, robust analytics, and a dynamic platform to help you better manage your risks. Anticipating the direction of the insurance market—and quickly reacting to changes—are critical for success in today's heightened competitive market.

Trends, loss development and profit measures are available for the following lines:

- Businessowners
- Commercial Auto
- Commercial Property
- Composite Rated Risks
- Commercial Inland Marine
- General Liability
- Medical Malpractice
- Professional Lines other than Medical
- Commercial Umbrella and Excess
- Personal Umbrella
- Homeowners

There are 54 markets, etc. resulting in 2.5M triangles

## ISO MarketWatch

ISO MarketWatch® analyzes pricing trends and market cycles by premium size, state, and insurance market. Unlike survey data, ISO MarketWatch uses actual rate changes from matched policies drawn from 980 million individual policies from 800 carriers. Comparisons of own company to Industry and aggregated peer groups are available.

New and Renewal Rate Changes are available for the following lines:

- Businessowners
- Commercial Auto
- Commercial Property
- Composite Rated Risks
- General Liability
- Medical Malpractice
- Professional Lines other than Medical
- Umbrella and Excess

There are 38 markets currently available for rate change analysis

# Overview: SOLM Markets Covered



## ISO SIZE OF LOSS MATRIX

ISO's Size-of-Loss Matrix 2018 v2 includes data on the following 54 markets: **[Total \$ Incurred Indemnity + ALAE]**

### Commercial Auto Liability (8)

- buses
- composite-rated risks
- garages
- miscellaneous
- private passenger types
- publics
- trucks, tractors, and trailers
- trucks, tractors, and trailers – zone-rated

### Commercial Auto Physical Damage

### Commercial Property (3)

- commercial
- manufacturing
- residential

### Commercial Inland Marine (5)

- builder's risk
- contractor's equipment
- motor truck cargo
- wireless communications equipment
- other

### General Liability (13)

- completed operations
- composite-rated risks
- contractors (countrywide)
- contractors (CA, FL, IL, NJ, NY, NYC, PA, TX)
- liquor
- local products
- manufacturers (countrywide)
- manufacturers (CA, NY)
- **owners, landlords, and tenants [36.9B]**
- pollution
- premises operations combined - Classes 1, 2, and 3
- products combined – Classes A, B, and C

### Businessowners

### Umbrella and Excess (3)

- premises/operations only
- commercial auto only
- premises/operations and commercial auto
- products

### Professional Liability (13)

- accountants
- agents
- architects and engineers
- directors and officers – for profit
- directors and officers – not for profit
- employment practices liability
- lawyers professional liability
- medical – allied health claims-made
- medical – allied health occurrence
- medical – dentists claims-made
- medical – hospital claims-made
- medical – physicians and surgeons claims-made
- other errors and omissions

**Total Commercial Lines (47) [519.3B]**

### Homeowners (3)

- forms 2&3
- forms 4&6
- form 5

### Personal Umbrella (4)

- auto excess
- homeowners and other excess
- primary
- other

**Total Personal Lines (7) [153.9B]**

### Total Personal &

**Commercial Lines (54) [673.2B]**

*Note: Each market (54) contains more than \$1B of either premiums or losses in triangles from 1997-2017 (Commercial Umbrella starts 1994; personal lines start 2001)*

# SOLM Market Research

## Deeper Dive and Demonstration







- **Loss ratios**
  - use infographics to visualize the LR interplay with trends, LDFs, rate changes, cause of loss, layers
- **Severity trends**
  - review both incurred and paid patterns using total \$ and claim count triangles
- **Layered loss development factors**
  - review e.g. 100x0, 150x100..., 4M xs 1M, ..., 30M xs 20M (Umbrella)
- **Layered excess frequencies**
  - analyze by layer to see if any specific patterns emerging with larger claims
- **Evaluate benchmarks through the underwriting cycle**
  - monitor shifts in length of loss development factor tail and reserving impacts from initial selections
- **Cross-market comparisons**
  - compare selected market to other similar markets including by size-of-company (regional, super-regional, national), development speed (fast vs. slow), average outstanding and settlement patterns

# Deeper Dive: Basic Triangle Building Blocks



## Illustrative

Incurred \$ Indemnity+Alae (Prorata) Triangle

	12	24	36	48
AY 1997	389,975,542	585,677,291	719,677,947	816,791,755
AY 1998	343,685,438	519,640,839	685,354,858	785,903,801
AY 1999	352,306,910	582,036,964	764,198,763	882,293,094
AY 2000	367,811,544	588,064,044	778,681,548	905,082,296
AY 2001	332,298,570	549,768,158	722,082,979	846,249,634
AY 2002	297,526,104	464,258,789	618,795,401	707,872,784
AY 2003	253,240,260	376,908,089	483,814,535	556,348,994
AY 2004	252,584,527	385,478,278	483,422,002	554,695,669
AY 2005	255,559,431	391,795,461	521,053,536	582,550,854
AY 2006	260,422,066	412,767,214	523,105,502	597,339,454
AY 2007	300,845,736	472,482,087	579,198,644	655,316,660
AY 2008	272,964,467	438,772,437	543,801,900	627,400,081
AY 2009	309,440,127	474,158,872	614,487,641	713,426,351
AY 2010	313,440,574	502,840,371	664,866,485	763,666,511
AY 2011	343,957,761	546,904,704	698,782,051	804,074,917
AY 2012	304,128,154	471,715,609	623,033,274	728,354,260
AY 2013	320,811,182	549,841,890	719,057,318	853,950,300
AY 2014	365,943,360	582,531,697	761,777,423	867,124,068
AY 2015	359,562,210	594,480,509	809,286,173	
AY 2016	331,809,911	580,038,407		
AY 2017	369,914,843			
14, 2015, 2016, 2017:	13,495,036,220	14,446,719,234	15,436,754,642	16,470,947,419

	24/12	36/24	48/36	60/48
AY 1997	1.502	1.229	1.135	1.052
AY 1998	1.512	1.319	1.147	1.071
AY 1999	1.652	1.313	1.155	1.082

SOLM Settings Menu

SOLM 2018 v2.02  
Expiration Date: 7/31/2019

**SOLM Settings**

**Market Selection**

Line of Business: General Liability

Market: Owners Landlords & Tenants

Class Group: All Hazard Groups

State: Countrywide

Company: Regional

Multiple Markets:

**Data Details**

Data Threshold Min: 0

Data Threshold Max: >5,000,000

Deductible/Attachment: Low

Limit: High

Database/DLL Location: C:\ISO ER\SOLM\SOLM-2018v2 - Internal Version\

**Type of Analysis Selection**

Paid vs Incurred: INCURRED

Loss Type: \$ Indemnity+ALAE (ProRata)

Analysis Method: Premium (MW rate change)

Cause of Loss: All Causes of Loss

Year Type: Loss Year

**Triangle Details**

Trend: 3.0%

# year ATA/ATU factor: 7

LDF Weight: 1

Ex Ante: 0

OK & Calculate

Calc Details

Ex-Ante Analysis

Account Pricing Stats

Average Outstanding

Underwriting Cycle

Cancel

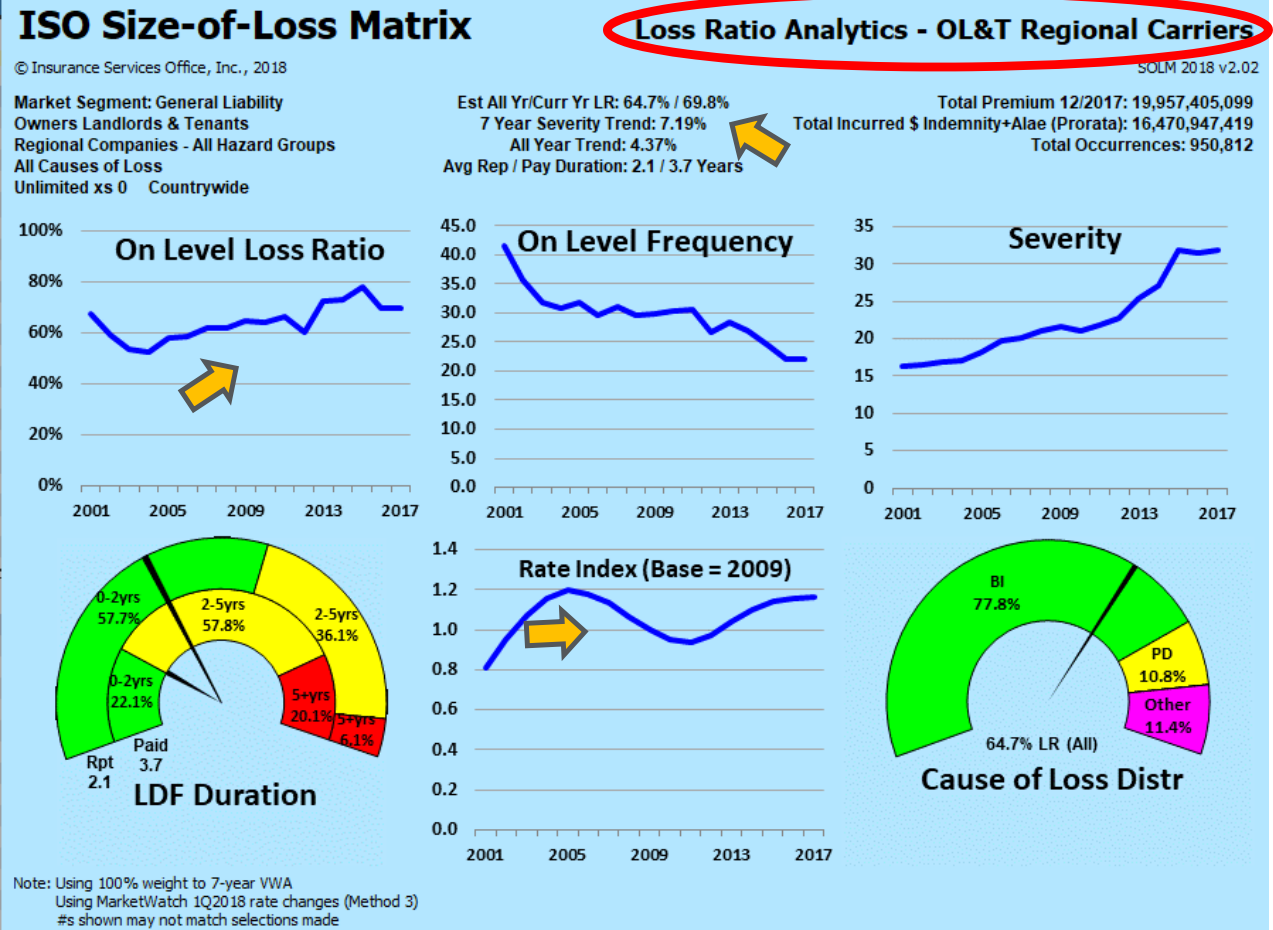
Menu Keyboard Shortcut: Ctrl+Shift+M



Overall on-level OL&T regional loss ratios deteriorated from 2004 to 2015, with some modest improvement in the last two years. The deterioration is due to ground-up 7-year severities running at 7.2%/year for regional carriers, while the early year frequency decline stopped in 2009 and inched up afterwards. Rates declined from 2005 to 2011, and even with recent increases are only about 19% higher than 2009 levels.

Average reported and paid losses are relatively quick at 2.1 years and 3.7 years respectively, while ground-up losses are mostly BI at 77.8%.

The current estimated loss ratio of 69.8%, is 5.1 points worse than longer term on-level average of 64.7%.



Note: SOLM 2018v2 released 9/2018 (using expanded MarketWatch method 3-new and renewal including impacts from ILFs)

# SOLM Market Research Survey of Market Results

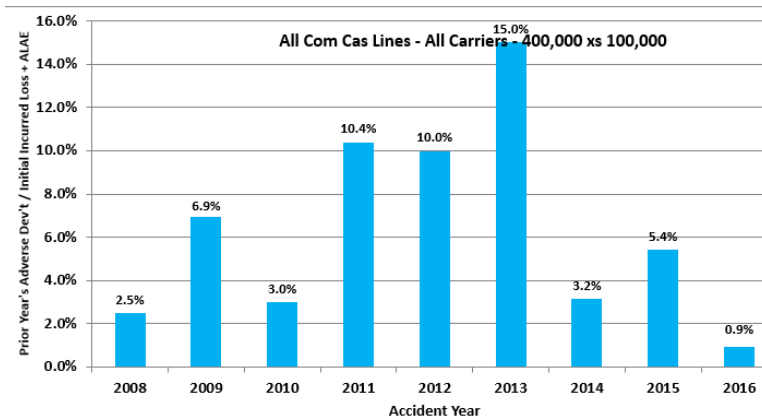


# SOLM Total Market: Reserve runoff Tests



The excess LDFs for each accident year from 2008 to 2016 shows some adverse development. Accident year 2013 has lengthened the most thus far, by a total of 15% from an initial estimate of \$3.6B for 400x100k.

Illustrative



## ISO SOLM 2018 v1.99a - Development Triangle and Analysis

Ex-ante Reserving Analysis Runoff Tests (through 12/31/2017)  
 Market Analysis: All Com Cas Lines - All Carriers  
 Assumptions: Incurred \$ Indemnity+Alae (Prorata); 400,000 xs 100,000; 7 yr VWA (100% wt); 3.0% detrended threshold

Select Metric here:		CY2017	CY2016	CY2015	CY2014	CY2013	CY2012	CY2011	CY2010	CY2009	CY2008	CY2007	CY2006	CY2005	CY2004		
Runoff % Adv (Fav)	Ultimate Est. INCURRED @12 mos	1	2	3	4	5	6	7	8	9	10	11	12	13	14		
0.1%	2,478,154,761	1,793,156	2000	3,560,099	(4,419,444)	29,002	2,860,901	4,305,828	(8,330,668)	1,823,921	(14,339,632)	(1,834,988)	4,842,246	8,289,156	(28,841,380)	(24,586,970)	(37,820,881)
-13.8%	4,313,571,410	(597,384,561)	2001	(822,648)	501,801	(6,602,404)	12,092,613	(13,933,631)	852,575	(15,811,297)	(21,801,320)	(19,853,995)	(10,035,712)	(24,048,207)	(97,941,793)	(174,907,937)	(139,309,537)
-13.7%	4,663,425,672	(640,437,434)	2002	2,575,928	1,154,007	772,498	7,936,744	(7,323,930)	(8,625,358)	4,334,791	(15,140,290)	(20,514,644)	(17,095,661)	(67,390,229)	(126,383,826)	(145,868,544)	(95,752,382)
-10.5%	4,434,989,791	(465,126,068)	2003	1,459,811	(3,148,404)	(1,883,563)	(4,811,807)	6,952,204	(11,744,822)	(4,742,707)	(24,747,424)	(40,819,984)	(5,368,195)	(94,204,234)	(171,492,507)	(131,123,002)	20,548,564
-10.6%	4,418,031,191	(467,368,877)	2004	1,812,394	(2,218,214)	(7,987,820)	(2,489,682)	(10,326,188)	(6,969,837)	(11,966,073)	(34,401,602)	(38,265,218)	(45,852,023)	(144,411,647)	(189,297,381)	25,004,415	
-6.7%	4,406,220,050	(294,999,927)	2005	(98,618)	(3,019,866)	(8,617,586)	6,687,355	(9,268,111)	2,727,765	(555,887)	(38,797,260)	(45,770,592)	(82,422,429)	(197,548,806)	81,684,107		
-6.9%	4,719,106,744	(325,049,873)	2006	3,836,769	490,430	(8,329,122)	(10,173,961)	9,698,180	5,000,333	(12,821,752)	(54,600,282)	(113,919,530)	(157,758,909)	13,527,971			
-5.0%	5,044,582,911	(249,720,202)	2007	11,658,717	12,666,384	(3,674,259)	3,876,299	8,930,600	23,281,280	(49,726,105)	(138,024,181)	(59,064,915)	(59,644,022)				
2.5%	4,223,338,071	104,908,538	2008	6,574,525	(7,307,272)	(4,631,086)	22,249,847	26,270,226	82,632,162	(48,321,187)	(28,545,382)	55,986,704					
6.9%	3,701,231,232	256,127,853	2009	(81,493)	2,132,773	(10,018,896)	26,310,583	53,854,998	109,216,873	(65,380,747)	140,093,784						
3.0%	4,076,043,385	122,004,788	2010	(342,804)	(2,935,661)	(12,358,499)	65,766,358	21,567,232	74,271,492	(23,963,330)							
10.4%	3,648,922,789	379,271,178	2011	16,437,670	18,090,881	26,210,882	106,156,159	41,761,534	170,614,053								
10.0%	3,614,335,236	361,173,931	2012	298,903	42,203,792	79,690,003	180,933,350	58,047,883									
15.0%	3,641,158,282	546,527,906	2013	75,024,258	139,485,779	122,000,079	210,017,790										
3.2%	4,649,834,487	146,951,391	2014	86,381,727	124,582,394	(64,012,730)											
5.4%	4,427,403,856	239,126,288	2015	167,533,081	71,533,207												
0.9%	4,799,418,439	43,731,246	2016	43,731,246													

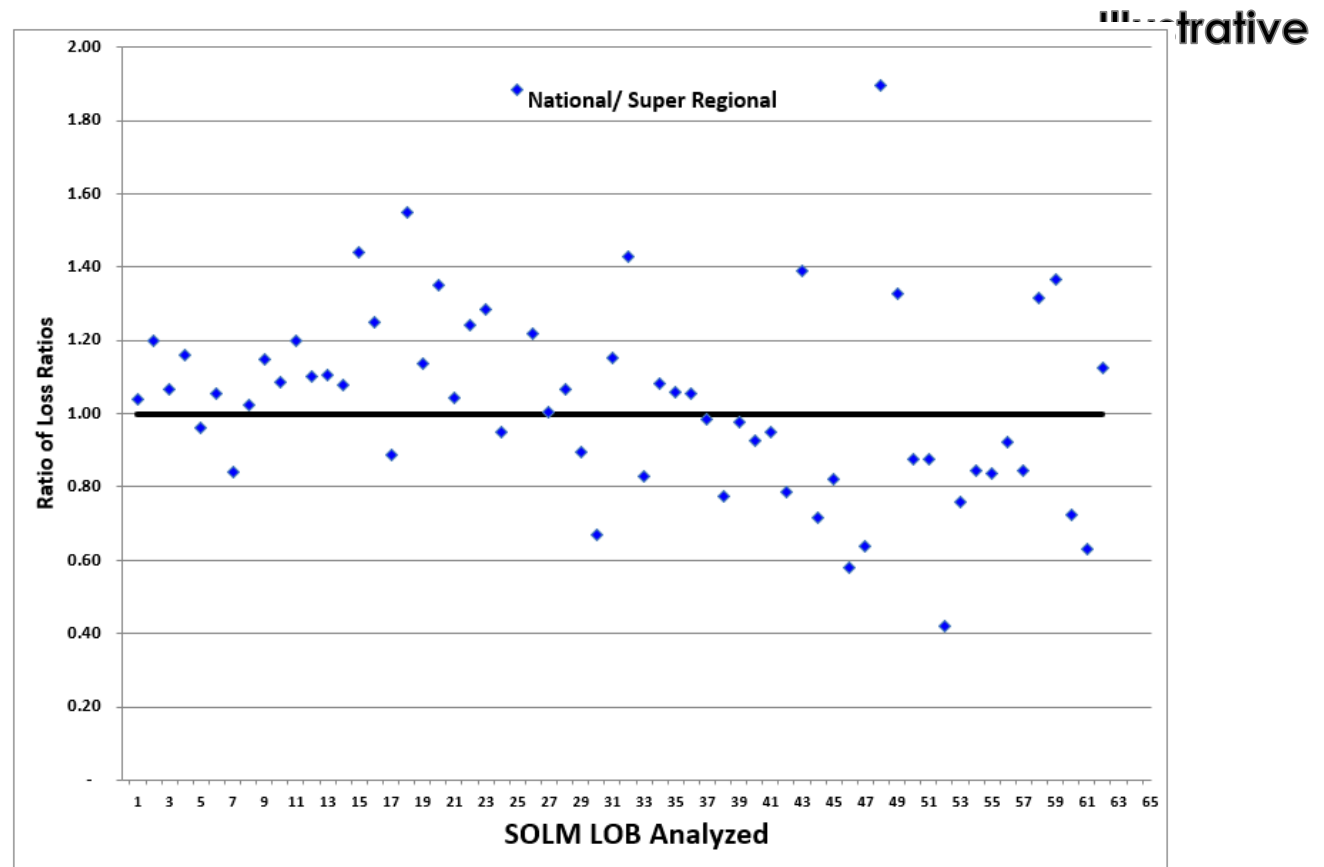
Minimum	Maximum	Actual vs Expected Development: AY x CY
-4.5%	-1.3%	Favorable development
-1.3%	-0.5%	Somewhat favorable
-0.5%	0.5%	Within +/-5% of original estimate
0.5%	1.8%	Somewhat adverse
1.8%	5.8%	Adverse development

Sources: Using pre-release SOLM 2018 v2 – mechanical selections of VWA (100% 7-year)



## National vs. Super Regional Companies – 5 Years – Ground-Up

In general, especially for the casualty lines, Super Regional carriers appear to perform somewhat better than National carriers. But not significantly better overall across all lines.



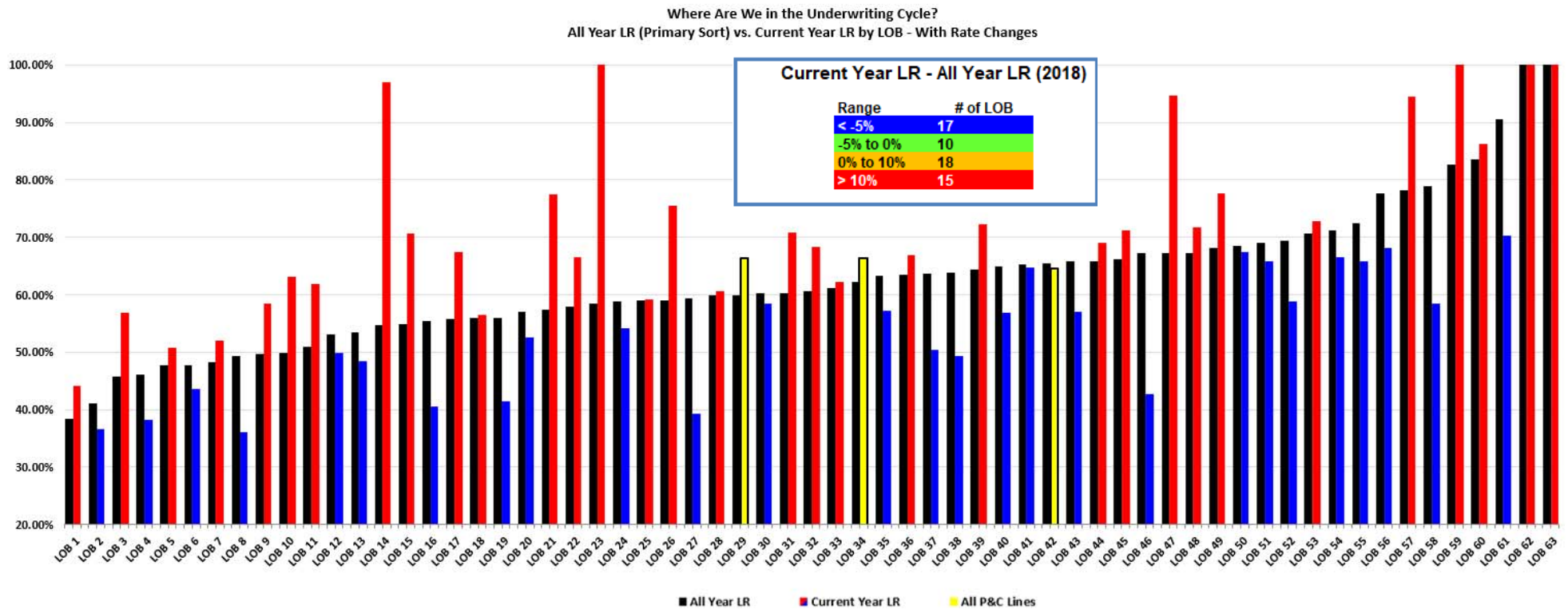
Source: ISO Monday Webinar – 10/1/2018 presented by John Buchanan, Marni Wasserman (recorded)

Additional info: CAS Casualty Loss Reserve Seminar Anaheim CA- Sept. 2018, LOB-13- Overlooking Tails and LOB 15 – Commercial Auto John. Buchanan – ISO (recorded)

# SOLM Survey of Market Results: Investigating Underwriting Cycle



## Illustrative

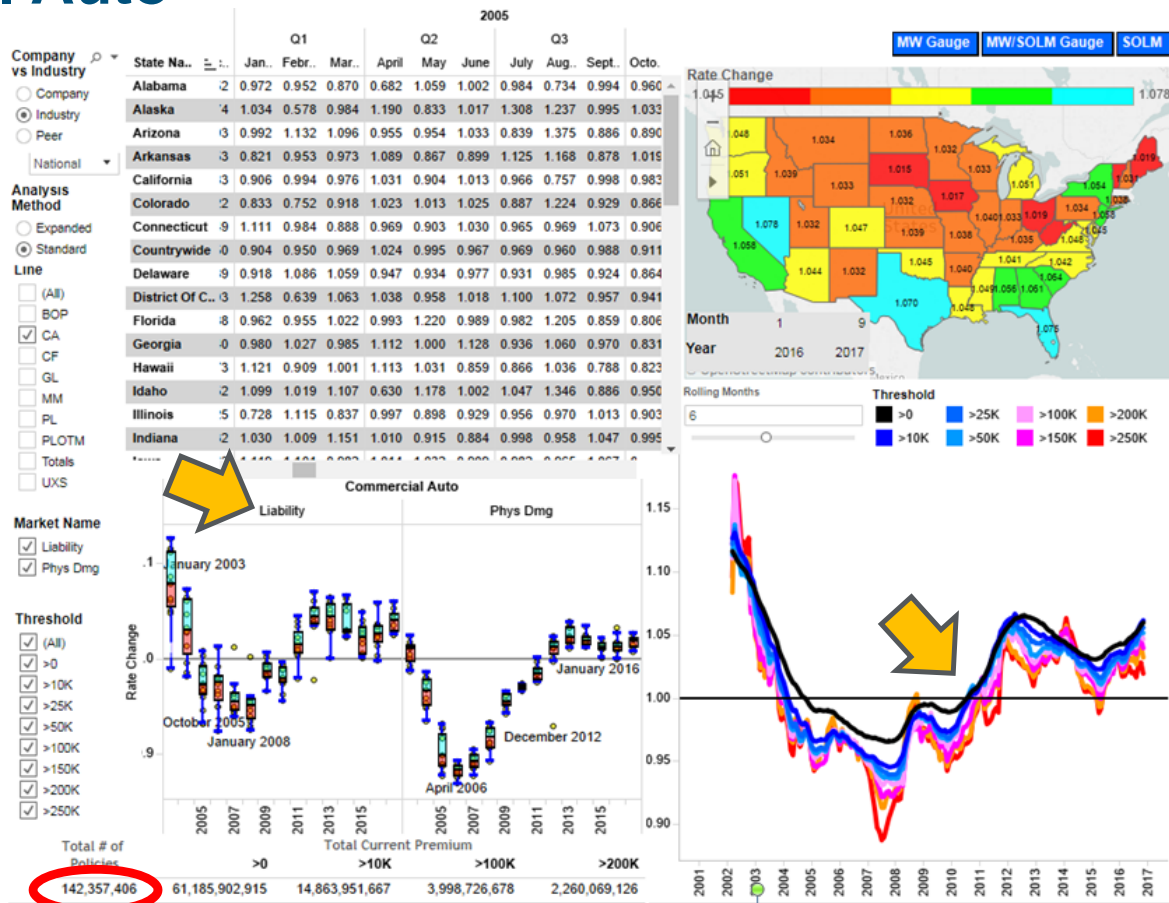


Source: ISO SOLM 2018 v2 . Using 20 year triangles (5-year VWA incurred LDFs).  
LOBs include various GL, CAU, Professional Lines, Umbrella, Comm'l Property, CIM, and BOP.



# ISO MarketWatch Dashboard (to be released 4Q 2018)

## Commercial Auto



Illustrative

Source: ISO MarketWatch Dashboard; values shown may not match selections shown; peer group refers to aggregated level of companies





## For additional research and sample uses of SOLM:

- ISO Thursday Product Showcase – 10/18/2018: ISO Size-of-Loss Matrix Researching Market Trends (J. Buchanan; recorded)
- ISO Monday Webinar – 10/1/2018: Reserve Runoff Tests and Profitability (J. Buchanan, M. Wasserman; recorded)
- ISO Monday Webinar – 9/11/2017: Profitability and Company Loss Development Speed (J. Buchanan, M. Wasserman; recorded)
  
- CAS CLRS Anaheim CA – 9/6/2018, LOB 13 – Overlooking Tails Hypothetical Submission (J. Buchanan, et al; recorded by CAS)
- CAS CLRS Anaheim CA- 9/6/2018, LOB 15 – Wheels of Misfortune Commercial Auto (J. Buchanan, et al; recorded by CAS)
- CAS CARE Brooklyn NY- 6/4/2018, IT-1 – Overlooking Tails Hypothetical Submission (J. Buchanan, et al; recorded by CAS)
- CAS CARE Brooklyn NY- 6/4/2018, C-23 – Wheels Spinning Commercial Auto (J. Buchanan, et al; recorded by CAS)
- CAS Webinar – 3/22/2018, Wheels Down Commercial Auto (J. Buchanan, et al; recorded by CAS)
- CAS CLRS Philadelphia PA- 9/12/2017, LOB 3 – Wheels Down Commercial Auto (J. Buchanan, et al; recorded by CAS)
- CAS CARE Washington DC- 6/5/2017, C-24 – Size of Loss Trend Matters (J. Buchanan, et al; recorded by CAS)

If interested in pdf or link to recordings for any of these, feel free to contact John or Marni below:

John Buchanan – 201-469-2335 [John.Buchanan@verisk.com](mailto:John.Buchanan@verisk.com)

Marni Wasserman – 201-469-2276 [Marni.Wasserman@verisk.com](mailto:Marni.Wasserman@verisk.com)



## Questions and Feedback

- **Send feedback to**  
– [mondaywebseminars@verisk.com](mailto:mondaywebseminars@verisk.com)

- **Ask Questions**  
– John Buchanan – 201-469-2335  
[John.Buchanan@verisk.com](mailto:John.Buchanan@verisk.com)

<http://www.verisk.com/iso/excess-reinsurance.html>