Verisk

Reserve Runoff Tests and Profitability:

What Is the Impact from Lengthening Loss Development Factors?

October 1, 2018
Monday Web Seminar
Presented by ISO

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Today's Presenters

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Managing Principal

Excess and Reinsurance Division

ISO

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Actuarial Analyst II

Excess and Reinsurance Division

ISO

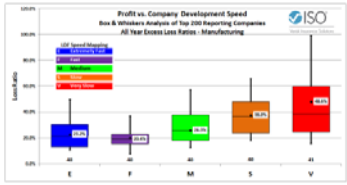
Topic

Reserve Runoff Tests and Profitability: What is the impact from lengthening loss development factors?

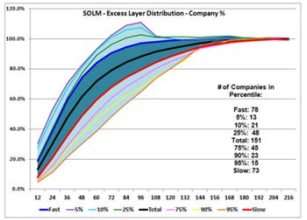
- Investigating early **changes in ground-up and excess loss development patterns** is critical to avoid the unrealized year on year cascading effect on longer tail lines of business that can imperil companies balance sheets.
- Reserving and pricing actuaries will often do **runoff tests** of actual vs. expected development factors on at least an annual basis to help assess these patterns selected and corresponding Initial Expected Loss Ratios.
- This session will provide an update to our 2017 Verisk Webinar on **analyzing the top 500 reporting companies**, linking loss development factors and profitability, including impacts of potential lengthening of loss development factors in various markets, and their accumulated effect on the underwriting cycle.

Verisk Monday Webinar: Reserve Runoff, LDF, Profitability Analysis

- **Investigating Profit Differences by Company**
  - Analysis of 500 individual companies
  - Review by size of company – regional, super-regional, national and reinsurance buying patterns



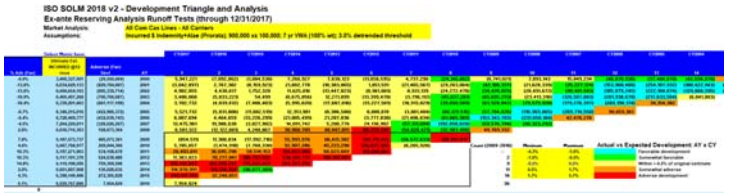
- **Further Investigation of Loss Development Speed and Profitability Link**
  - Loss development percentile distributions – quintiles (EFMSV)
  - Impact on loss ratios – ground-up, excess, and frequencies
  - Survey of 54 markets



- **Lengthening Development Factors and Impact on Reserve Runoff**
  - Sample runoff tests – actuarial puzzle
  - Comparisons by market, including reserving and settlement practices
  - Impact on underwriting cycle profitability

Appendix

- Markets covered
- Data background
- Additional case reserving testing



Company Profitability Investigation

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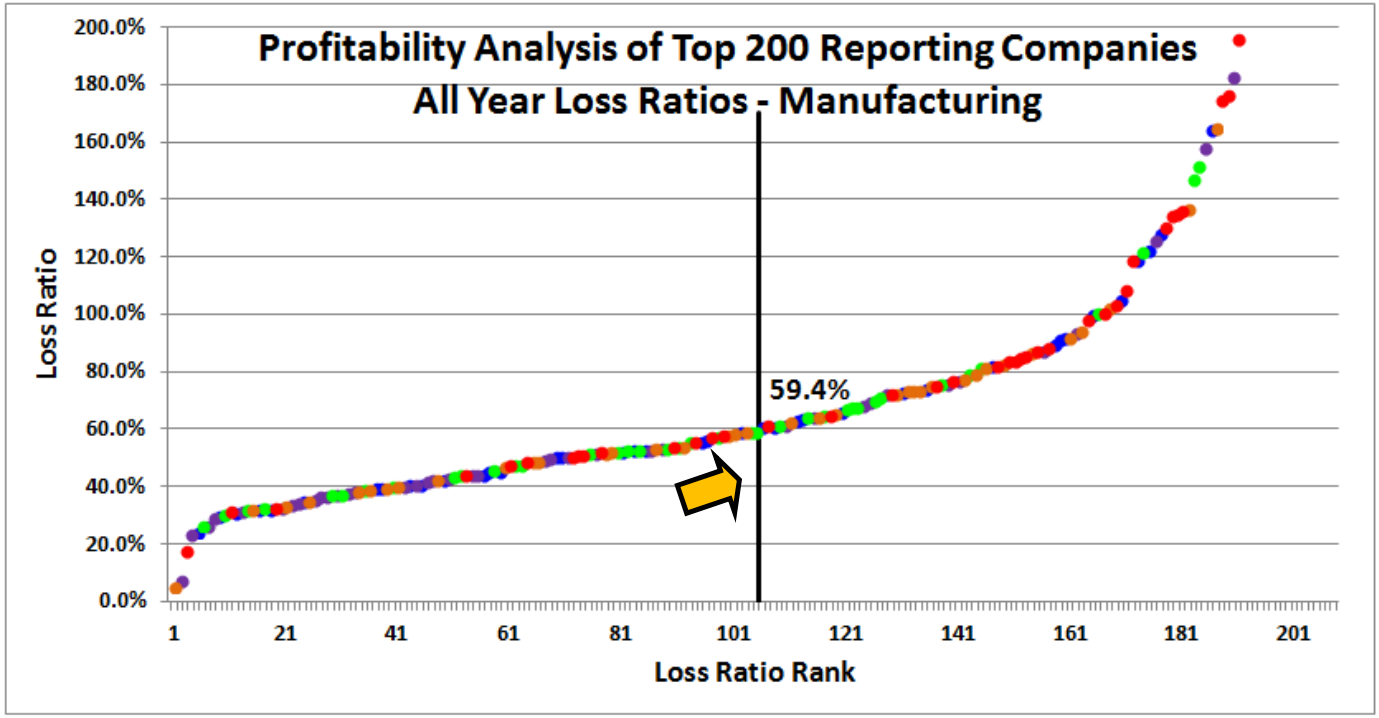
Why Are Company Results so Different From Each Other?
Investigating GL Manufacturing Classes

Illustrative

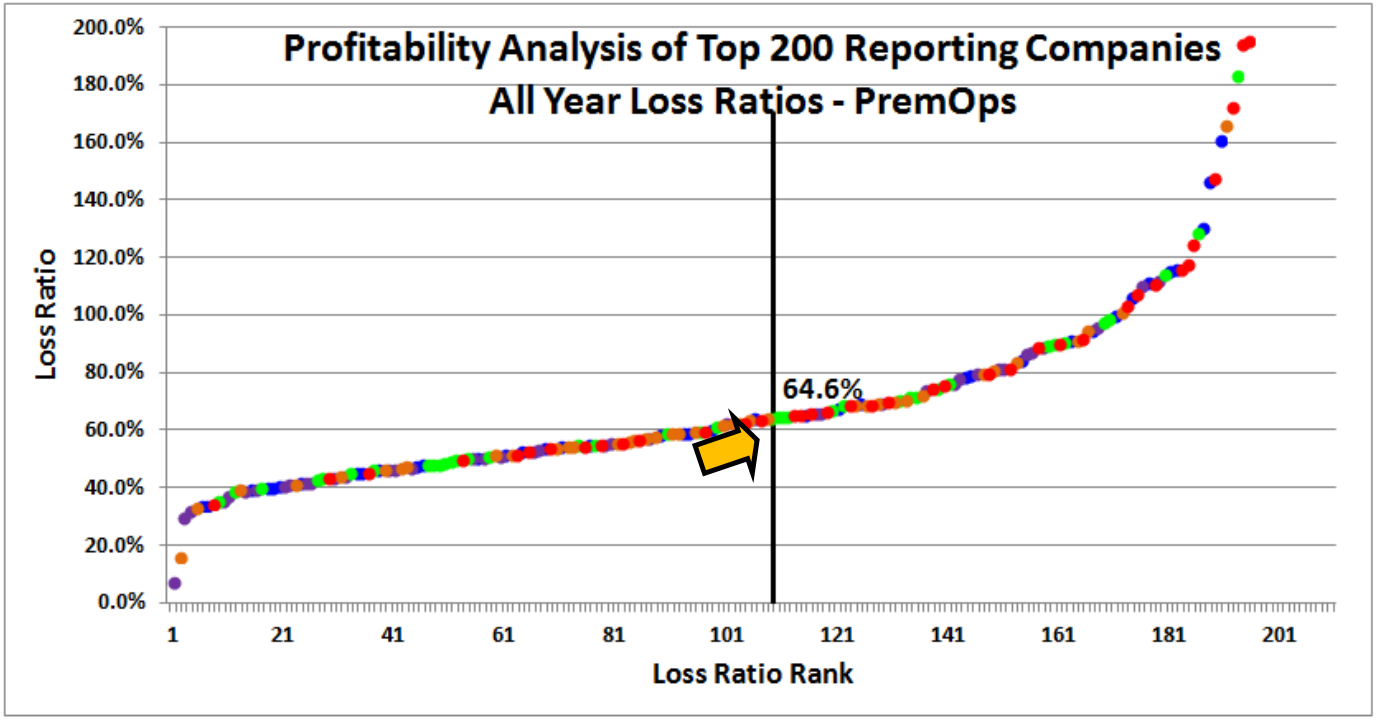


Note: Total loss ratios (2001-2016) use 20 year loss triangles and all-year LDFs; each individual company uses credibility weighted all-year industry factors, split between Fast and Slow for apriori; see Appendix for sample GL Manufacturing Classes

Source: Verisk Monday Webinar – 9/11/2017 – John Buchanan, Marni Wasserman (recorded)
http://webinars.verisk.com/line-of-insurance/profitability-company-loss-development-speed/

Why Are Company Results so Different From Each Other?
GL Premises Operations

Illustrative



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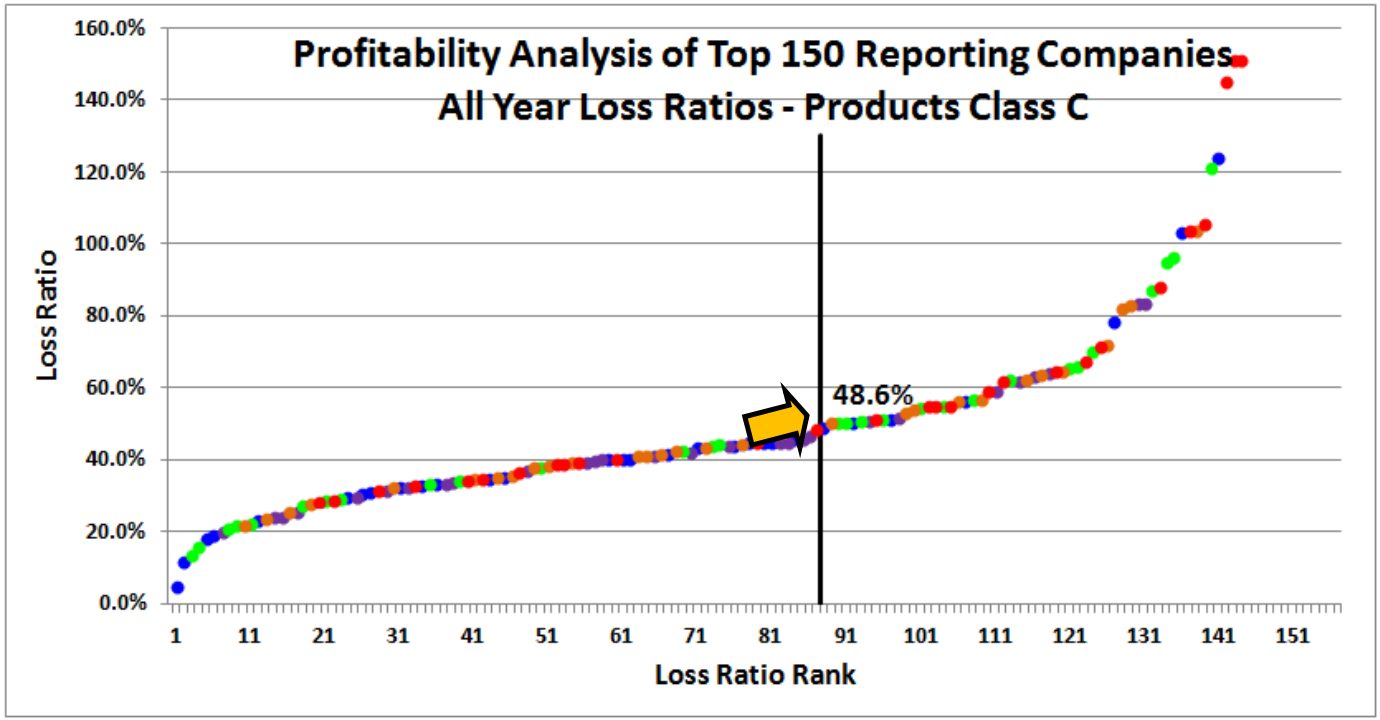
Why Are Company Results so Different From Each Other?
GL Products Class Group C

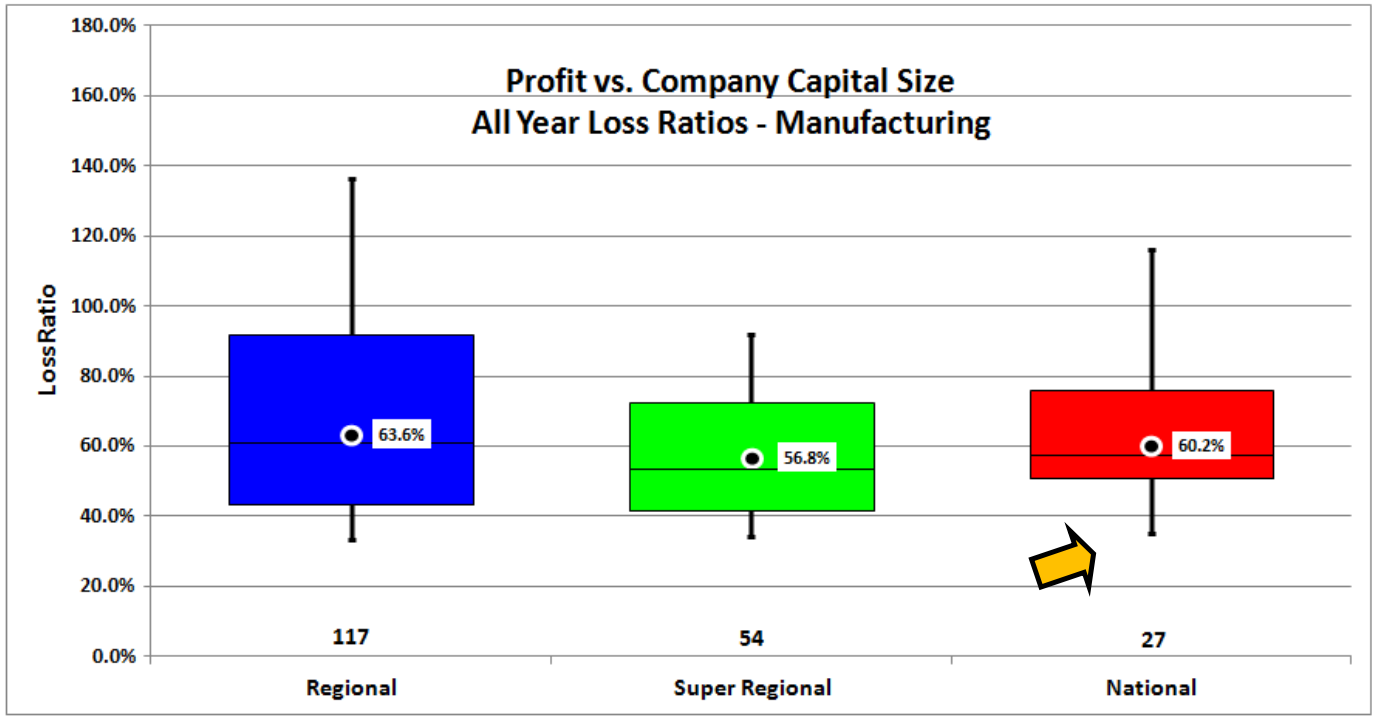
Illustrative



Note: Total loss ratios (2001-2016) use 20 year loss triangles and all-year LDFs; each individual company uses credibility weighted all-year industry factors, split between Fast and Slow for apriori; see Appendix for sample Products Class C Classes

Is There a Connection between Profitability and Company Capital Size?
Ground-up Losses – All Years – GL Manufacturing

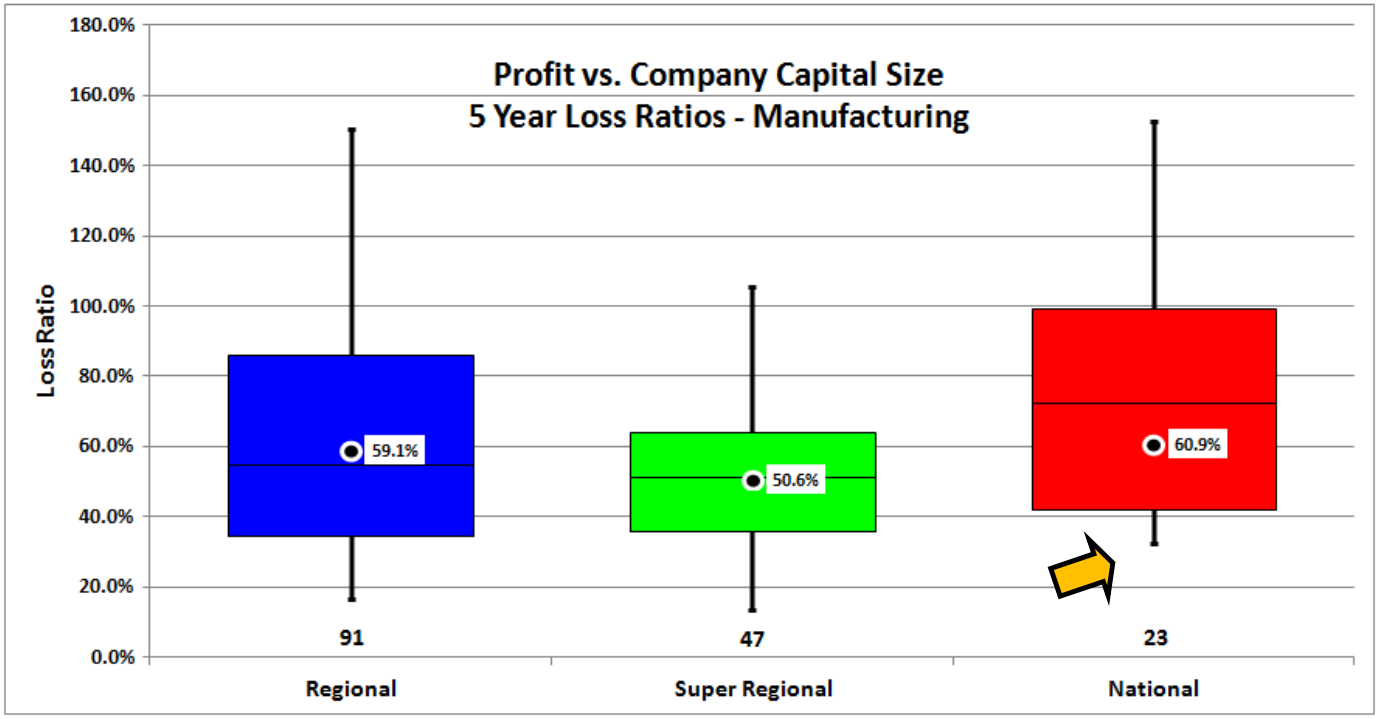
Illustrative



Note: Top error bar is 90th percentile, top of box is 75th percentile, line in box is 50th percentile, bottom of box is 25th percentile, bottom error bar is 10th percentile.

Is There a Connection between Profitability and Company Capital Size?
Ground-up Losses – 5 Years – GL Manufacturing

Illustrative



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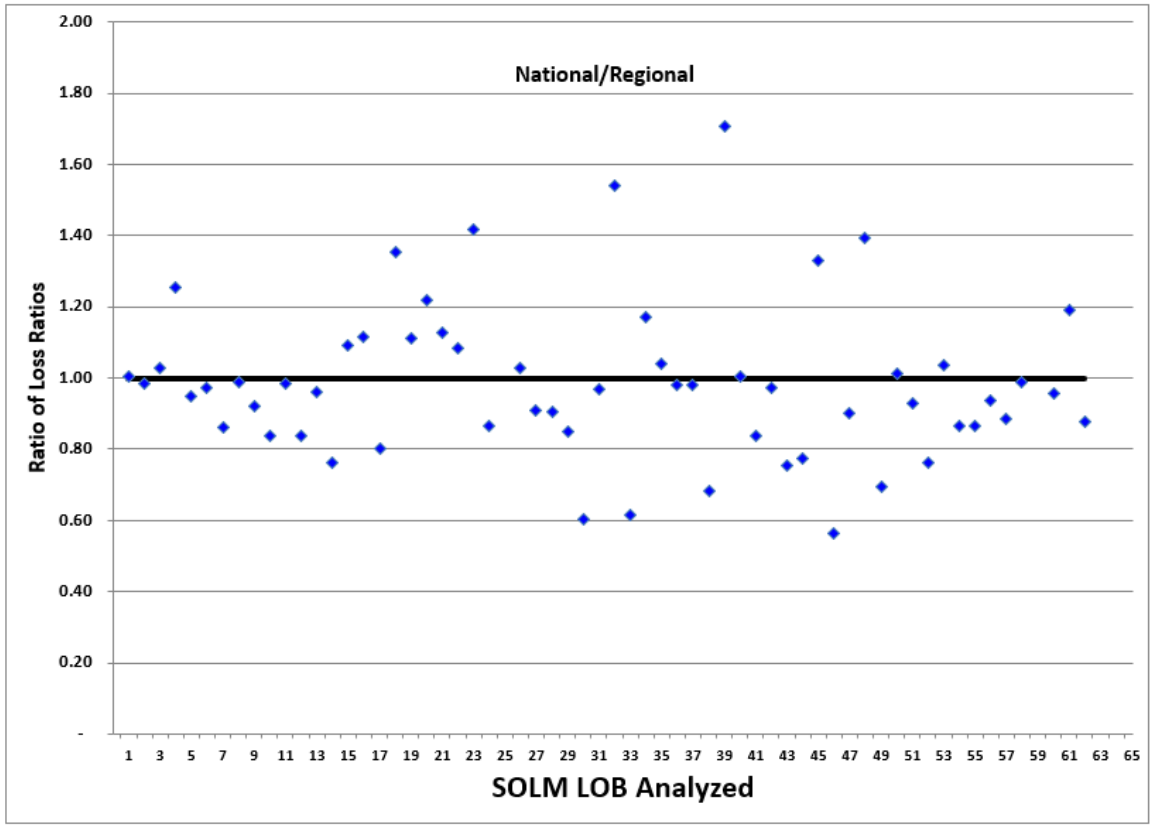
Is There a Connection between Profitability and Company Size?
National vs. Regional Companies – 5 Years – Ground-Up

Illustrative

There does not appear to be a pattern of clear profitability pattern difference between National and Regional carriers. For some lines of business the national carriers have higher loss ratios, and for others regional carriers have higher loss ratios.



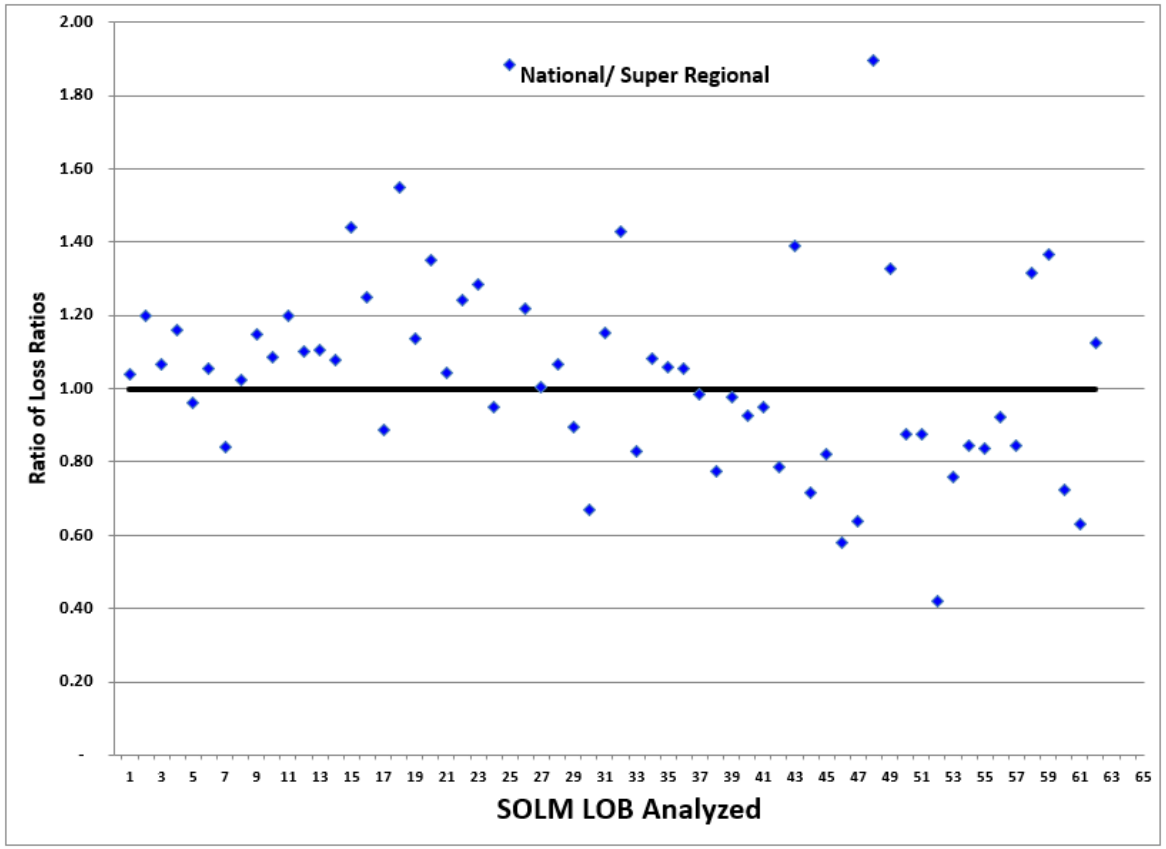
Sources: Using SOLM 2018 v2; National carriers >1B in capital, Super-regional between 250M and 1B, Regional <=250M

Is There a Connection between Profitability and Company Size?

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

Illustrative

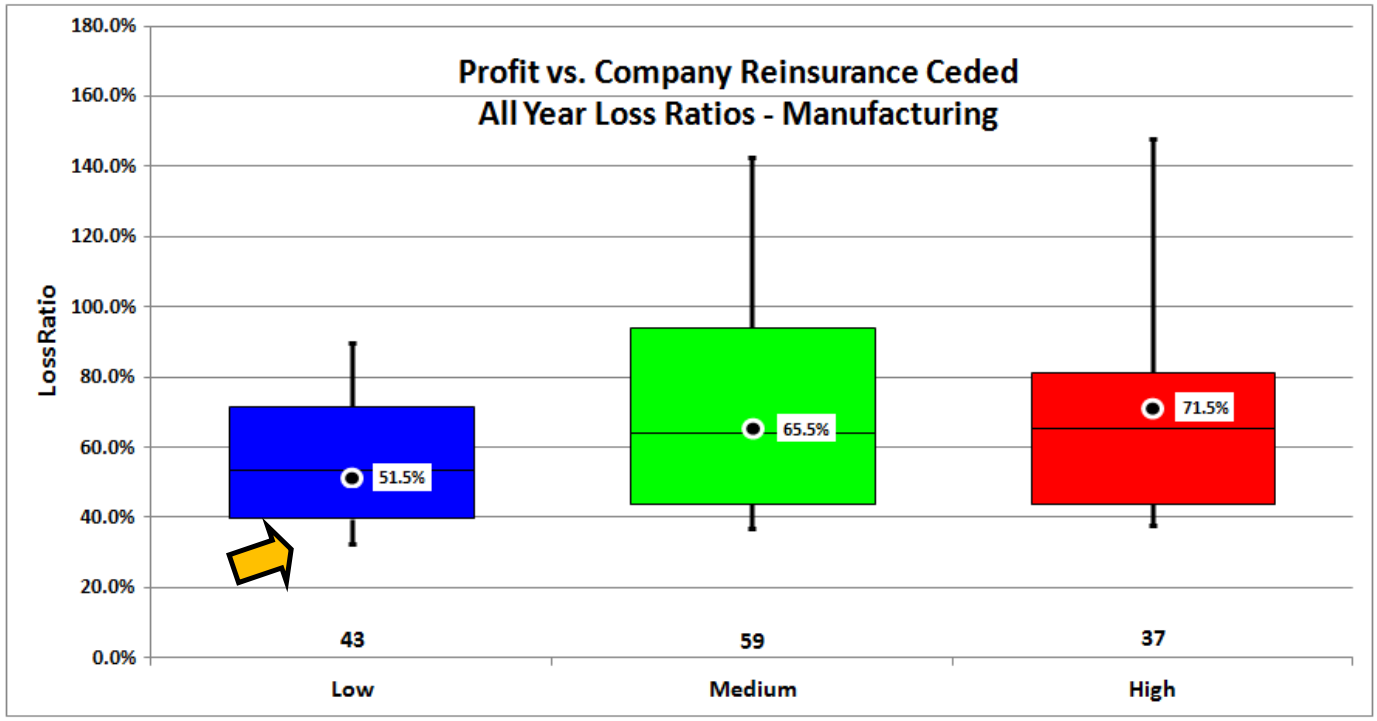
In general, especially for the casualty lines, Super Regional carriers appear to perform somewhat better than National carriers. But not significantly better overall across all lines.



Sources: Using SOLM 2018 v2

Is There a Connection between Profitability and Reinsurance Purchasing?
Ground-up Losses – All Years – GL Manufacturing

Illustrative



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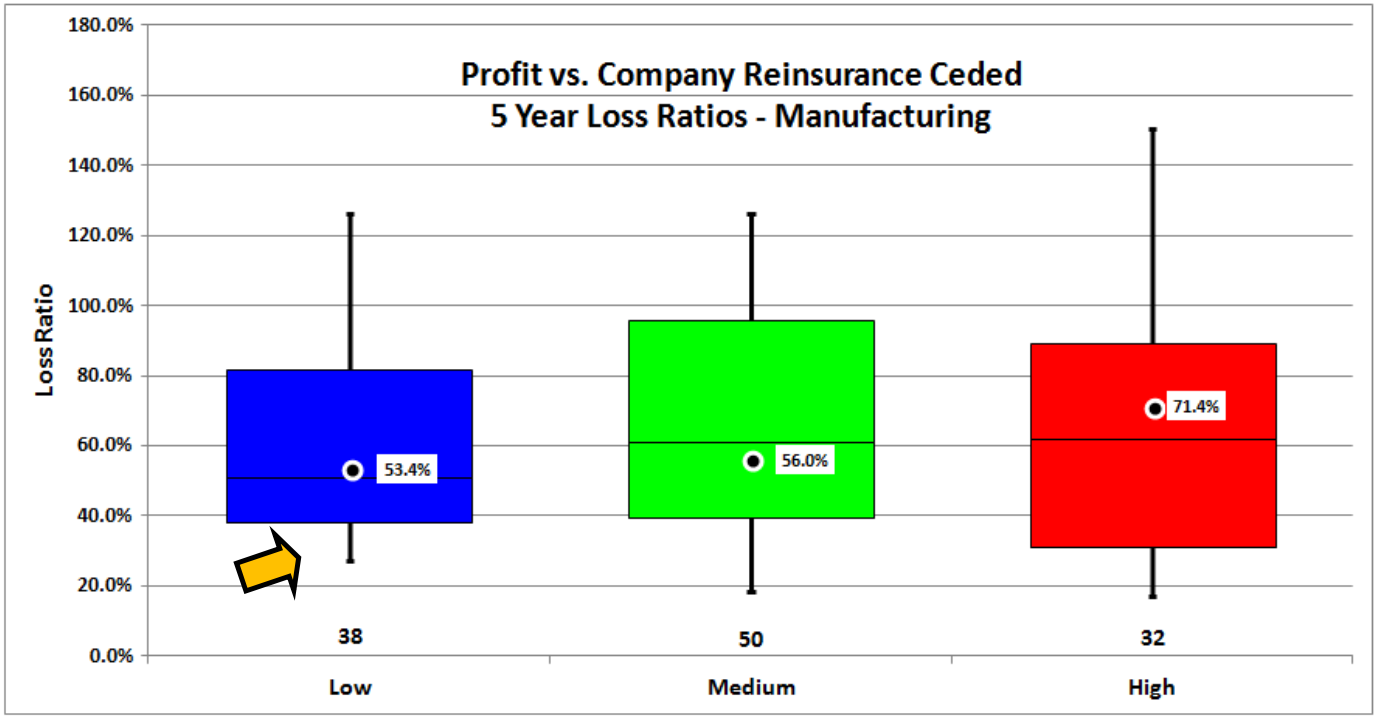
Is There a Connection between Profitability and Reinsurance Purchasing?
Ground-up Losses – 5 Years – GL Manufacturing

Illustrative



Note: Top error bar is 90th percentile, top of box is 75th percentile, line in box is 50th percentile, bottom of box is 25th percentile, bottom error bar is 10th percentile.

Linkage Between Loss Development Speed and Profitability

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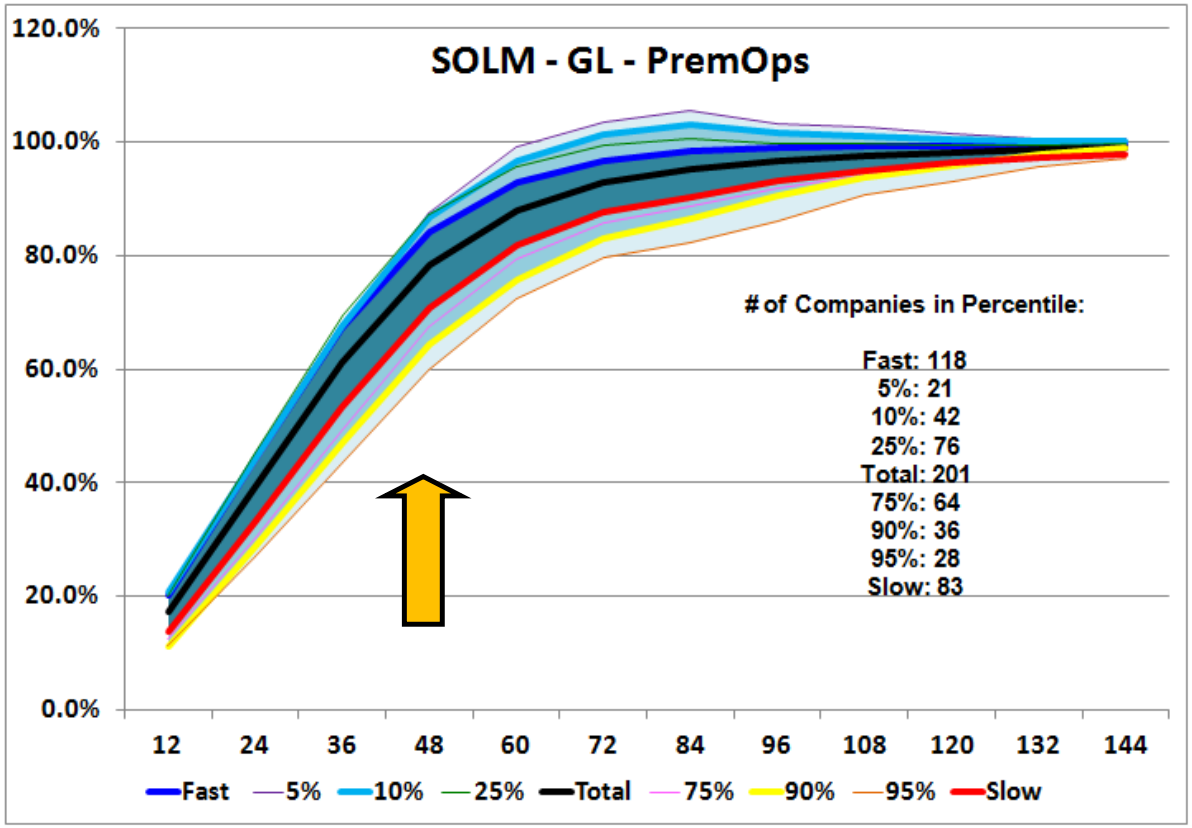
We Noticed that Company Speeds Vary Dramatically
GL Premises Operations

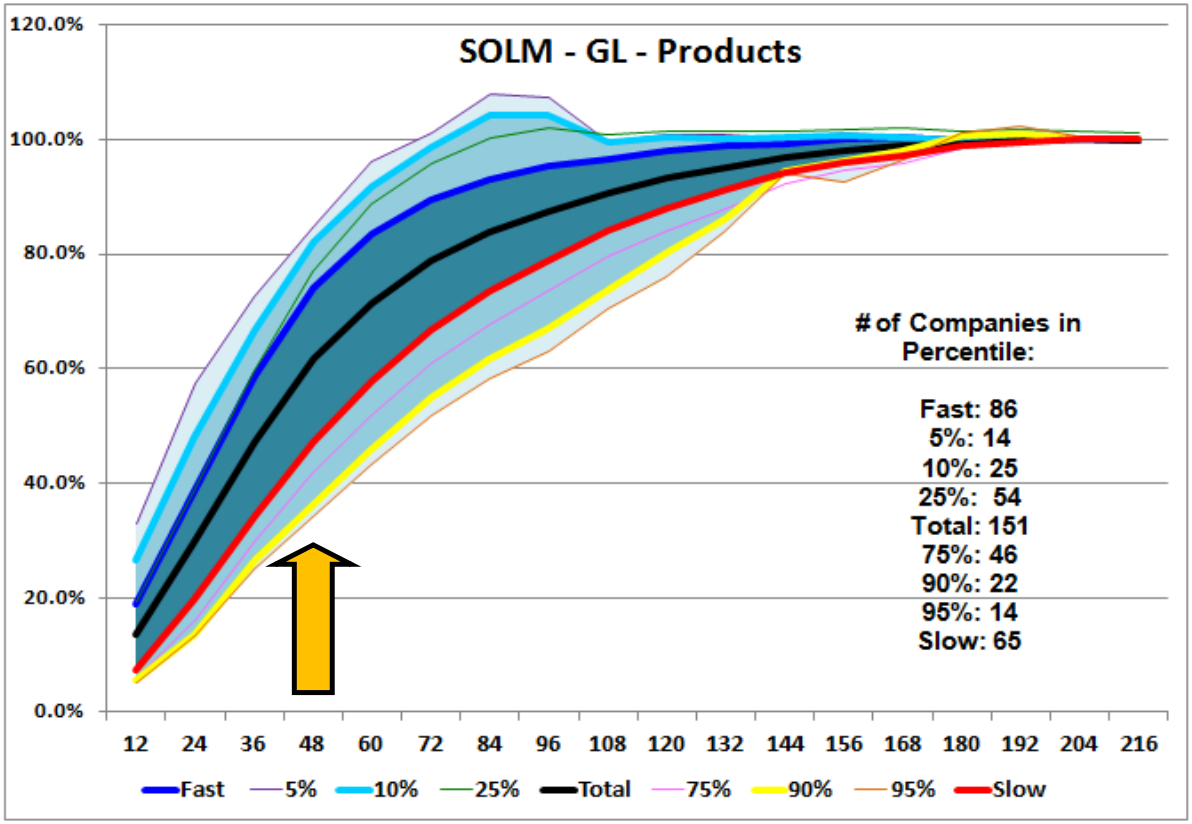
Illustrative



Source: CAS CARe Brooklyn June 2018 and CLRS Anaheim September 2018 – Overlooking Tails (J. Buchanan) (CAS recorded)

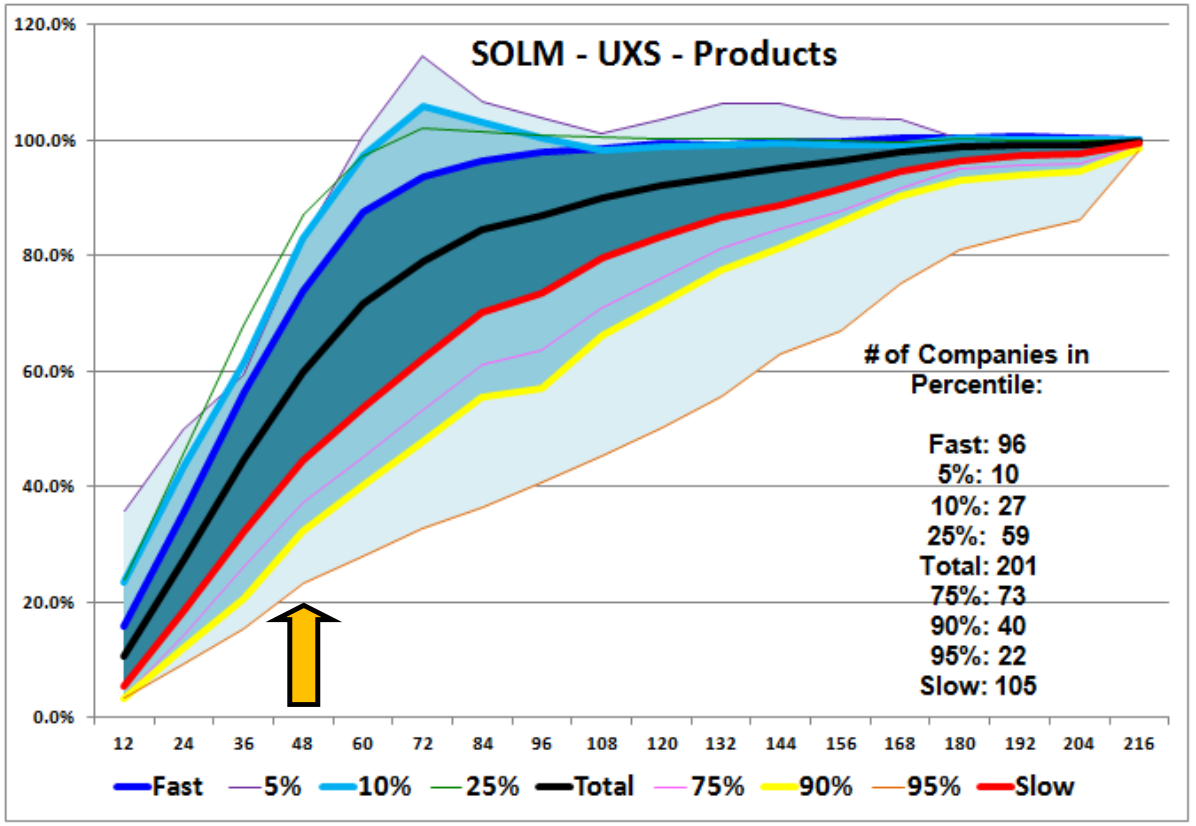
We Noticed that Company Speeds Vary Dramatically
GL Products

Illustrative



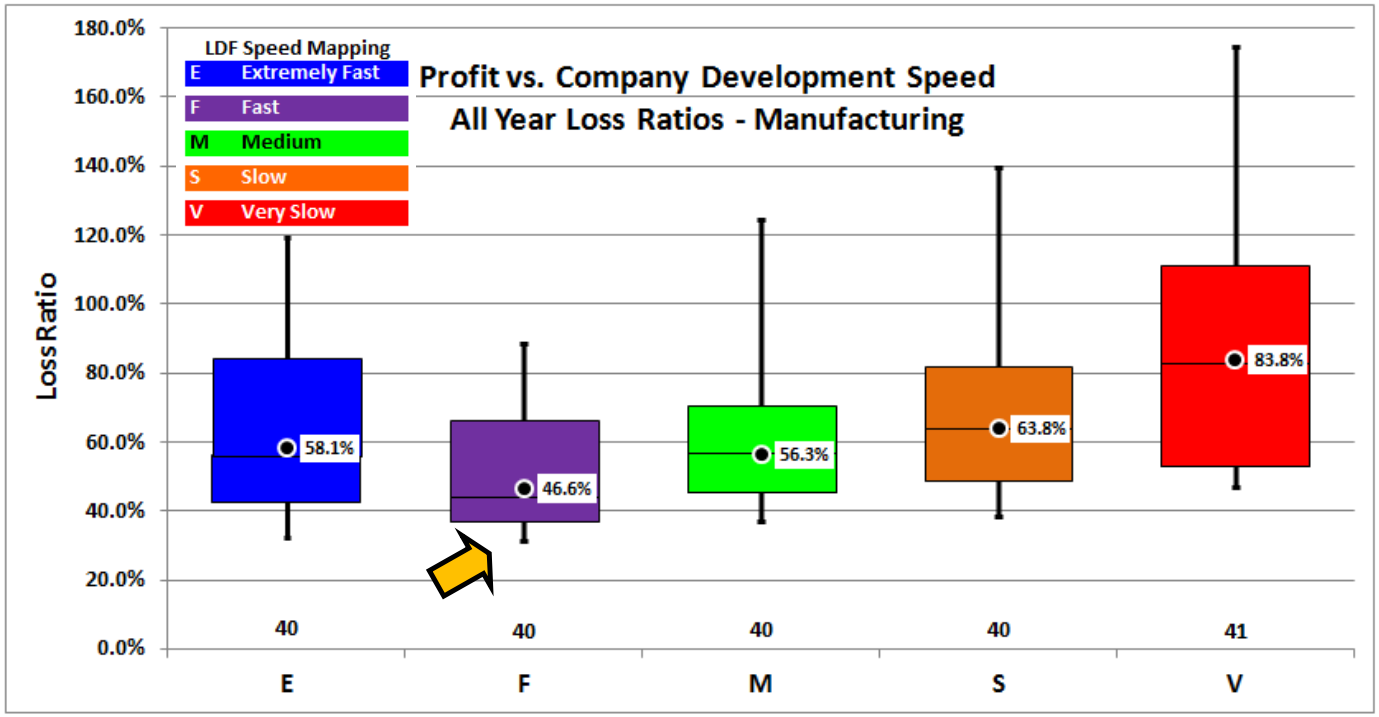
We Noticed that Company Speeds Vary Dramatically
UXS Products

Illustrative



Is There a Connection between Profitability and Speed?
Ground-up Losses – All Years - Manufacturing

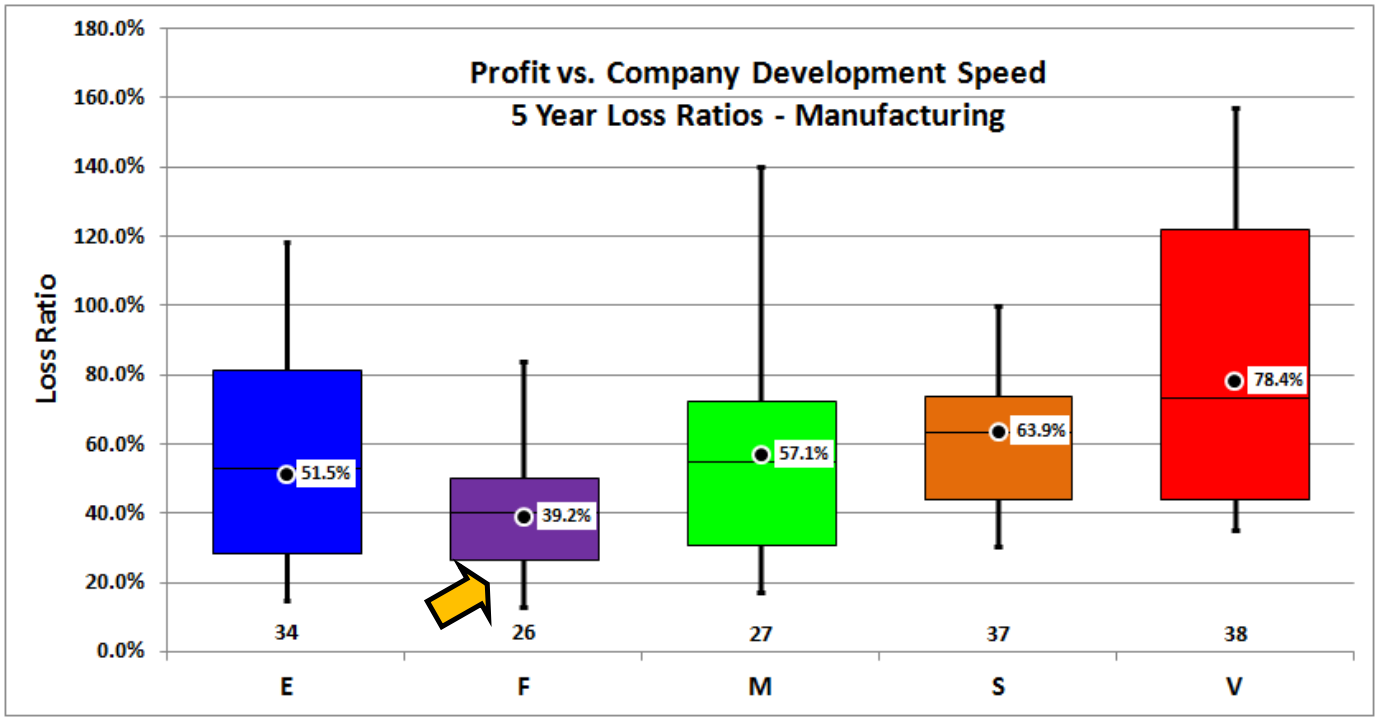
Illustrative



Note: Top error bar is 90th percentile, top of box is 75th percentile, line in box is 50th percentile, bottom of box is 25th percentile, bottom error bar is 10th percentile; losses and premiums developed to ultimate using 20-year triangles (all yr VWA) by company using SOLM claim count based credibility procedure with weighted Fast/Slow industry factors

Is There a Connection between Profitability and Speed?
Ground-up Losses – 5 Years - Manufacturing

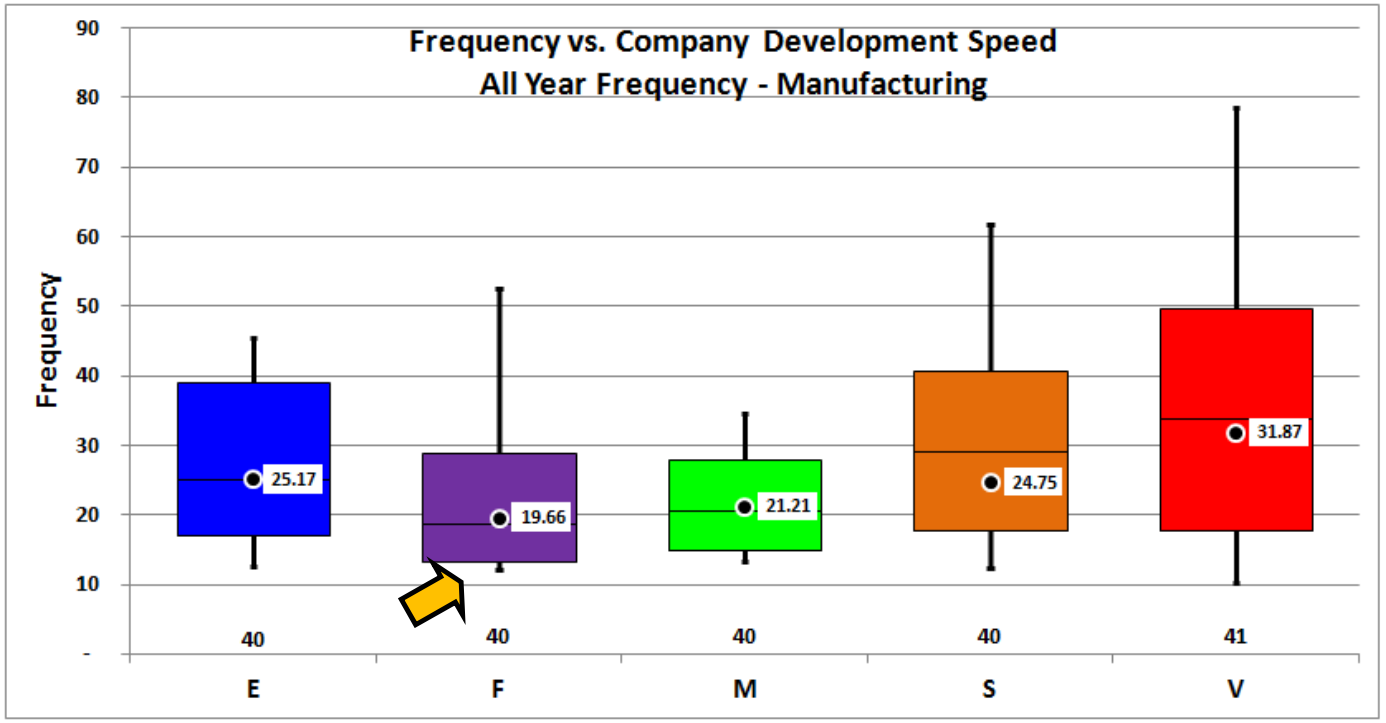
Illustrative



Note: Top error bar is 90th percentile, top of box is 75th percentile, line in box is 50th percentile, bottom of box is 25th percentile, bottom error bar is 10th percentile.

Is There a Connection between Profitability and Speed?
Ground-up Frequency – All Years - Manufacturing

Illustrative

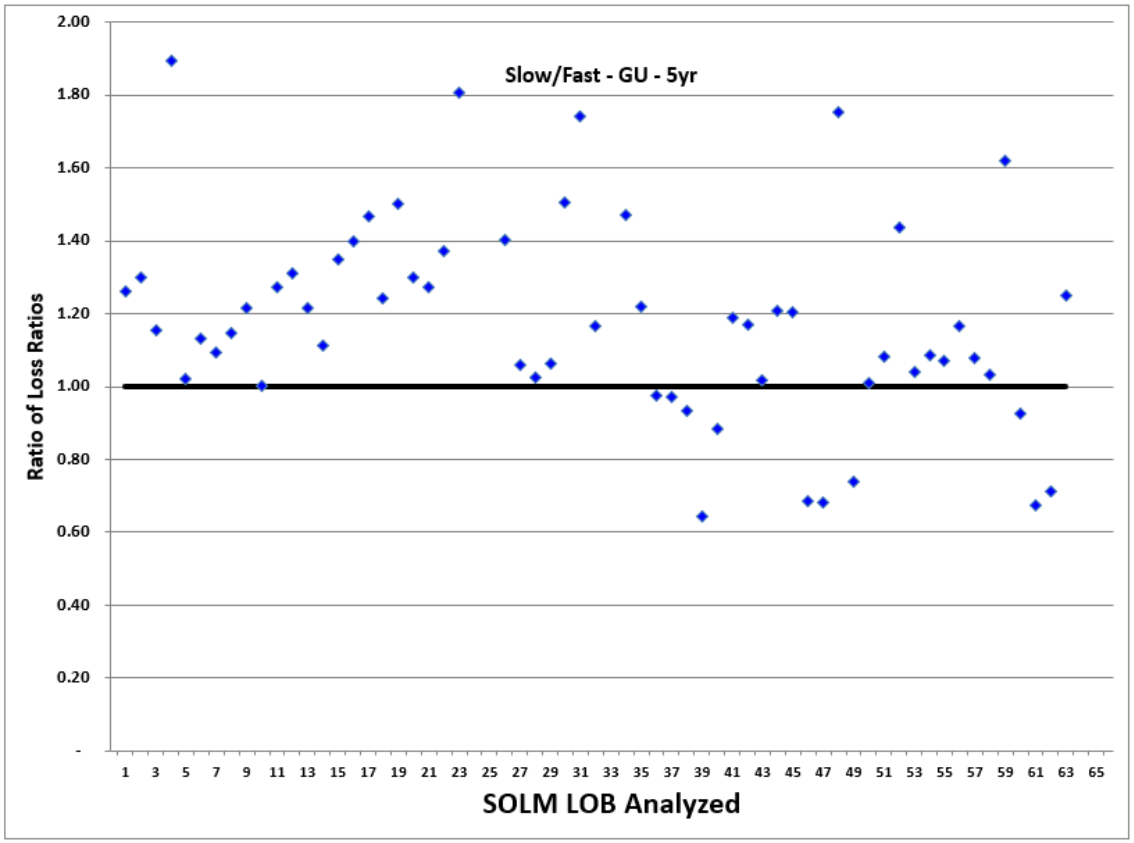


Note: Top error bar is 90th percentile, top of box is 75th percentile, line in box is 50th percentile, bottom of box is 25th percentile, bottom error bar is 10th percentile.

Is There a Connection between Profitability and LDF Speed?
Slow vs. Fast Companies – 5 Years – Ground-Up

Illustrative

The large majority of lines of business analyzed show that slower companies tend to have higher loss ratios, in some cases higher than 1.5x the loss ratio of the faster companies. Most of the lines that fall below the unity line are property and personal lines.

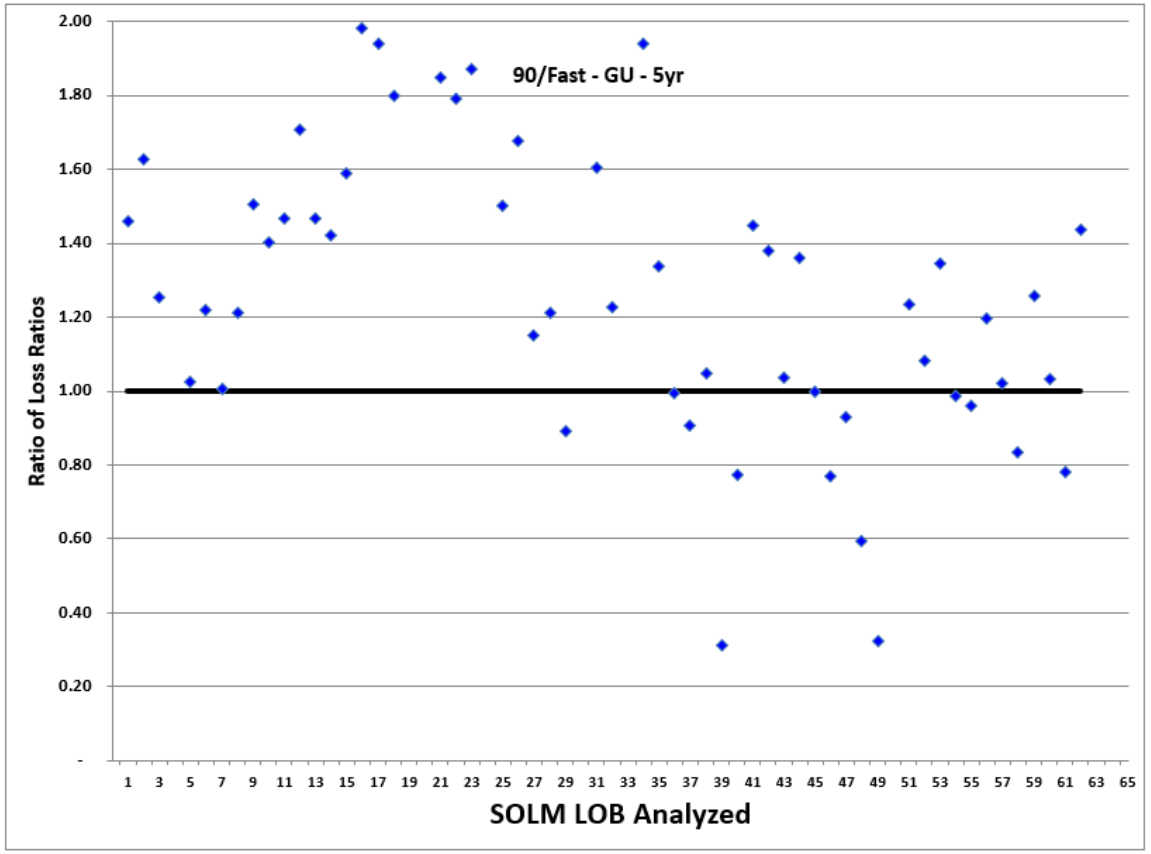


Sources: Using SOLM 2018 v2

Is There a Connection between Profitability and LDF Speed?
90 vs. Fast Companies – 5 Years – Ground-Up

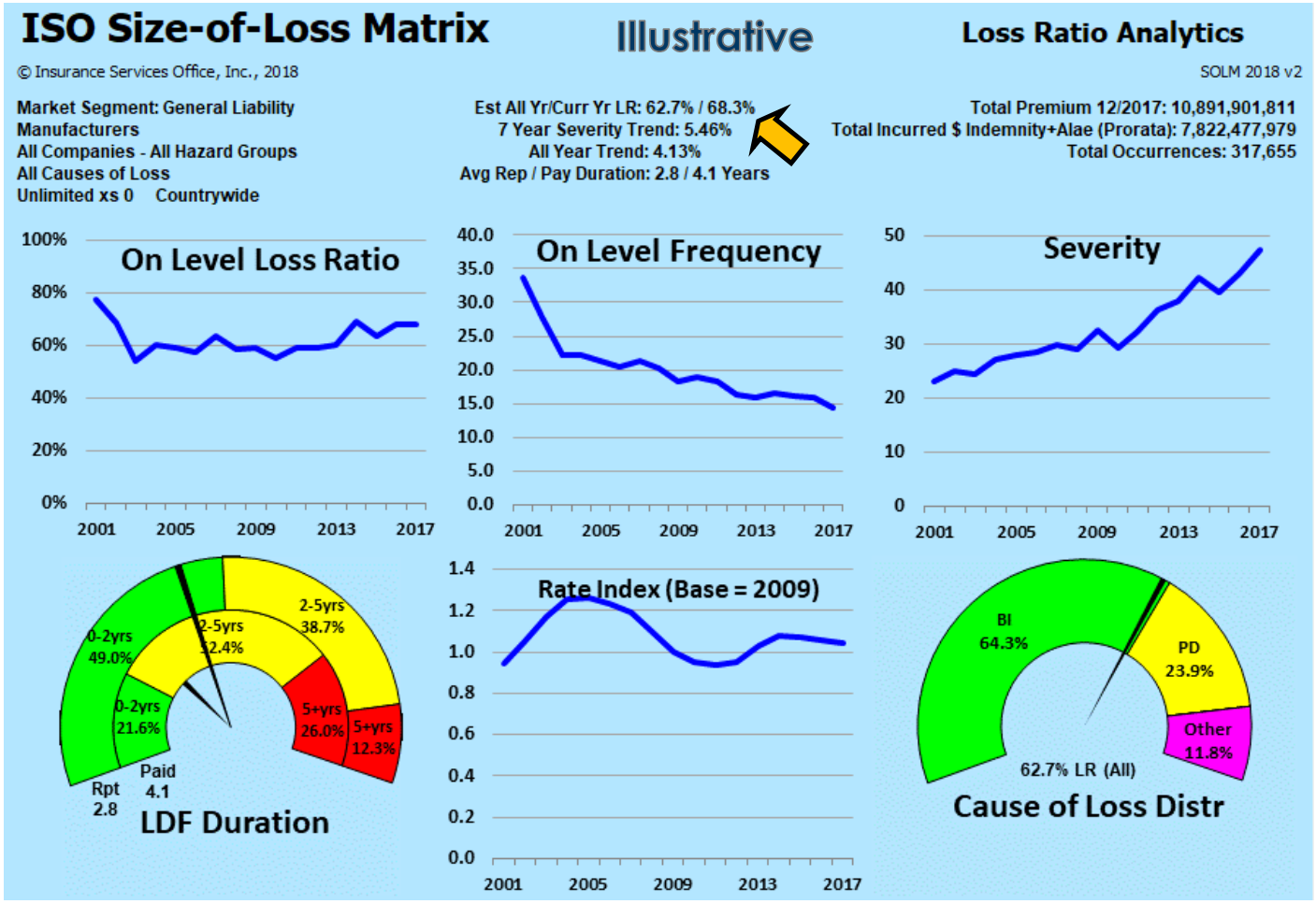
Illustrative

The large majority of lines of business analyzed show that slower companies tend to have higher loss ratios, in some cases higher than 1.7x the loss ratio of the faster companies. Most of the lines that fall below the unity line are property and personal lines.

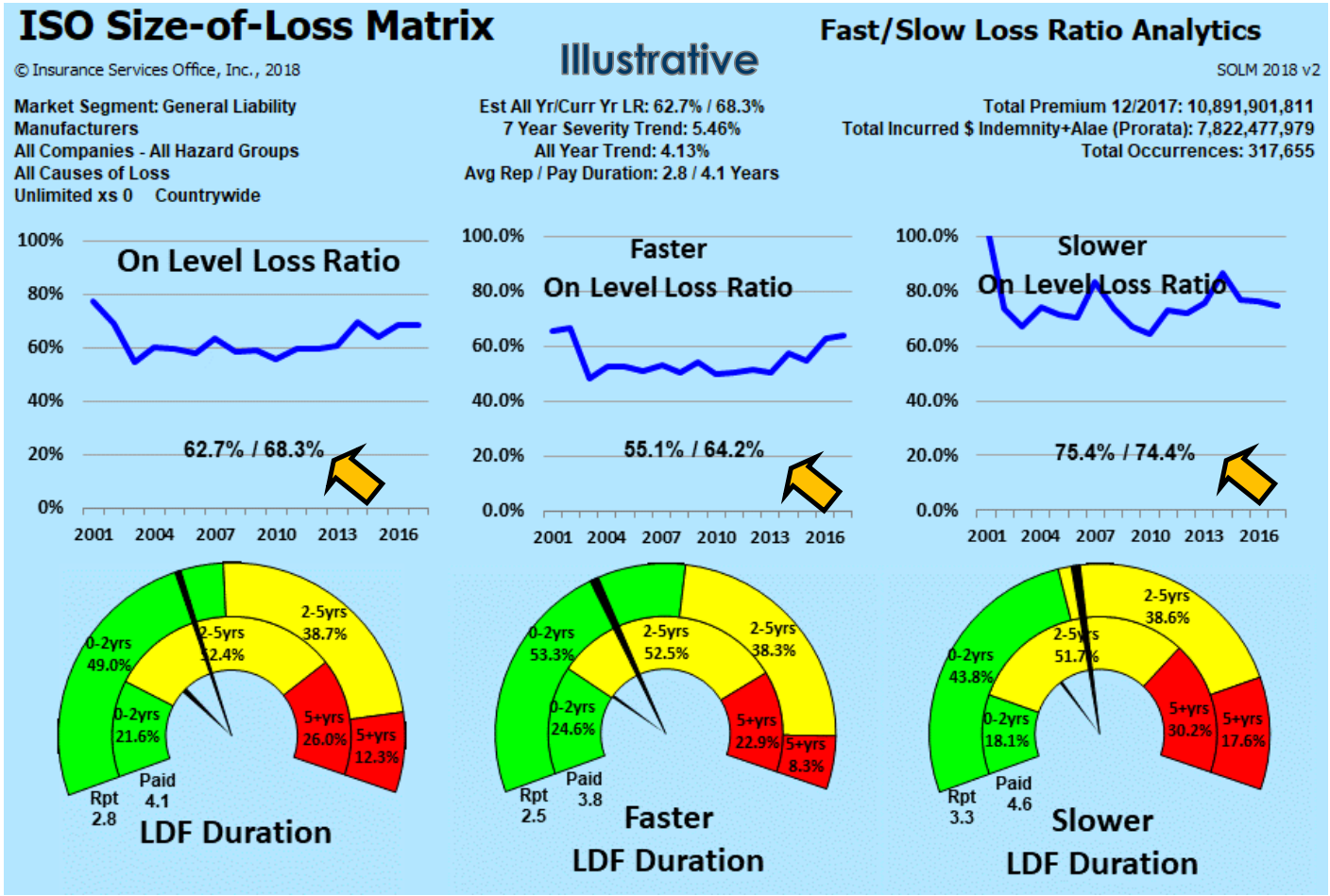


Sources: Using SOLM 2018 v2

GL Manufacturers: Loss Ratio Infographic



GL Manufacturers: Fast/Slow Loss Ratio Infographic



Investigating Lengthening Loss Development Factors and Impact on Profitability

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Are Tails Lengthening?

Illustrative

The 36 data points from 2009-2016 at yearly development evaluations were analyzed for the level of adverse or favorable development. Since 2009, for all casualty lines, it appears that there is more adverse development. 25 of the 36 data points had at least some adverse development.

But difficult to solve actuarial puzzle: are claims that were originally going to be reported later now being reported earlier due to e.g. claim speed-up improvements and/or companies putting up healthier reserves? Or are claim patterns just lengthening?

ISO SOLM 2018 v2 - 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); 900,000 xs 100,000; 7 yr VWA (100% wt); 3.0% detrended threshold

Select Metric here:

% Adv (Fav)	Ultimate Est. INCURRED @12 mos	Adverse (Fav) Devt	AY	CY2017 1	CY2016 2	CY2015 3	CY2014 4	CY2013 5	CY2012 6	CY2011 7	CY2010 8
-0.9%	3,466,327,501	(29,550,084)	2000	5,947,221	(7,092,062)	(1,084,530)	7,260,927	7,638,123	(11,658,595)	4,737,290	(24,146,862)
-13.8%	6,034,629,133	(829,784,087)	2001	(3,042,897)	2,767,382	(8,159,923)	21,602,778	(18,383,865)	1,851,591	(21,465,567)	(29,263,064)
-13.6%	6,600,654,193	(895,339,714)	2002	4,902,055	4,430,617	1,752,328	11,625,016	(13,447,823)	(8,961,081)	8,931,139	(24,272,478)
-10.9%	6,405,497,268	(700,760,087)	2003	3,486,060	(5,833,221)	54,499	(6,675,856)	12,271,899	(13,399,478)	(3,796,112)	(45,637,261)
-10.4%	6,339,201,603	(661,117,199)	2004	3,702,732	(4,039,612)	(7,486,403)	(5,995,620)	(17,687,016)	(13,227,501)	(18,913,029)	(39,650,589)
-6.7%	6,346,215,016	(422,966,372)	2005	5,521,732	(5,831,806)	(11,602,519)	12,351,981	(8,386,580)	8,800,619	(3,881,404)	(66,129,516)
-6.4%	6,728,469,777	(432,039,743)	2006	6,007,694	4,464,659	(13,226,299)	(21,005,499)	21,287,836	(3,777,838)	(21,406,634)	(61,865,969)
-4.5%	7,264,229,011	(326,026,207)	2007	13,475,961	19,986,630	(3,827,902)	14,091,742	5,200,778	24,136,902	(57,131,604)	(192,058,628)
2.6%	6,036,715,363	158,673,364	2008	6,581,322	(12,122,681)	4,248,867	38,960,709	40,447,891	118,379,749	(54,628,421)	(32,963,406)
7.8%	5,187,573,737	405,073,361	2009	(854,511)	11,300,834	(17,992,716)	55,993,976	86,413,382	139,791,413	(58,572,633)	188,993,617
4.6%	5,667,768,977	259,044,366	2010	5,785,657	(1,474,918)	(7,768,330)	92,907,286	45,223,290	130,637,305	(6,265,926)	
10.2%	[illegible]	534,158,678	2011	26,493,011	36,695,798	58,514,153	[illegible]	[illegible]	189,808,061		
10.3%	5,117,191,376	524,638,480	2012	11,363,023	70,277,041	106,737,622	236,091,732	100,169,061			
14.0%	[illegible]	759,369,598	2013	106,414,643	183,260,293	175,937,423	[illegible]				
2.0%	6,651,897,908	136,028,035	2014	114,970,991	119,134,354	(98,077,309)					
4.3%	6,398,149,496	272,365,828	2015	240,117,178	32,248,651						
0.1%	6,929,767,886	7,954,824	2016	7,954,824							
8											

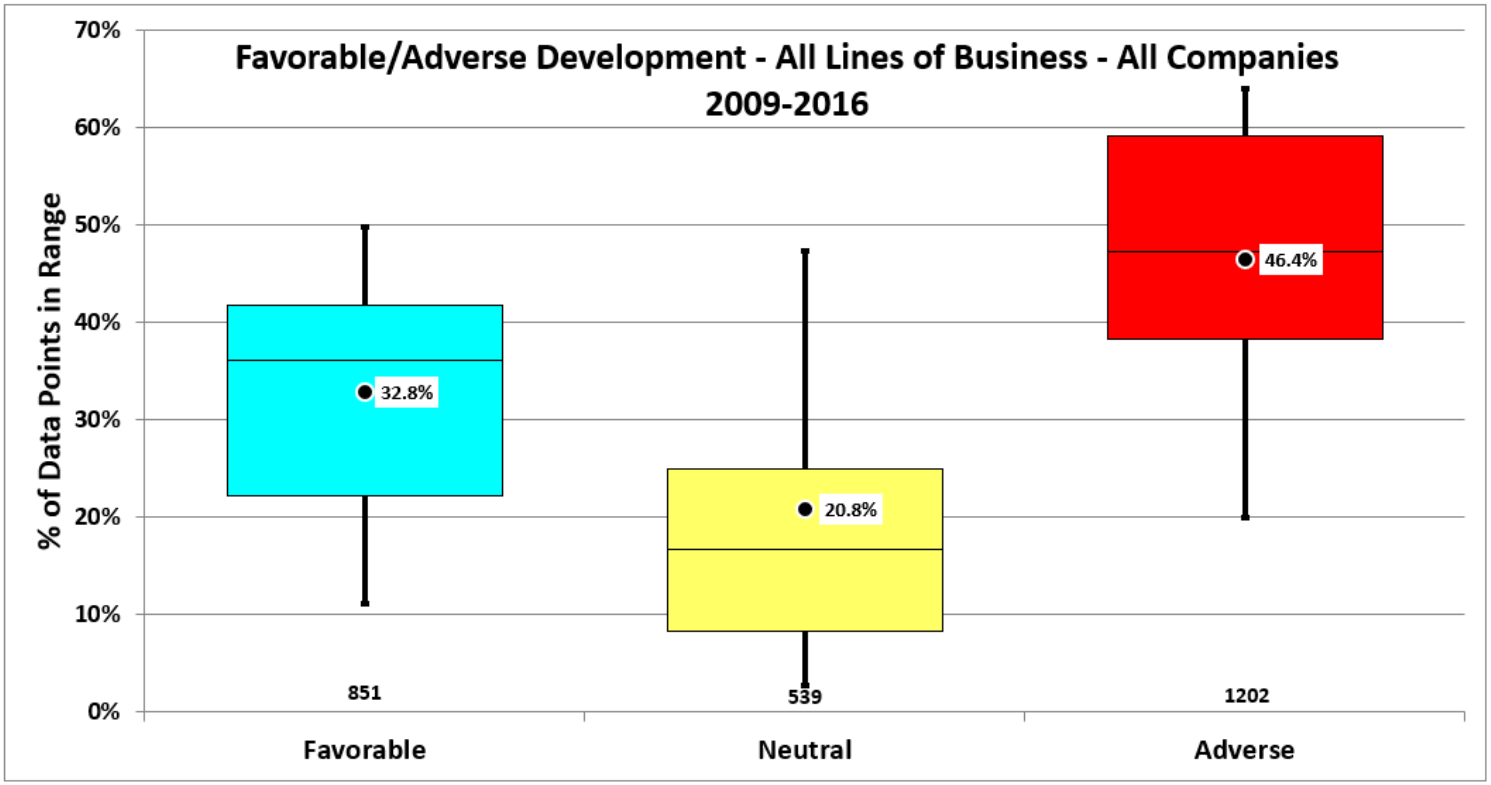
(2009-2016)	Minimum	Maximum	Actual vs Expected Development: AY x CY
-	-4.3%	-1.6%	Favorable development
2	-1.6%	-0.5%	Somewhat favorable
9	-0.5%	0.5%	Within +-0.5% of original estimate
11	0.5%	1.7%	Somewhat adverse
14	1.7%	5.7%	Adverse development
36			

Sources: Using SOLM 2018 v2

Are Tails Lengthening?
Excess Incurred $ Indemnity + ALAE (Pro Rata) – All P&C Lines

Illustrative

Across all lines of business (54 markets shown in Appendix), of the 36 data points from 2009-2016, 46.4% of those points showed adverse development, while only 32.8% of those points show favorable development. The remaining 20.8% showed very little development either favorable or adverse.

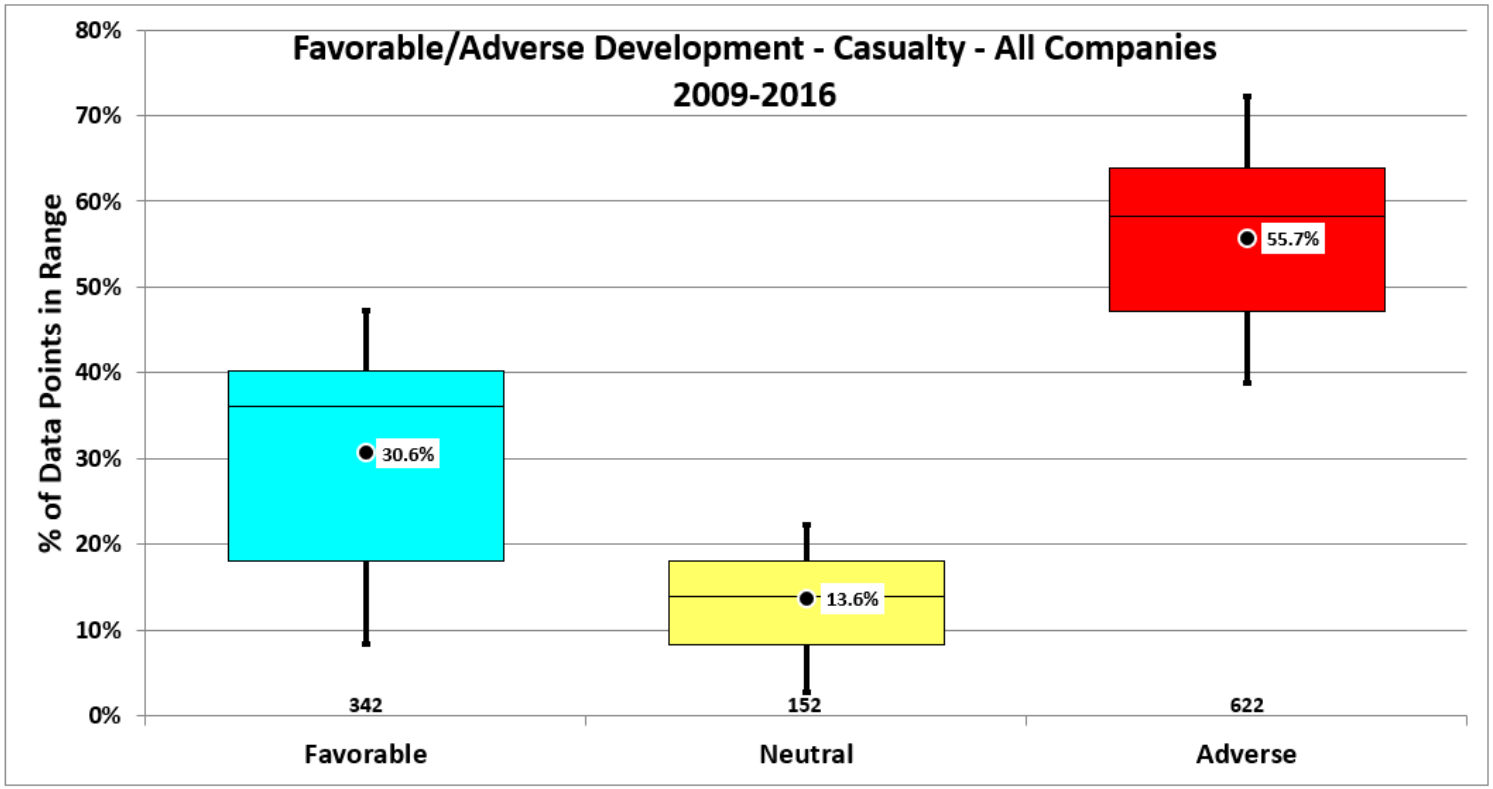


Sources: Using SOLM 2018 v2 using excess layer 900,000 xs 100,000

Are Tails Lengthening?
Excess Incurred $ Indemnity + ALAE (Pro Rata) - Casualty

Illustrative

The adverse development in recent years is being driven by casualty lines (Commercial Auto, General Liability, Umbrella (24 Markets out of 54 total Markets)). Here, on average, 55.7% of the 36 data points show adverse development, while only 30.6% show favorable development.

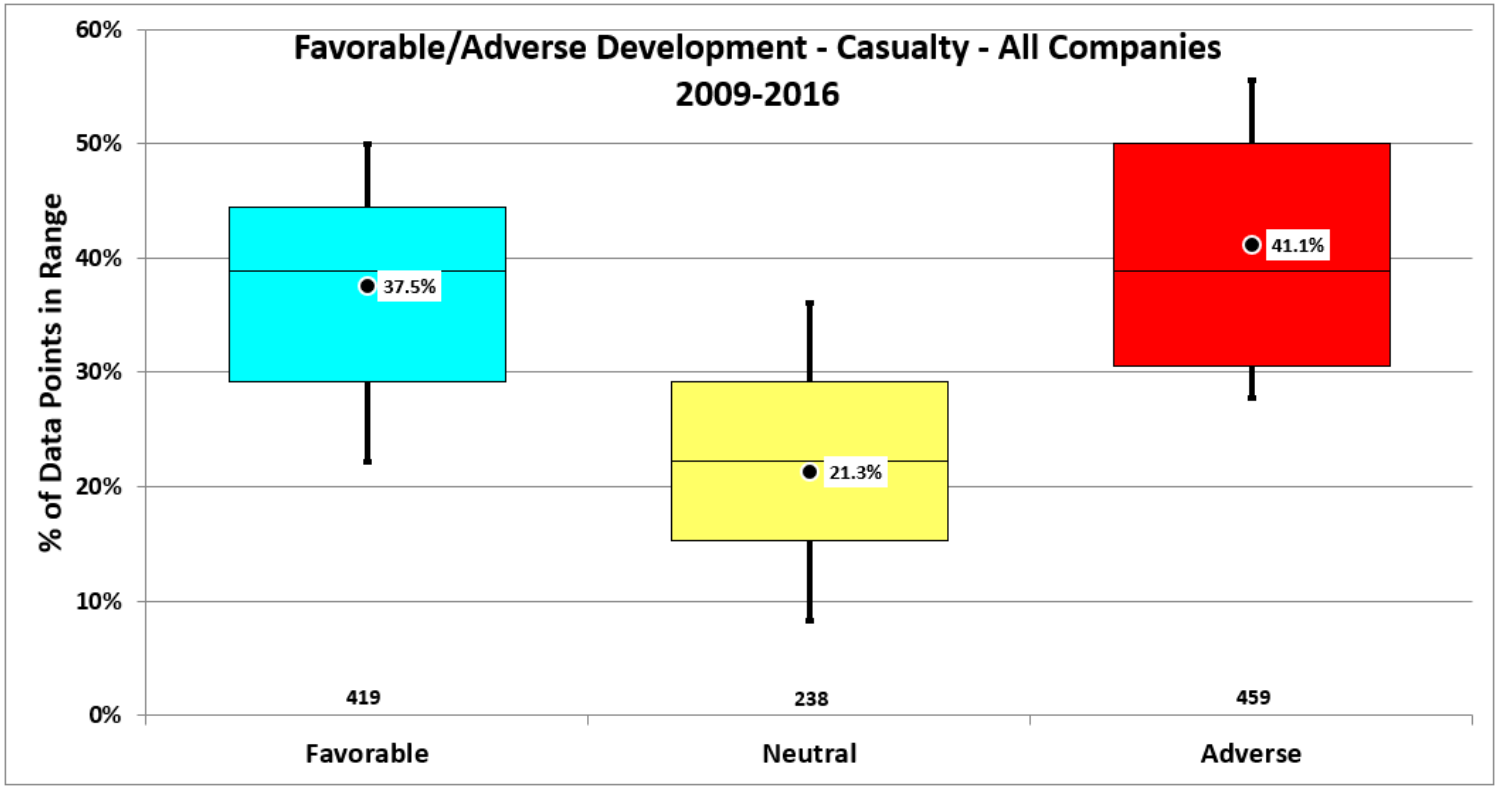


Sources: Using SOLM 2018 v2 using excess layer 900,000 xs 100,000

Are Tails Lengthening?
Excess Paid $ Indemnity + ALAE (Pro Rata) - Casualty

Illustrative

This difference is not as stark for paid loss, with only slightly more adverse development data points than favorable. This indicates that this adverse development and tail lengthening is related to reserving.

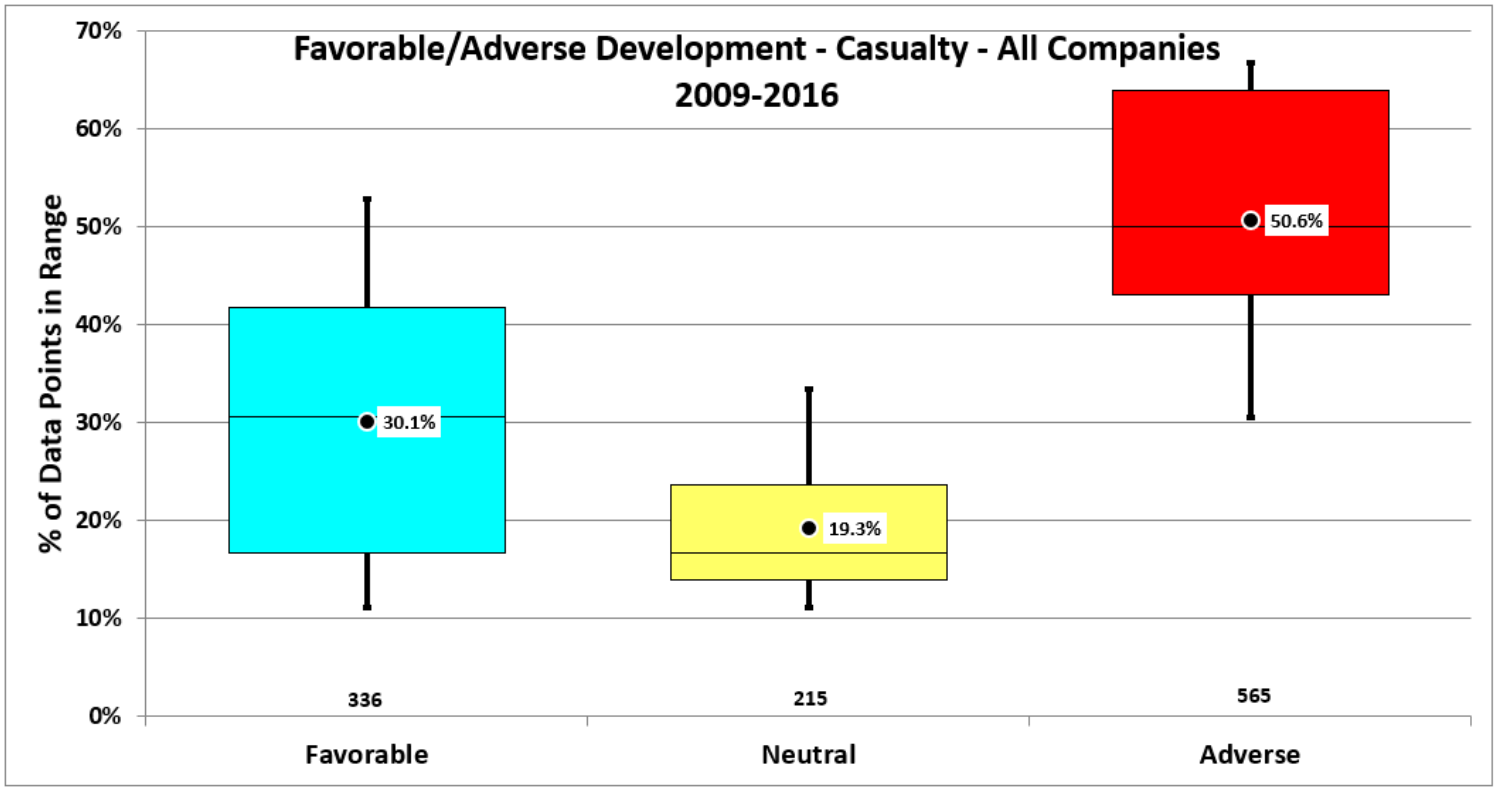


Sources: Using SOLM 2018 v2 using excess layer 900,000 xs 100,000

Are Tails Lengthening?
Excess Incurred # Indemnity + ALAE (Pro Rata) – Casualty

Illustrative

The same trend occurs when looking at claim counts. There are more adverse than favorable development for incurred counts.

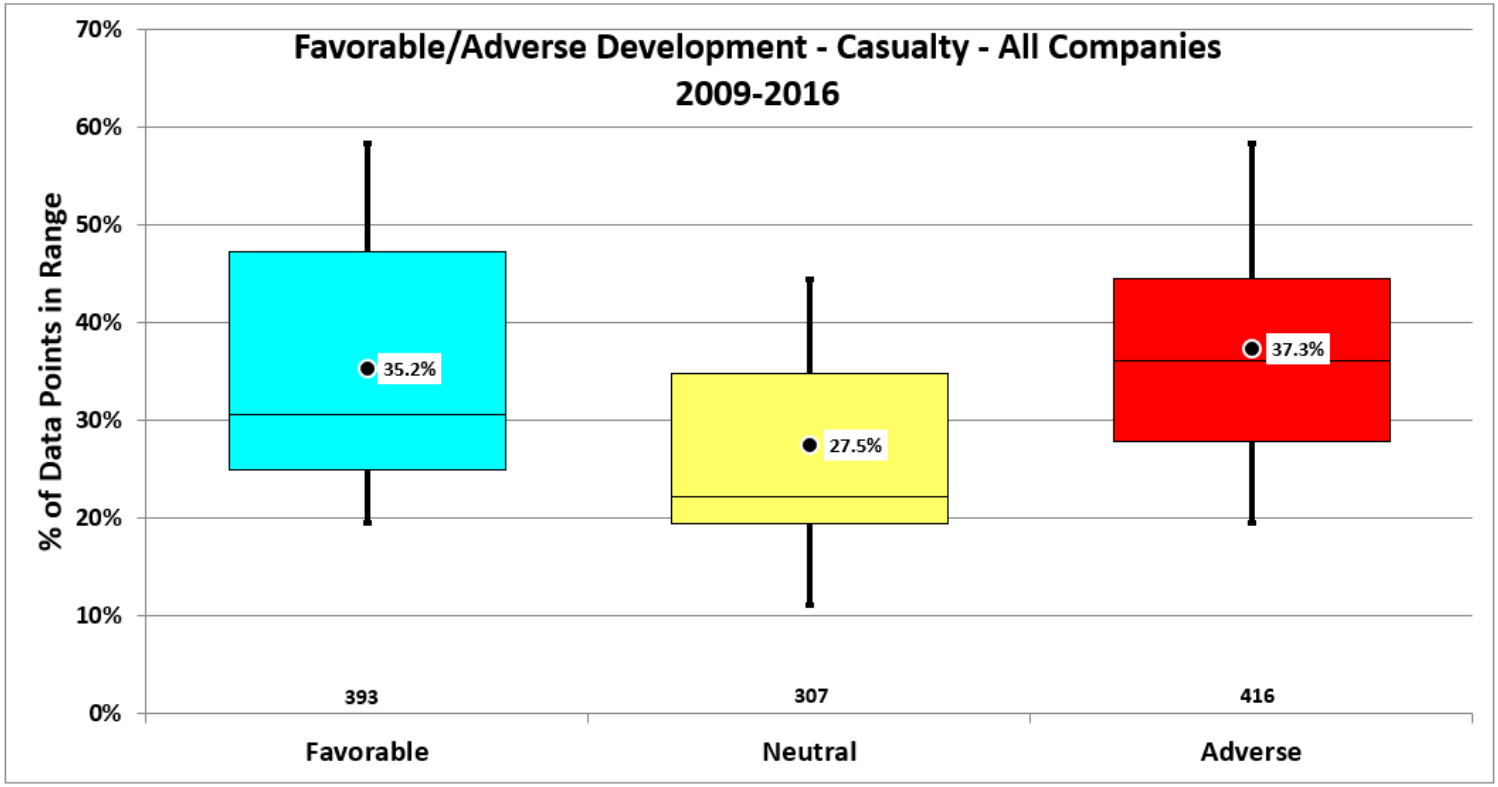


Sources: Using SOLM 2018 v2 using excess layer 900,000 xs 100,000

Are Tails Lengthening?
Excess Paid # Indemnity + ALAE (Pro Rata) - Casualty

Illustrative

Like the paid $ runoff test, there is not much of a difference between the number of points that show adverse vs. favorable development for paid claim counts.

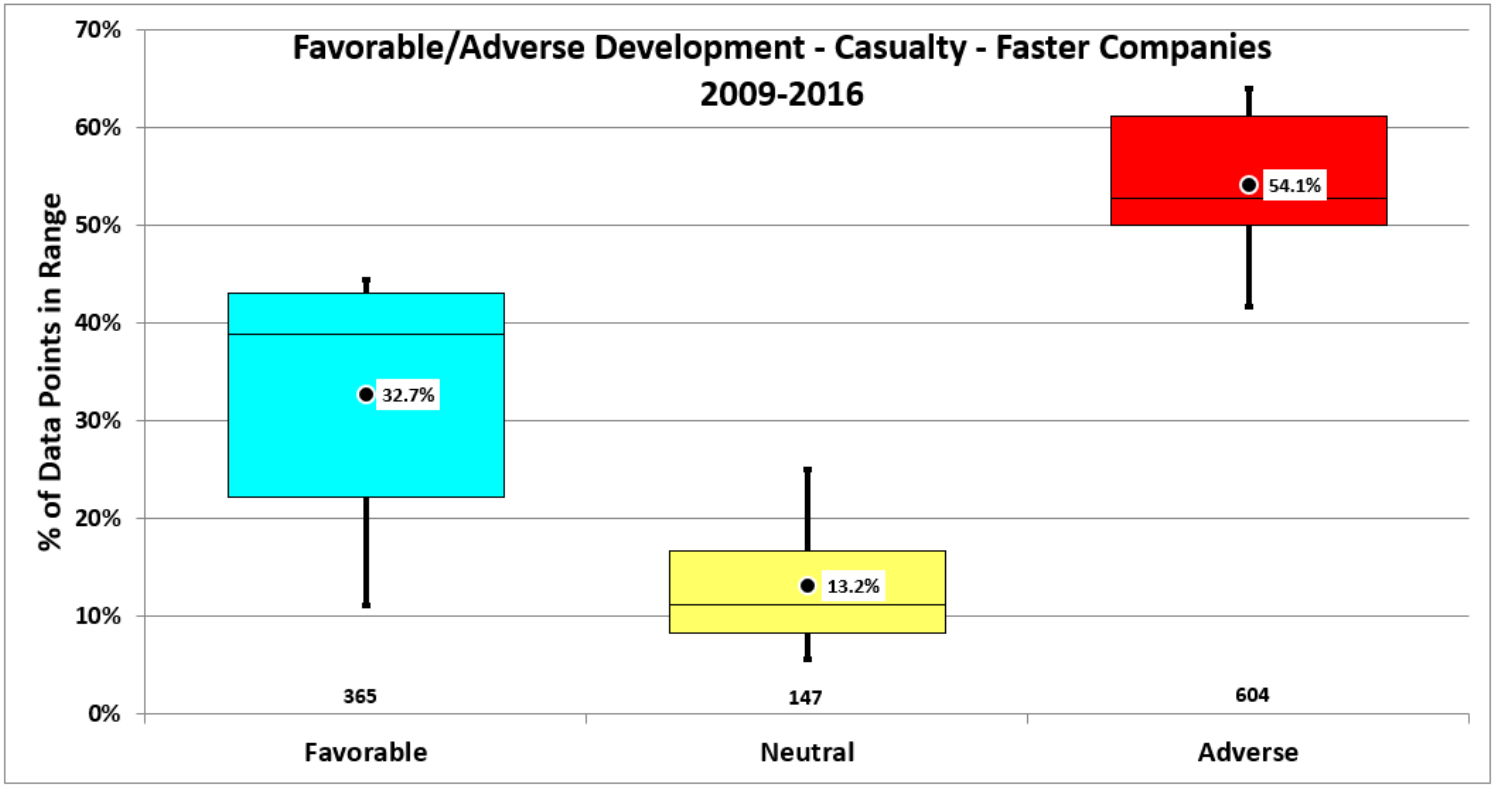


Sources: Using SOLM 2018 v2 using excess layer 900,000 xs 100,000

Are Tails Lengthening?
Excess Incurred $ Indemnity + ALAE (Pro Rata) – Casualty Fast

Illustrative

This trend appears to be related to faster companies as the faster companies show a similar trend to all companies, with most of the 36 data points showing adverse development.

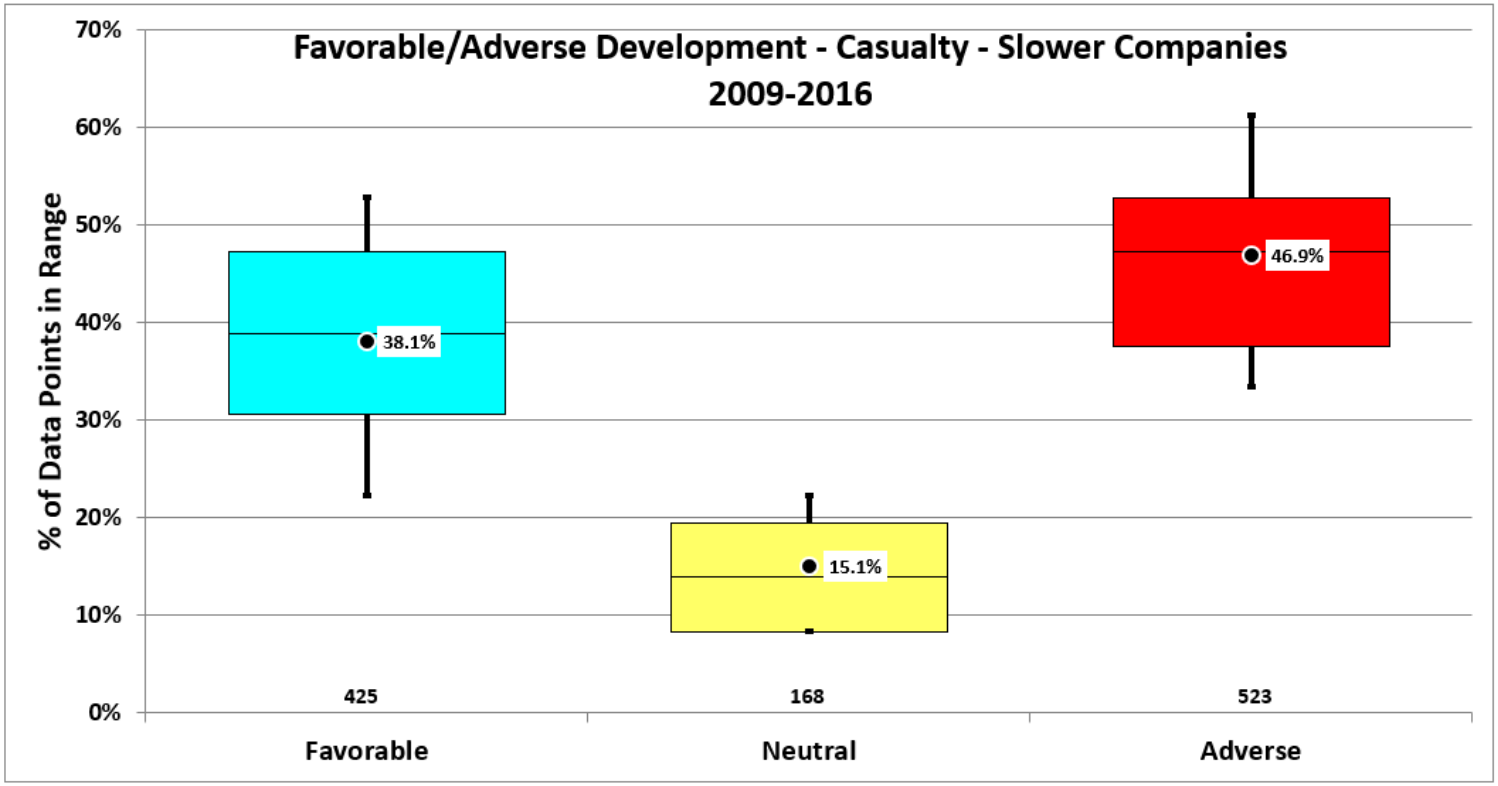


Sources: Using SOLM 2018 v2 using excess layer 900,000 xs 100,000

Are Tails Lengthening?
Excess Incurred $ Indemnity + ALAE (Pro Rata) – Casualty Slow

Illustrative

The slower companies do not appear to be having as much adverse development in recent years as faster companies.

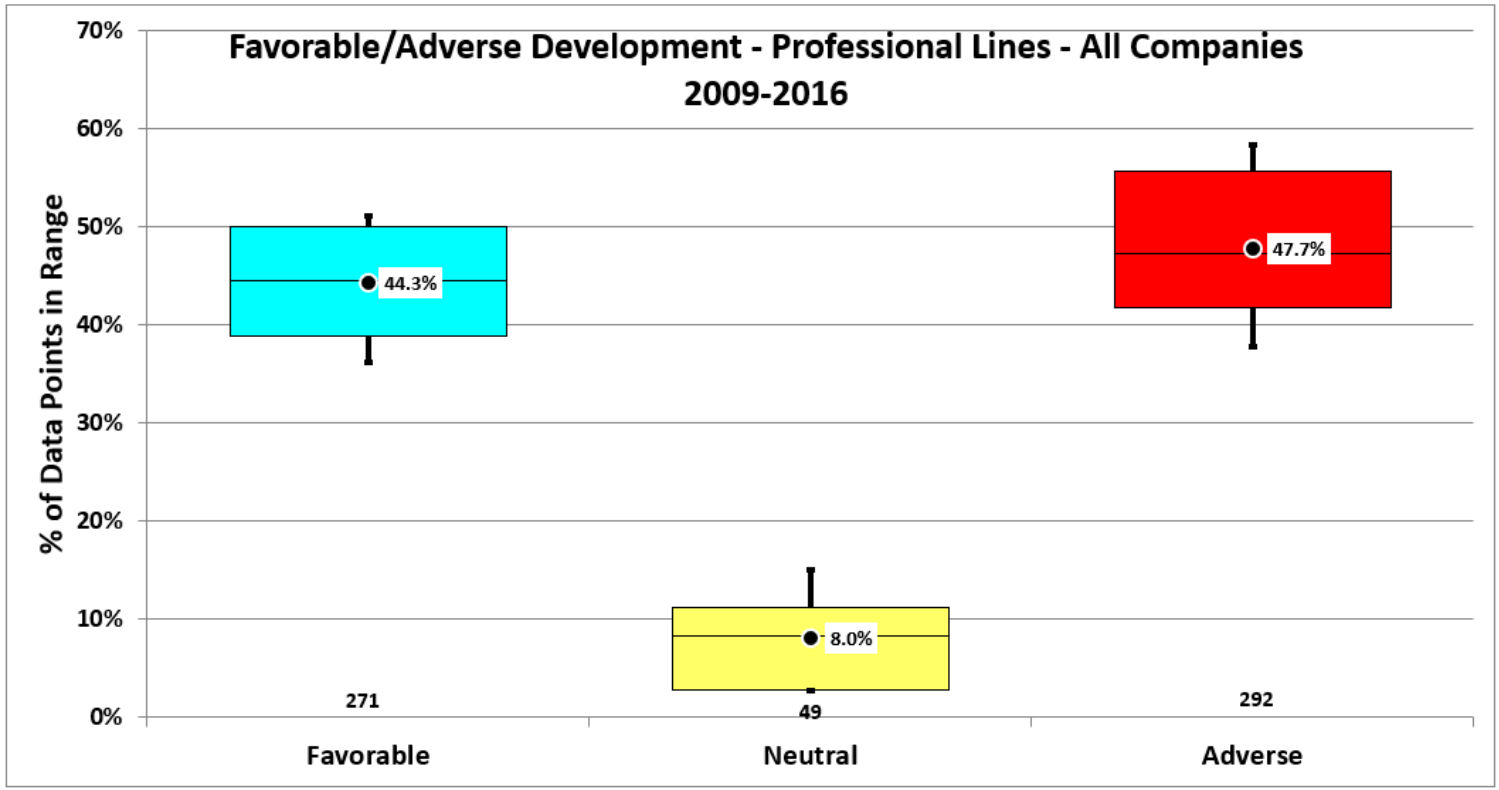


Sources: Using SOLM 2018 v2 using excess layer 900,000 xs 100,000

Are Tails Lengthening?
Excess Incurred $ Indemnity + ALAE (Pro Rata) - Professional

Illustrative

Looking at professional lines of business does not show this trend of higher adverse development. Slightly more of the data points show adverse development rather than favorable development.

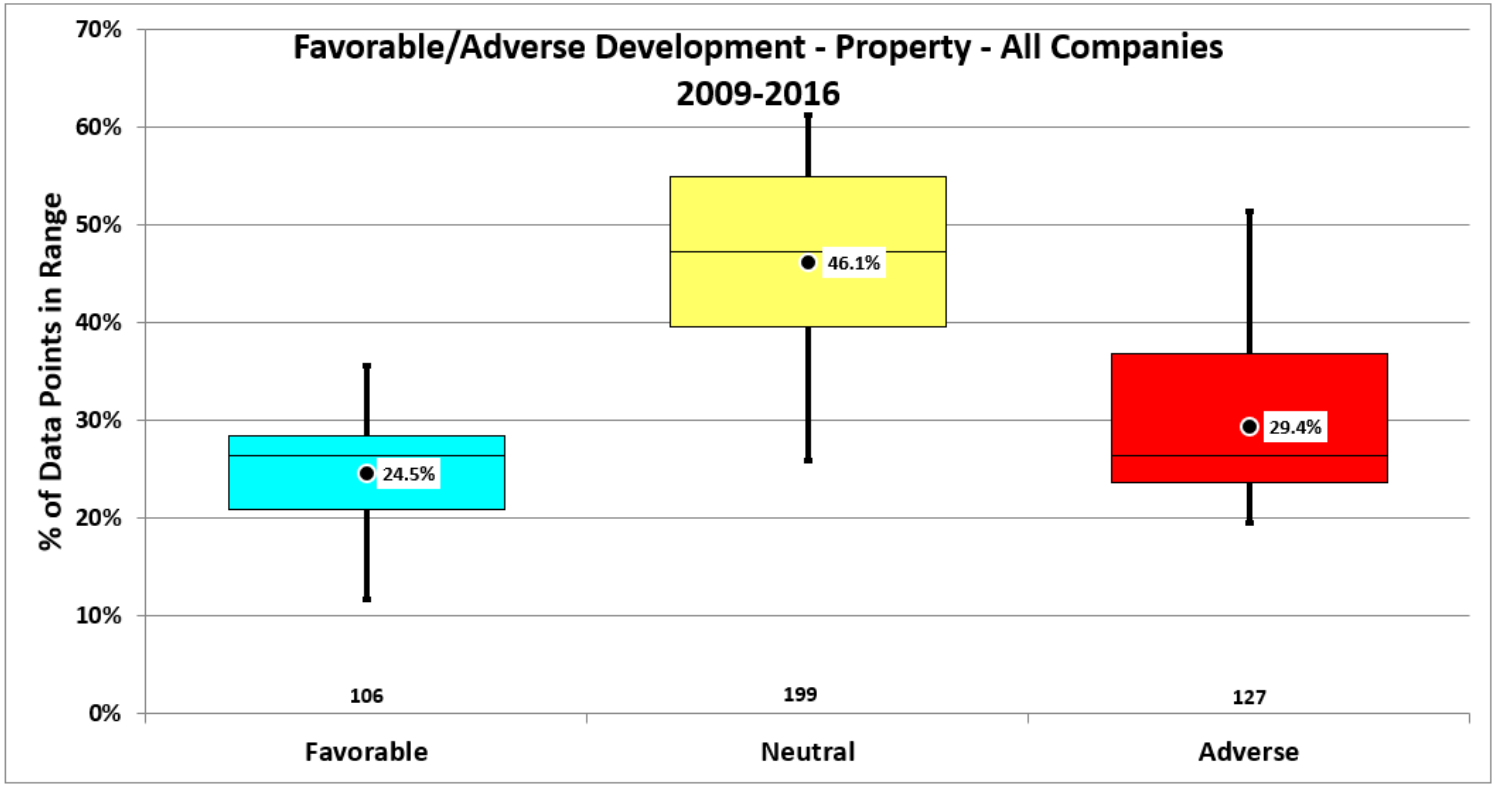


Sources: Using SOLM 2018 v2 using excess layer 900,000 xs 100,000

Are Tails Lengthening?
Excess Incurred $ Indemnity + ALAE (Pro Rata) - Property

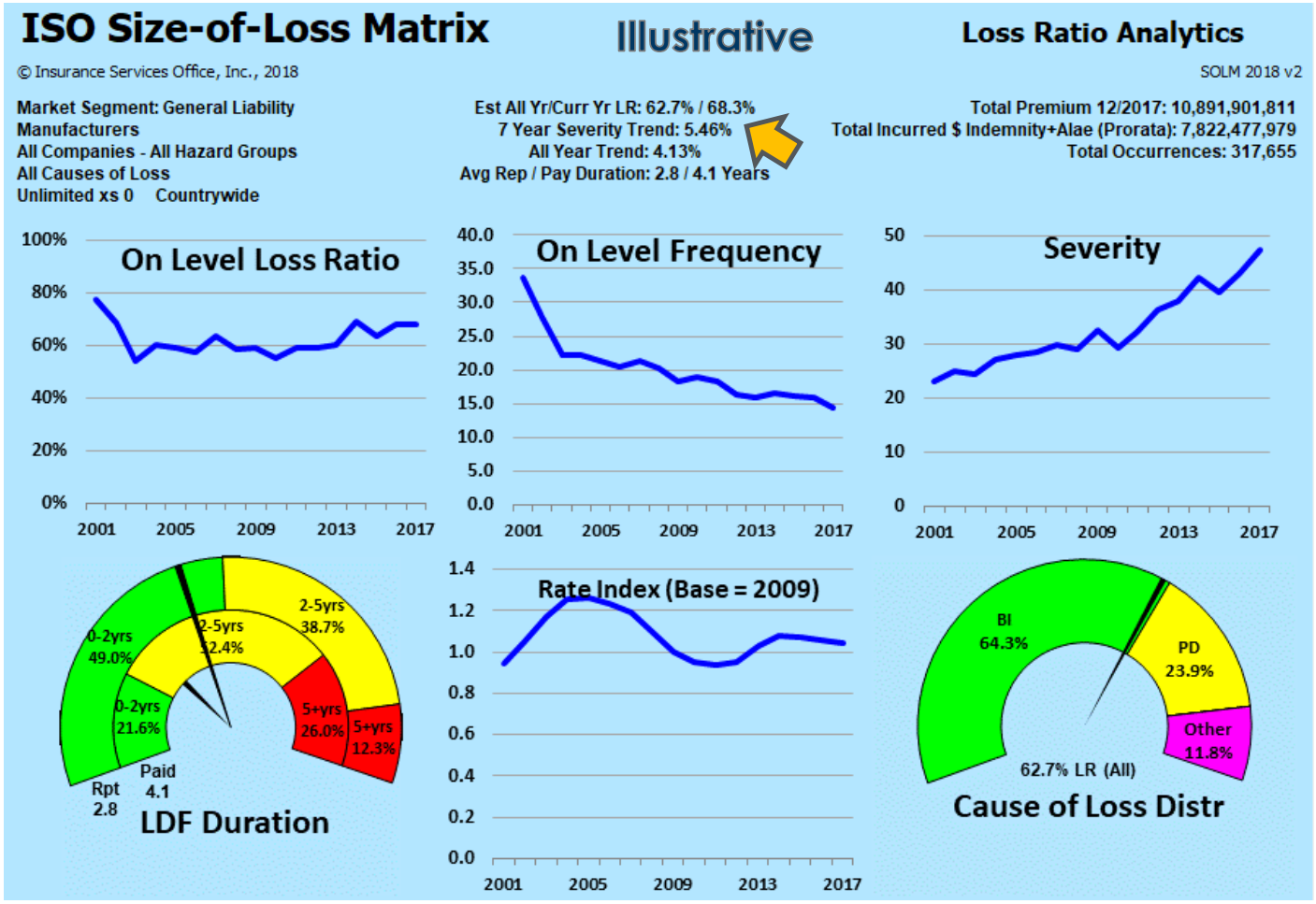
Illustrative

Looking at just property lines of business does not show this trend of higher adverse development. Most of the data points show little development, with adverse development edging out favorable development with 29.4% vs. 24.5%.



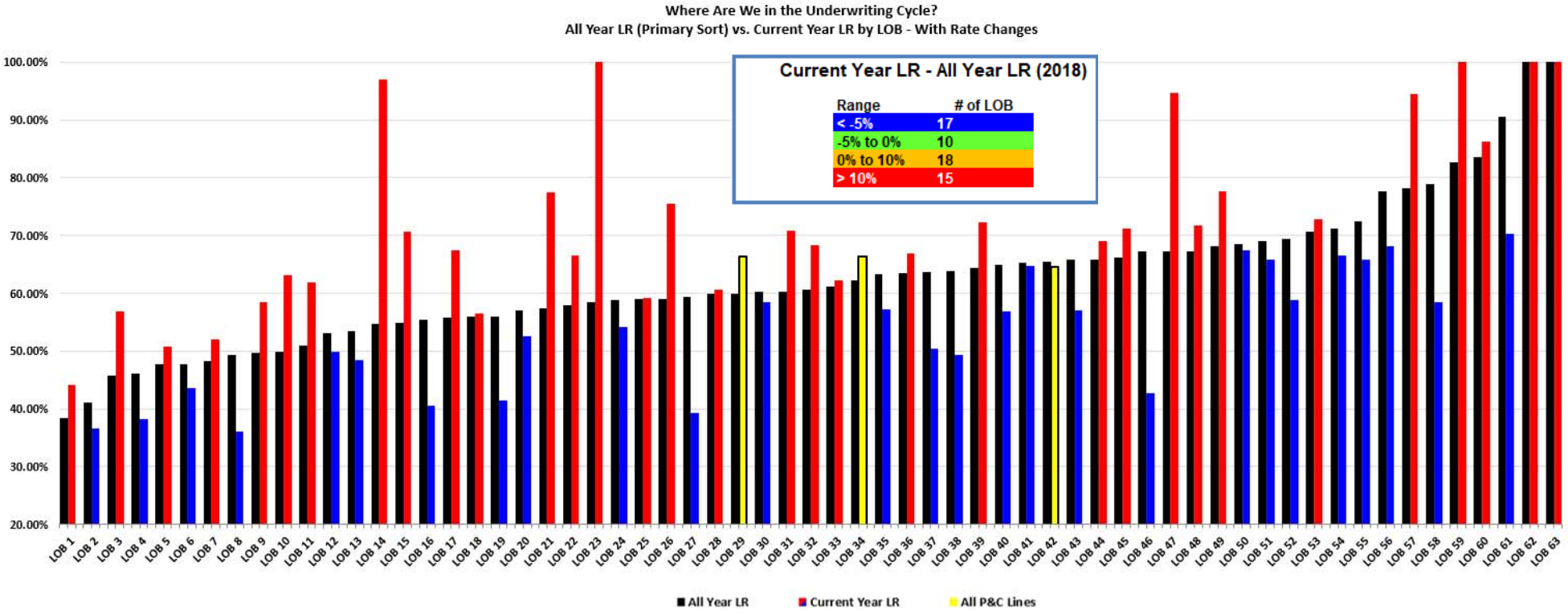
Sources: Using SOLM 2018 v2 using excess layer 900,000 xs 100,000

GL Manufacturers: Loss Ratio Infographic (For U/W Cycle)



Overall Profitability and where are we in the Underwriting Cycle?
In support of market profitable growth strategies – all year primary sort

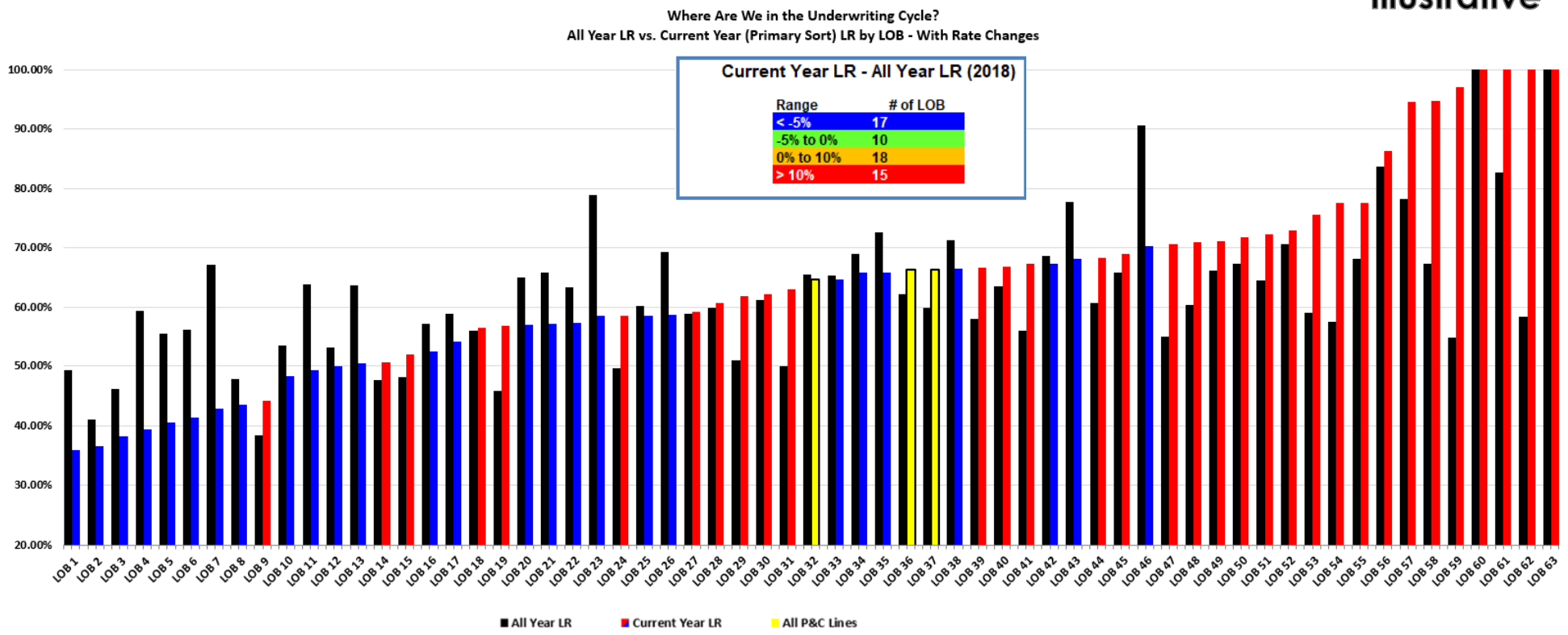
Illustrative



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.

Overall Profitability and where are we in the Underwriting Cycle?
In support of market profitable growth strategies – current year primary sort

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.

Appendix:

Data Sources and Further Analysis

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Size-of-Loss Matrix

To help address various needs in the U.S. casualty market, we've developed our Size-of-Loss Matrix to provide insurers and reinsurers information quickly and through robust delivery, which is critical for day-to-day business decisions.

ISO's Size-of-Loss Matrix 2018 v2 includes data on the following 54 markets:

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
- 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)

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)

Note: Each market (54) contains more than $1B of either premiums or losses in triangles from 1997-2017 (Commercial Umbrella starts 1994; PO/CAu splits start 2009)

GL: Largest Classes

Illustrative

GL Manufacturing

Class	Class Description
58561	Railroad or Other Public Conveyance Cars Parts Mfg.
10255	Building Material Dealers
13454	Gasoline Stations – self–service
43470	Pest Control Services
46622	Parking – private

GL PremOps

Class	Class Description
60010	Apartment Buildings
61212	Buildings or Premises – bank or office – mercantile or manufacturing (Lessor's risk only) (For-Profit)
61217	Buildings or Premises – bank or office – mercantile or manufacturing – maintained by the insured (Lessor's risk only) (For-Profit)
91585	Contractors – subcontracted work – in connection with construction, reconstruction, repair or erection of buildings – NOC
91560	Concrete Construction

GL Products C

Class	Class Description
91585	Contractors – subcontracted work – in connection with construction, reconstruction, repair or erection of buildings – NOC
91583	Contractors – subcontracted work – in connection with building construction, reconstruction, repair or erection – one or two family dwellings
91342	Carpentry – NOC
56632	Machinery or Machinery Parts Mfg. – industrial type
58058	Plastic or Rubber Goods Mfg. – other than household – NOC

Data Background

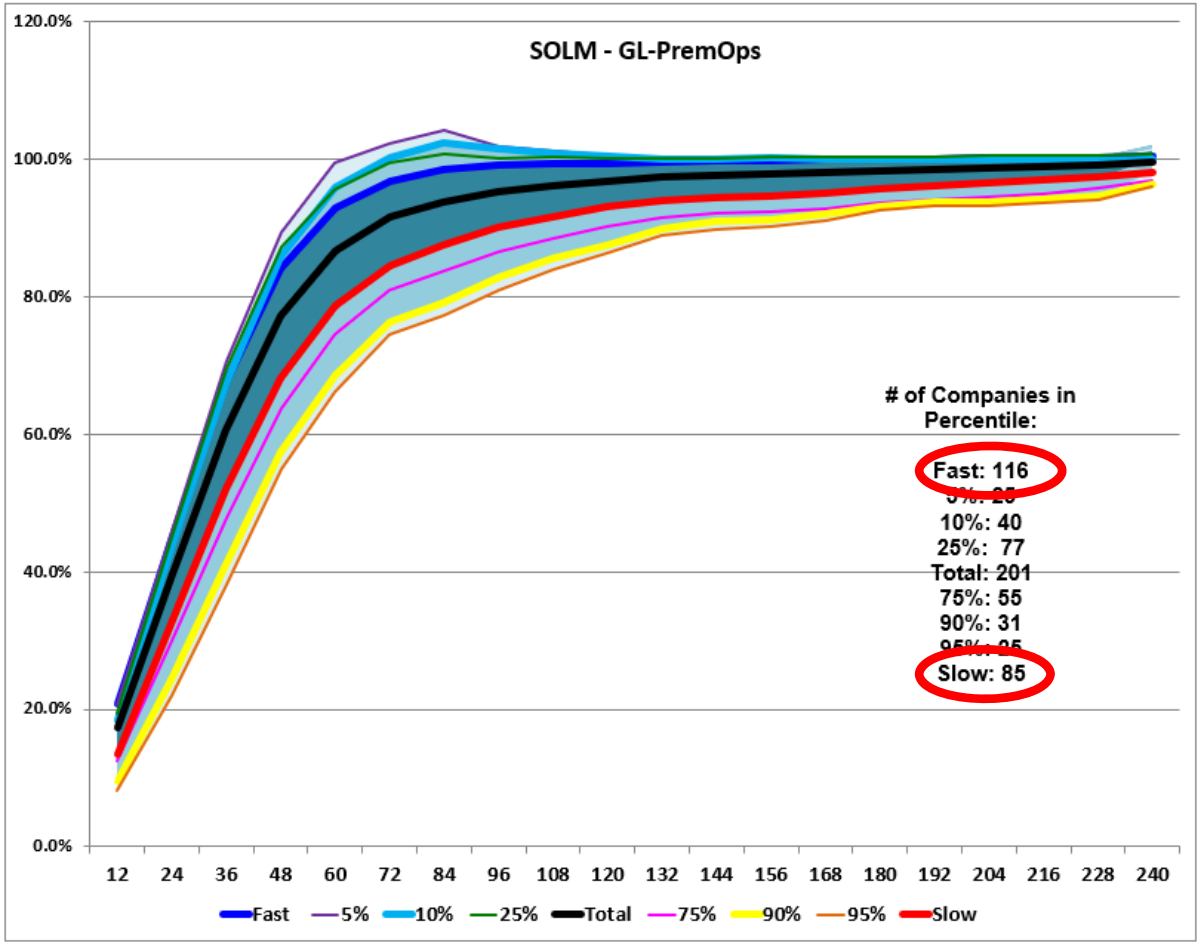
SOLM - Company Bifurcation – LDF Hypothesis Testing

4Mx1M - Payment Pattern (3% detrended threshold)

Illustrative

Devt	E&O $ Num	E&O $ Den	E&O Actual ATA	E&O Expected Actual	Company A $ Num	Company A $ Den	Company A Actual ATA	Company A Expected Actual
228								
216	105,531,247	105,531,247	1.000	105,531,247	8,198,446	8,198,446	1.000	8,198,446
204	293,942,535	293,942,535	1.000	293,942,535	18,923,710	19,045,099	0.994	19,045,099
192	475,642,114	472,575,957	1.006	475,642,114	31,612,986	31,551,259	1.002	31,755,969
180	705,566,867	705,479,590	1.000	705,566,867	45,409,833	45,493,492	0.998	45,499,120
168	1,024,718,508	1,020,904,699	1.004	1,024,718,508	57,494,522	57,458,763	1.001	57,673,413
156	1,388,421,724	1,383,081,587	1.004	1,388,421,724	66,378,209	65,253,074	1.017	65,505,019
144	1,688,270,963	1,677,909,614	1.006	1,688,270,963	73,712,551	73,181,641	1.007	73,633,549
132	1,973,912,149	1,968,595,712	1.003	1,973,912,149	80,527,589	80,389,627	1.002	80,606,729
120	2,339,797,103	2,319,972,111	1.009	2,339,797,103	87,793,749	86,799,305	1.011	87,541,036
108	2,726,649,787	2,679,039,960	1.018	2,726,649,787	93,348,932	92,564,040	1.008	94,209,017
96	3,209,684,397	3,096,986,698	1.036	3,209,684,397	104,252,613	104,864,603	0.994	108,680,570
84	3,580,259,532	3,432,496,791	1.043	3,580,259,532	112,582,200	114,178,679	0.986	119,093,863
72	3,863,973,715	3,566,658,852	1.083	3,863,973,715	124,331,344	128,478,419	0.968	139,188,314
60	4,111,432,098	3,647,257,365	1.127	4,111,432,098	[illegible]	140,324,828	0.996	158,183,518
48	4,065,488,874	3,219,405,713	1.263	4,065,488,874	150,806,971	151,100,620	0.998	190,810,958
36	3,541,277,111	[illegible]	1.527	3,541,277,111	157,533,788	[illegible]	[illegible]	228,400,445
24	2,522,512,650	1,205,975,660	2.092	2,522,512,650	155,221,988	140,510,957	1.105	293,903,665
12	1,354,693,563	298,927,949	4.532	1,354,693,563	143,717,469	139,258,281	1.032	631,096,214
Total (all)	38,971,774,937	33,413,646,968		38,971,774,937	1,651,545,453	1,628,212,690		2,433,024,946
Total (incl maturities)	31,553,291,613	29,589,838,431		31,553,291,613	1,195,072,208	1,198,881,895		1,279,624,621
Actual vs Expected	1,963,453,182	1.00		1,963,453,182	(3,809,687)	-0.05		80,742,726
Difference - Adverse (Fav)	-	0.0%			(84,552,413)	-7.1%		
Total Premium	52,596,745,930				221,005,118			
5yr Premium	19,590,875,897				73,547,439			
Total Loss	5,906,994,239				164,669,711			
5yr Loss	1,142,366,853				27,860,921			

SOLM Percentiles: GL – PremOps



Illustrative

SOLM: Sample Bifurcation – Faster vs. Slower Companies

Illustrative

SOLM 2018 v1- GL-Prem Ops - Bifurcation for Fast / Slow Selections (using 12/31/2017 data)

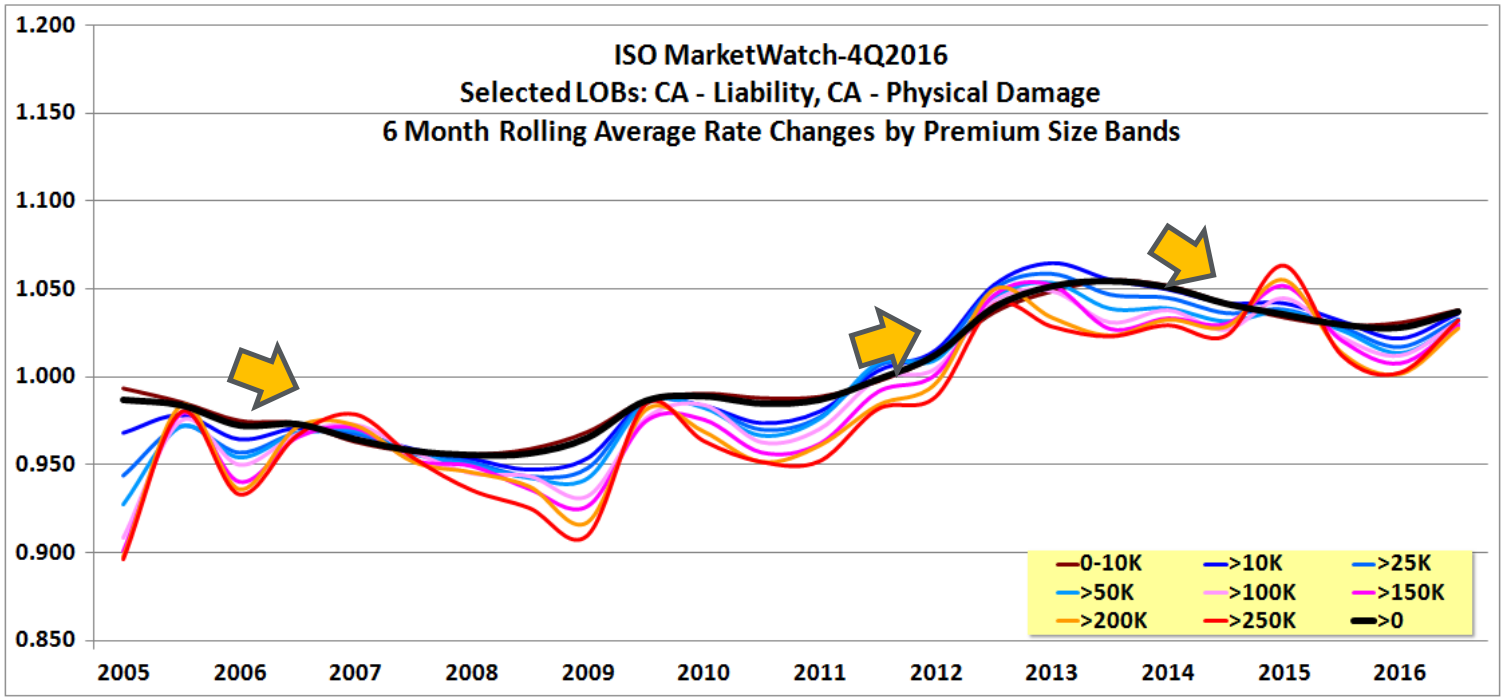
84:Ultimate

Split point	GL-PremOps	# Cos	Prem	XS Loss											
1.00	4.9Mx100K	201	43,967,939,982	28,849,402,033				57.7%	50.4%	54.4%		42.3%	49.6%	45.6%	
						GL-PremOps				-1 Faster				1 Slower			
Total ATU	Fast ATU	Slow ATU	Incl/Excl	Devt	$ Num	$ Den	Actual ATA	Expected	$ Num	$ Den	Actual ATA	Expected	$ Num	$ Den	Actual ATA	Expected
1.004	0.996	1.019	1	240	1,661,547,084	1,654,234,622	1.004	1,661,547,084	1,038,808,755	1,043,163,084	0.996	1,047,774,334	622,738,329	611,071,538	1.019	613,772,749
1.008	0.997	1.027	1	228	3,384,483,858	3,371,351,494	1.004	3,384,483,858	2,090,397,933	2,087,350,967	1.001	2,095,481,788	1,294,085,925	1,284,000,526	1.008	1,289,002,070
1.011	0.998	1.032	1	216	5,106,153,079	5,094,693,509	1.002	5,106,153,079	3,139,899,869	3,137,881,350	1.001	3,144,939,434	1,966,253,210	1,956,812,158	1.005	1,961,213,645
1.013	0.999	1.036	1	204	6,820,113,248	6,806,580,867	1.002	6,820,113,248	4,201,033,013	4,197,797,055	1.001	4,206,142,829	2,619,080,235	2,608,783,812	1.004	2,613,970,418
1.014	0.999	1.040	1	192	8,448,638,173	8,433,413,372	1.002	8,448,638,173	5,207,190,767	5,203,502,489	1.001	5,212,896,347	3,241,447,405	3,229,910,883	1.004	3,235,741,825
1.017	1.000	1.044	1	180	9,804,469,955	9,783,743,333	1.002	9,804,469,955	6,020,140,947	6,015,830,635	1.001	6,028,575,025	3,784,329,008	3,767,912,698	1.004	3,775,894,929
1.019	1.001	1.051	1	168	11,030,540,631	10,999,833,006	1.003	11,030,540,631	6,730,665,775	6,727,408,353	1.000	6,746,188,886	4,299,874,855	4,272,424,654	1.006	4,284,351,745
1.022	1.001	1.056	1	156	12,234,012,463	12,205,984,415	1.002	12,234,012,463	7,395,394,683	7,389,041,653	1.001	7,406,008,774	4,838,617,780	4,816,942,763	1.004	4,828,003,689
1.024	1.003	1.058	1	144	13,490,438,306	13,465,044,264	1.002	13,490,438,306	8,058,034,121	8,045,124,602	1.002	8,060,297,091	5,432,404,185	5,419,919,661	1.002	5,430,141,215
1.027	1.005	1.063	1	132	14,821,263,701	14,776,647,337	1.003	14,821,263,701	8,735,843,540	8,719,041,591	1.002	8,745,367,721	6,085,420,162	6,057,605,746	1.005	6,075,895,980
1.033	1.007	1.075	1	120	16,345,288,400	16,249,539,428	1.006	16,345,288,400	9,442,628,945	9,423,378,087	1.002	9,478,904,508	6,902,659,455	6,826,161,340	1.011	6,866,383,892
1.039	1.007	1.091	1	108	17,729,260,707	17,616,677,265	1.006	17,729,260,707	10,126,061,932	10,124,905,740	1.000	10,189,611,287	7,603,198,775	7,491,771,525	1.015	7,539,649,420
1.048	1.009	1.110	1	96	19,023,780,446	18,859,815,680	1.009	19,023,780,446	10,829,164,300	10,804,706,219	1.002	10,898,640,918	8,194,616,146	8,055,109,462	1.017	8,125,139,528
1.066	1.015	1.144	1	84	20,286,233,464	19,961,590,512	1.016	20,286,233,464	11,498,303,185	11,432,167,337	1.006	11,618,093,030	8,787,930,279	8,529,423,175	1.030	8,668,140,434
1.091	1.032	1.182	0	72	21,437,639,012	20,935,078,236	1.024	21,437,639,012	12,151,583,867	11,950,243,363	1.017	12,237,117,073	9,286,055,145	8,984,834,873	1.034	9,200,521,939
1.154	1.077	1.272	0	60	22,279,509,217	21,070,489,894	1.057	22,279,509,217	12,612,261,718	12,088,662,630	1.043	12,782,307,001	9,667,247,499	8,981,827,264	1.076	9,497,202,216
1.297	1.189	1.465	0	48	22,569,080,671	20,079,255,180	1.124	22,569,080,671	12,836,629,051	11,629,982,634	1.104	13,072,099,234	9,732,451,620	8,449,272,547	1.152	9,496,981,437
1.652	1.484	1.921	0	36	21,541,571,344	16,907,421,185	1.274	21,541,571,344	12,384,707,471	9,923,315,927	1.248	12,643,194,706	9,156,863,873	6,984,105,258	1.311	8,898,376,639
2.559	2.244	3.079	0	24	18,067,232,726	11,665,472,585	1.549	18,067,232,726	10,567,368,199	6,985,997,540	1.513	10,819,762,548	7,499,864,527	4,679,475,045	1.603	7,247,470,178
5.767	4.829	7.462	0	12	12,385,531,409	5,495,647,499	2.254	12,385,531,409	7,387,511,271	3,433,472,460	2.152	7,738,011,036	4,998,020,138	2,062,175,039	2.424	4,647,520,373
				Total (all)	278,466,787,896	255,432,513,683		278,466,787,896	162,453,629,345	150,362,973,716		164,171,413,573	116,013,158,551	105,069,539,967		114,295,374,323
				Total (incl maturities)	160,186,223,515	159,279,149,103		160,186,223,515	94,513,567,767	94,351,299,162		94,878,921,974	65,672,655,748	64,927,849,941		65,307,301,541
				Actual vs Expected	907,074,412	1.00		907,074,412	162,268,605	0.31		527,622,812	744,805,807	1.96		379,451,600
				Difference - Adverse (Favorable)	-	0.0%			(365,354,207)	-0.4%			365,354,207	0.6%		

Incremental Rate Changes Through 12/31/2016

Illustrative

Commercial Auto Liability & Physical Damage



Total # of policies	Total Premium (previous)			
	All	>10K	>100k	>200k
120,437,201	50,288,574,884	12,048,004,851	3,263,364,854	1,856,290,095

Source: ISO MarketWatch – released 3/27/2017

Questions and Feedback

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    - www.verisk.com/iso/excess-reinsurance.html

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