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***CAS 2009 Ratemaking and Product
Management Seminar***

California Auto Rating Factors 2008

Wednesday, March 10, 2009



PERR & KNIGHT



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*March 10, 2009
Las Vegas, Nevada*

- ❖ Brief Regulatory History
- ❖ Sequential Analysis Overview
- ❖ Sequential Analysis Calculations
- ❖ Auto Rating Factor Weights Overview
- ❖ Auto Rating Factor Weights Calculations
- ❖ Auto Rating Factor Weights Changes
- ❖ State Filing Activity
- ❖ Top 5 Filing Activity
- ❖ Company Focus



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1979-1988

- ❖ Open competition
- ❖ Appointed commissioner
- ❖ Royal Globe decision
 - California Supreme Court
 - Third-party bad faith claims
 - Exposure to unlimited judgment
 - Reversed in Moradi-Shalal in 1988
- ❖ High premiums
 - 1978 California Bodily Injury Pure Premium = \$50
 - 1987 California Bodily Injury Pure Premium = \$184
 - Increase of 268% compared to all other of 159%



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Proposition 103

- ❖ Prior Approval
- ❖ Elected commissioner
- ❖ Good Driver
 - Must accept
 - Mandatory 20% discount
- ❖ Sequential Analysis
- ❖ Primary Auto Rating Factors
 - Driver Safety Record
 - Annual Miles
 - Years Driving Experience
- ❖ Factor weighting requirements
- ❖ Premiums began to come down (Prop 103 or Royal Globe?)



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2006 ARF Regulations

- ❖ Required each optional factor weight to be less than primary factors weights
- ❖ By August 2006 rates must show at least 15% improvement towards full compliance
- ❖ By July 2008 must be 100% compliant

2007 Rate Regulations

- ❖ Minimum/Maximum EP
- ❖ Elimination of expense trend
- ❖ “Most Actuarially Sound”
- ❖ Variance



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Sequential Analysis Overview

❖ Purpose

- At each factor, remove the variation in loss costs already explained by prior factors
- Establish initial relativities to be modified based on the results of the weighting calculation



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Sequential Analysis Overview

- ❖ Cal. Admin. Code Title 10, § 2632.7
 - Order of factors
 - First Mandatory - Driving Record
 - Second Mandatory - Mileage
 - Third Mandatory - Years Driving Experience
 - All other optional factors in any order
 - Frequency
 - Severity
 - Balance factors based on same exposure distribution that is used to calculate factor weights



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Sequential Analysis Overview

- ❖ Only include rating factors discussed in Cal. Admin. Code Title 10, § 2632.5
- ❖ Rating variables not included:
 - Limit and deductible factors
 - Physical damage symbol and model year factors
 - Affinity group discounts
 - Non-owner discounts



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Prior Relativities

- ❖ Prior Relativities method can use summarized data for unadjusted average loss and sample data to calculate average prior relativity from prior factors (PRFPF)
- ❖ Calculate the factor for a risk at each step of the rating methodology in the same order that the sequential analysis is performed using balanced factors



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Sample PRFPF calculation

	Balanced Proposed Factors				PRFPF		
Risk	Good Driver	Points	Mileage		Points	Mileage	YDE
1	0.972	0.929	1.239		0.972	0.903	1.119
2	1.215	2.086	0.936		1.215	2.086	1.952
3	0.972	0.929	1.749		0.972	0.903	1.579
...	



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Calculation of Adjusted Indicated Relativity

Rating Variable	Category	Exposure Distribution	Unadjusted Average Loss	Unadjusted Indicated Relativity	Balanced Average PRFPF	Adjusted Indicated Relativity
Points	0	85.3%	80.88	0.839	0.979	0.857
	1	8.3%	129.67	1.345	1.215	1.107
	2	4.9%	151.92	1.576	1.045	1.508

	Total	100.0%	96.39	1.000	1.000	1.000

❖ Adjusted Indicated Relativity = Unadjusted Indicated Relativity / Balanced Average PRFPF



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Factor Weights Overview

- ❖ Current Method is called the “Proxy Weighting Method”
 - The weight for the variable is based on the sum of the absolute values of the deviation for each category from the variable exposure weighted average factor

Base Rate		114.67				
Rating Variable	Category	Number of Exposure	Exposure Distribution	Proposed Factor	Balanced Proposed Factor	Weight
Vehicle Use	Pleasure	4,457	44.6%	-0.010	-0.007	0.335
	Work	5,289	52.9%	0.000	0.003	0.209
	Business	254	2.5%	0.040	0.043	0.127
	Total	10,000	100.0%	-0.003	0.000	0.670



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Correction Factor

- ❖ Increase weight for the variable by decreasing factors that are less than average and increasing factors that are more than average
- ❖ Decrease weight for the variable by increasing factors that are less than average and decreasing factors that are more than average
- ❖ If using proposed factors in Sequential Analysis, this will have to be recalculated



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Correction Factor (Cont'd)

Base Rate			114.67					
Correction Factor			1.500					
Rating Variable	Category	Exposure Distribution	Original Factor	Balanced Original Factor	Original Weight	Revised Factor	Balanced Revised Factor	Revised Weight
Vehicle Use	Pleasure	44.6%	-0.010	-0.007	0.335	-0.014	-0.010	0.498
	Work	52.9%	0.000	0.003	0.209	0.002	0.005	0.319
	Business	2.5%	0.040	0.043	0.127	0.059	0.062	0.178
	Total	100.0%	-0.003	0.000	0.670	-0.004	0.000	0.995

- ❖ Revised Factor = (Original Factor – Total Original Factor) x (Correction Factor) + Total Original Factor
 - For example: $(-0.010 - (-0.003)) \times 1.5 + -0.003 = -0.0135$



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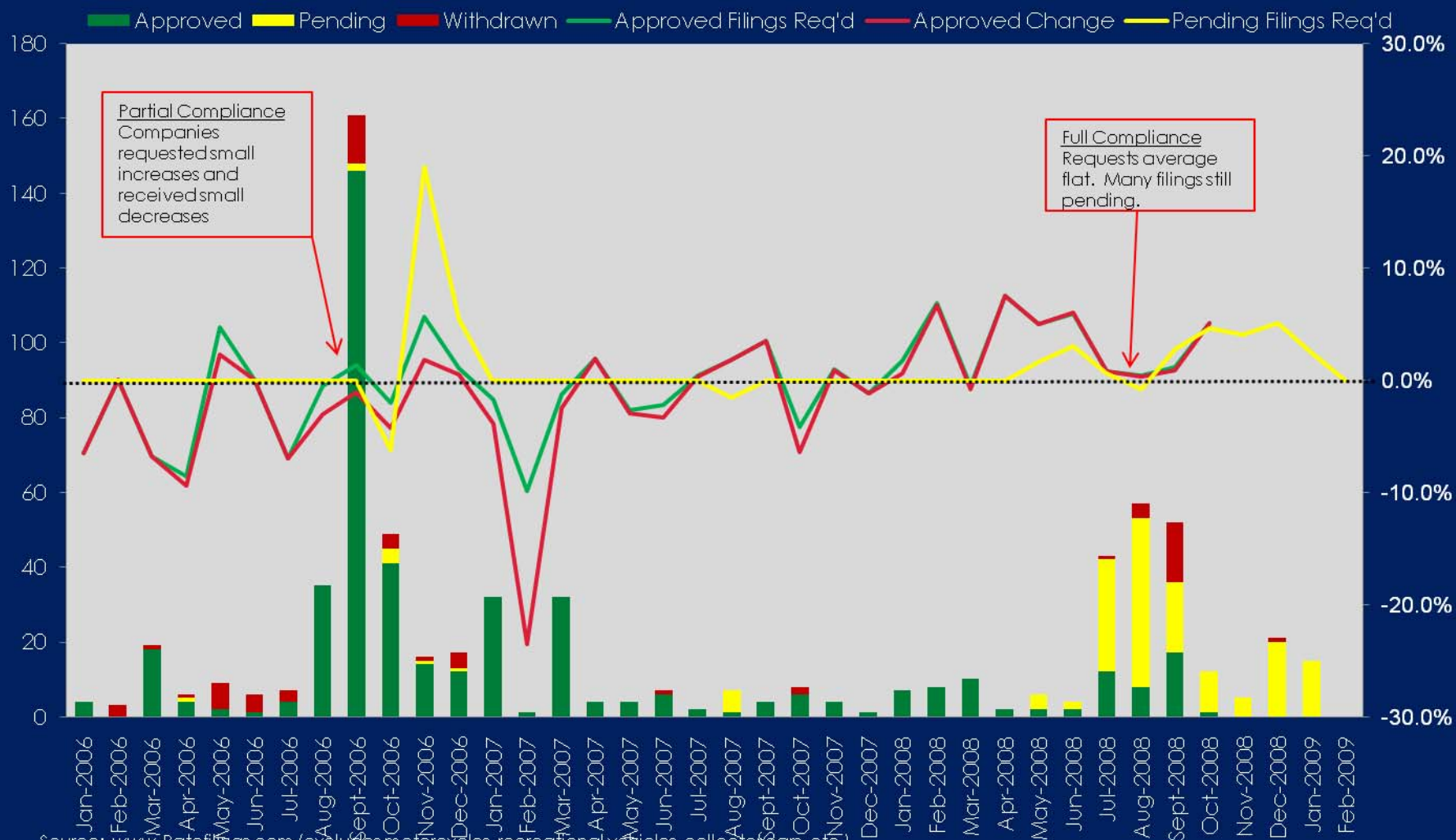
2006 Changes in Regulation

- ❖ Allows for 20 frequency bands and 20 severity bands
- ❖ Weight of each optional factor must be less than years driving experience weight

2008 Change in CDI Review Standards

- ❖ Years Driving Experience & Driver class
 - Weight must be calculated using the combined factors beginning with years driving experience (YDE). The remaining weights are calculated using adjusted combined factors.

Rate Filing Activity



Source: www.Ratefilings.com (excludes motorcycles, recreational vehicles, collector cars, etc.)

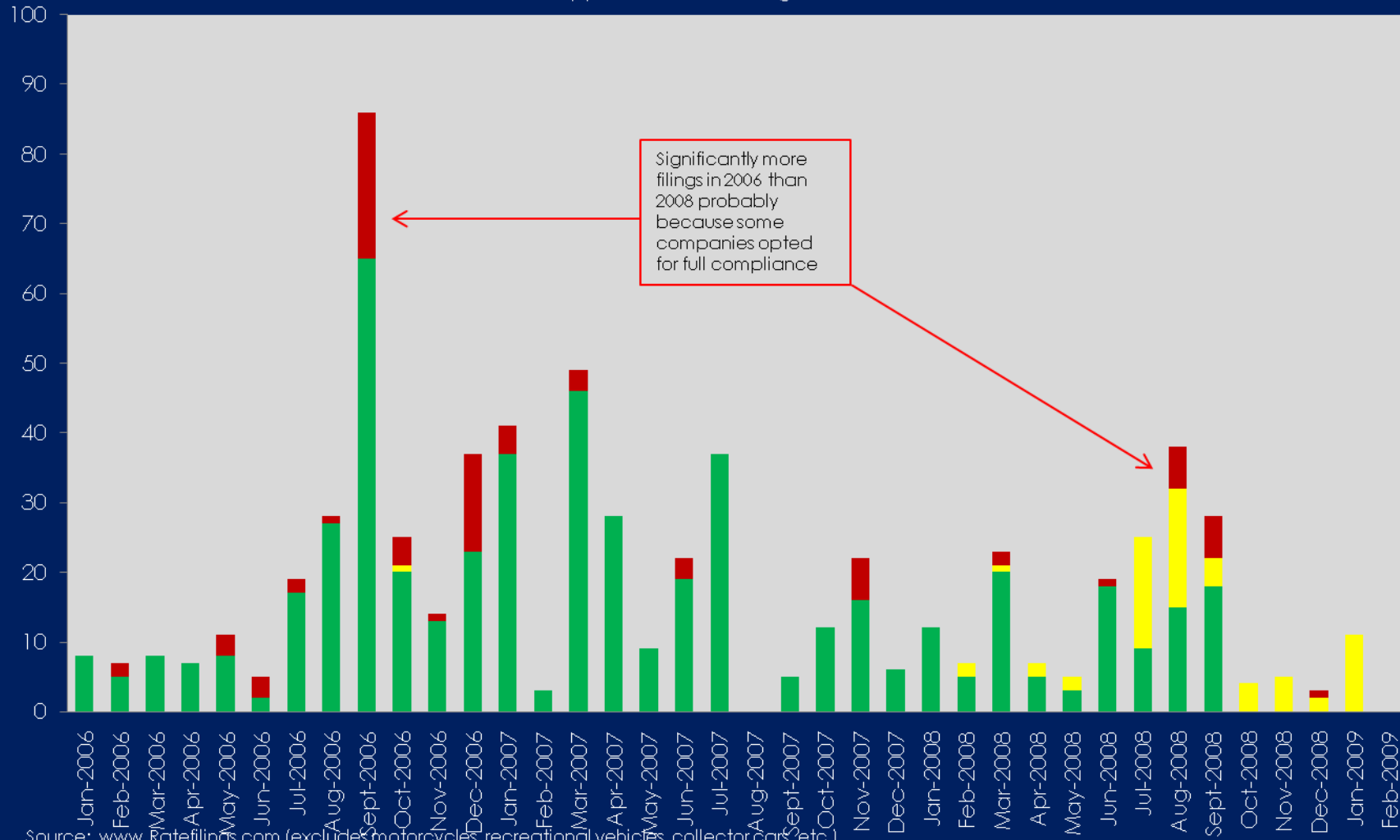


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Class Plan Filing Activity

■ Approved ■ Pending ■ Withdrawn



Source: www.Ratefilings.com (excludes motorcycles, recreational vehicles, collector cars, etc.)



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Top 5 Company Filing Activity

Company (42% Market)	Partial Compliance	Full Compliance
A	Approved 1/11/07 with rate change of -8.0%	Pending with rate change of -3.2%
B	Approved 8/31/06 with rate change of -7.0%	Pending with rate change of -2.1%
C		Approved 9/05/07 with rate change of -6.5%
D	Approved 1/07/08 with rate change of -3.9%	Pending with rate change of +1.5%
E	Approved 5/22/08 with rate change of -15.9%	Pending with rate change of +6.9%



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Top 5 Company Variable Issues

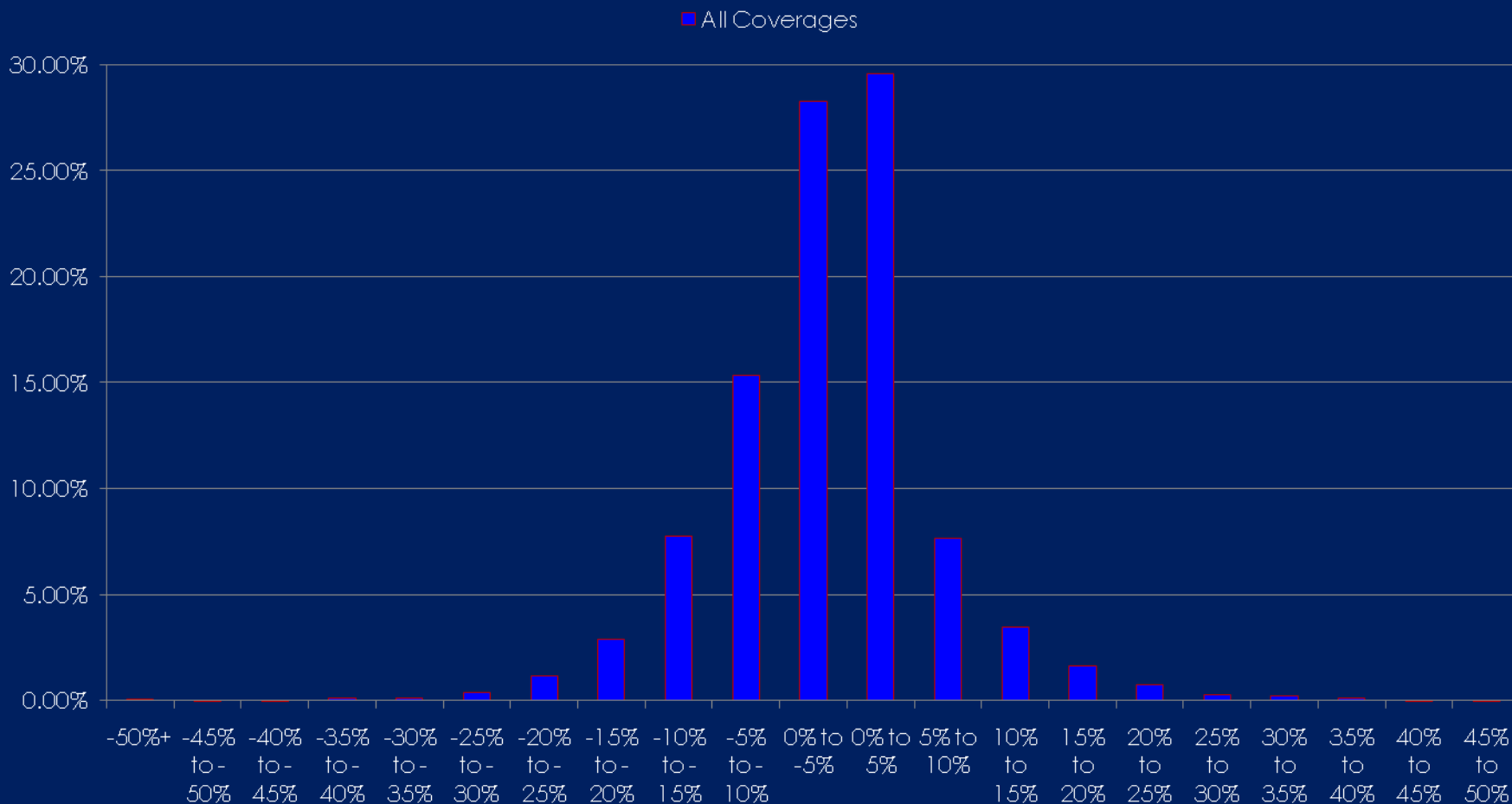
Problem Variable	ARF06 % Companies BI/PD	ARF06 % Companies Comp/Coll	ARF06 % Companies UMBI
Multi-Vehicle	40%	40%	20%
Frequency Band	80%	100%	100%
Marital Status	40%	40%	0%
Severity Band	20%	100%	60%
Gender	20%	40%	20%
Driver Profile	20%	20%	20%
Multi-Policy	20%	0%	20%
Type of Vehicle	20%	40%	20%
Vehicle Use	0%	20%	0%
Vehicle Char.	0%	20%	0%



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Top 5 Companies Market Dislocation - Weighted by Market Share





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How did companies comply?

- ❖ Pumped mandatory variables
- ❖ Tempered optional variables
- ❖ Redefined zip code assignments to bands
- ❖ Separated/Combined variables



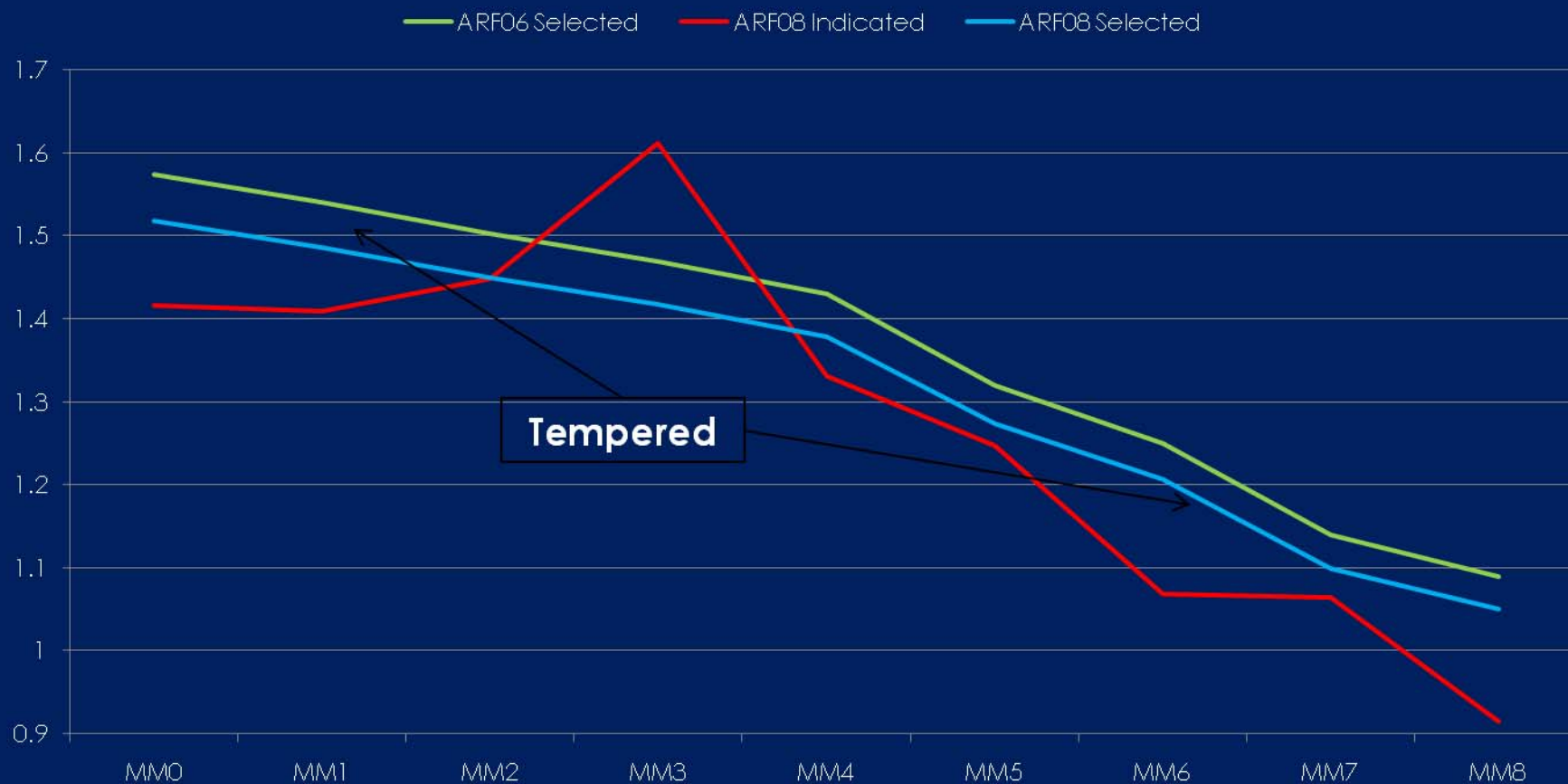
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Company A – BI/PD

Factor	12/31/2005	Partial Compliance	Full Compliance
Driver Safety	22.94	31.50	.106
Annual Mileage	17.92	15.95	.086
Years Driving	17.51	15.59	.085
Vehicle Usage	1.45	.99	.004
Marital, Gender	28.86	23.70	.081
% Use	.79	.79	.004
Multi-Car	14.60	12.19	.061
Multi-Line	14.68	13.80	.083
Academic Standing	1.47	1.23	.006
Persistency	6.70	10.47	.053
Drivers Ed.	1.37	1.23	.007
Mature Driver	.35	.30	.002
2 nd Driver	.18	.16	Dropped
Cost/Freq. Bands	28.18	23.56	.063
All Optional	8.97	8.04	

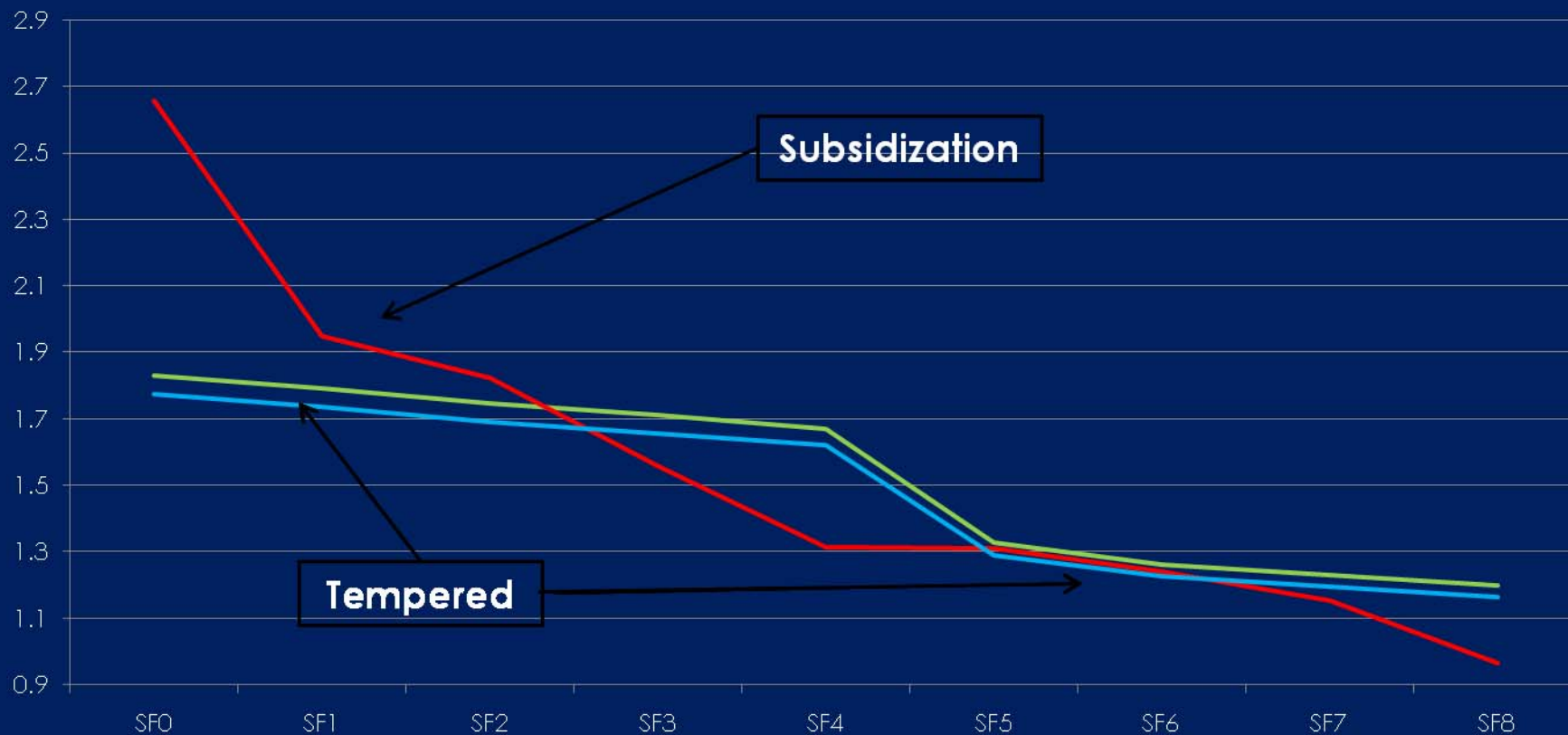
Company A - Gender/Marital Status/Years Licensed Married Males - BI/PD





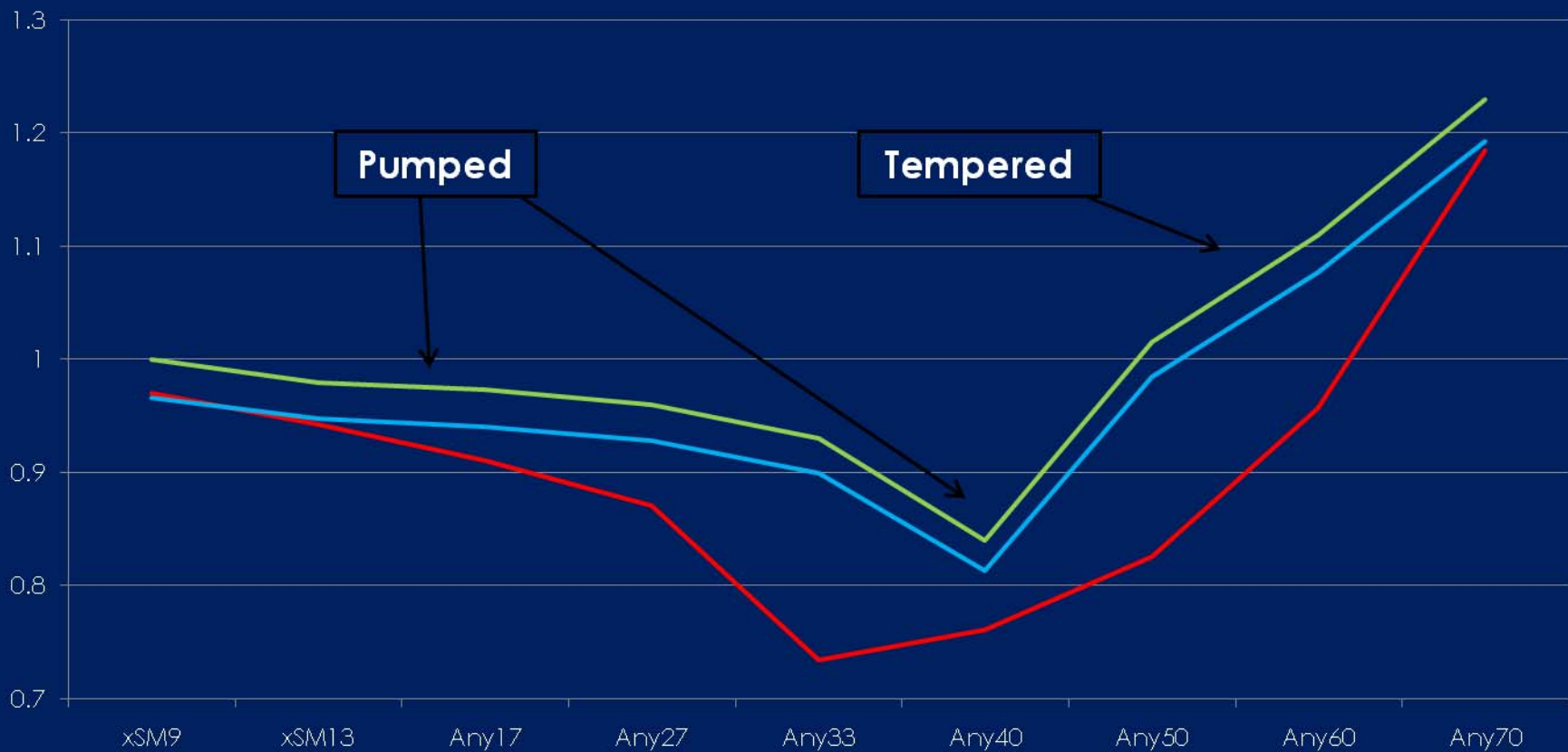
Company A - Gender/Marital Status/Years Licensed Single Females - BI/PD

ARF06 Selected ARF08 Indicated ARF08 Selected



Company A - Gender/Marital Status/Years Licensed Other- BI/PD

ARF06 Selected ARF08 Indicated ARF08 Selected



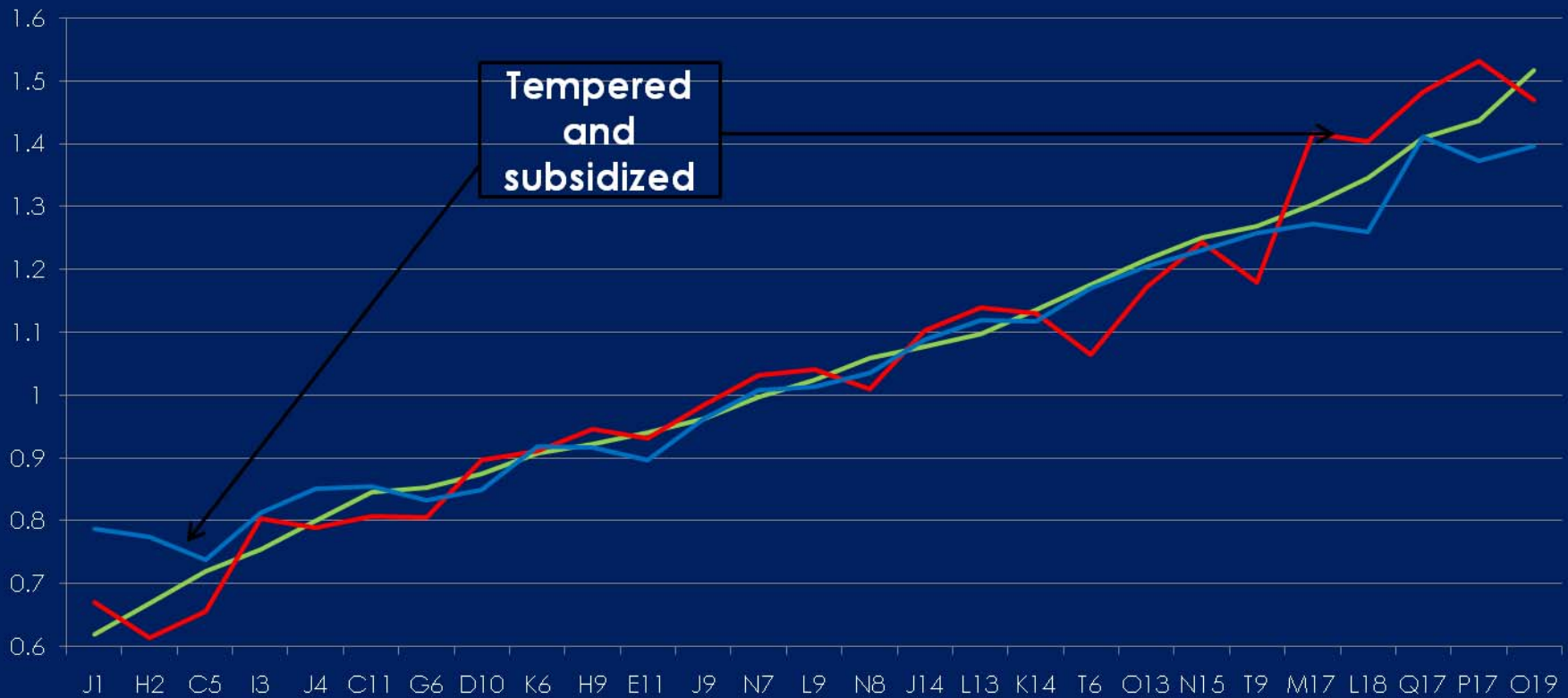


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Company A - Frequency/Severity Bands BI/PD

ARF06 Selected ARF08 Indicated ARF08 Selected





Company A Market Dislocation

■ All Coverages

