

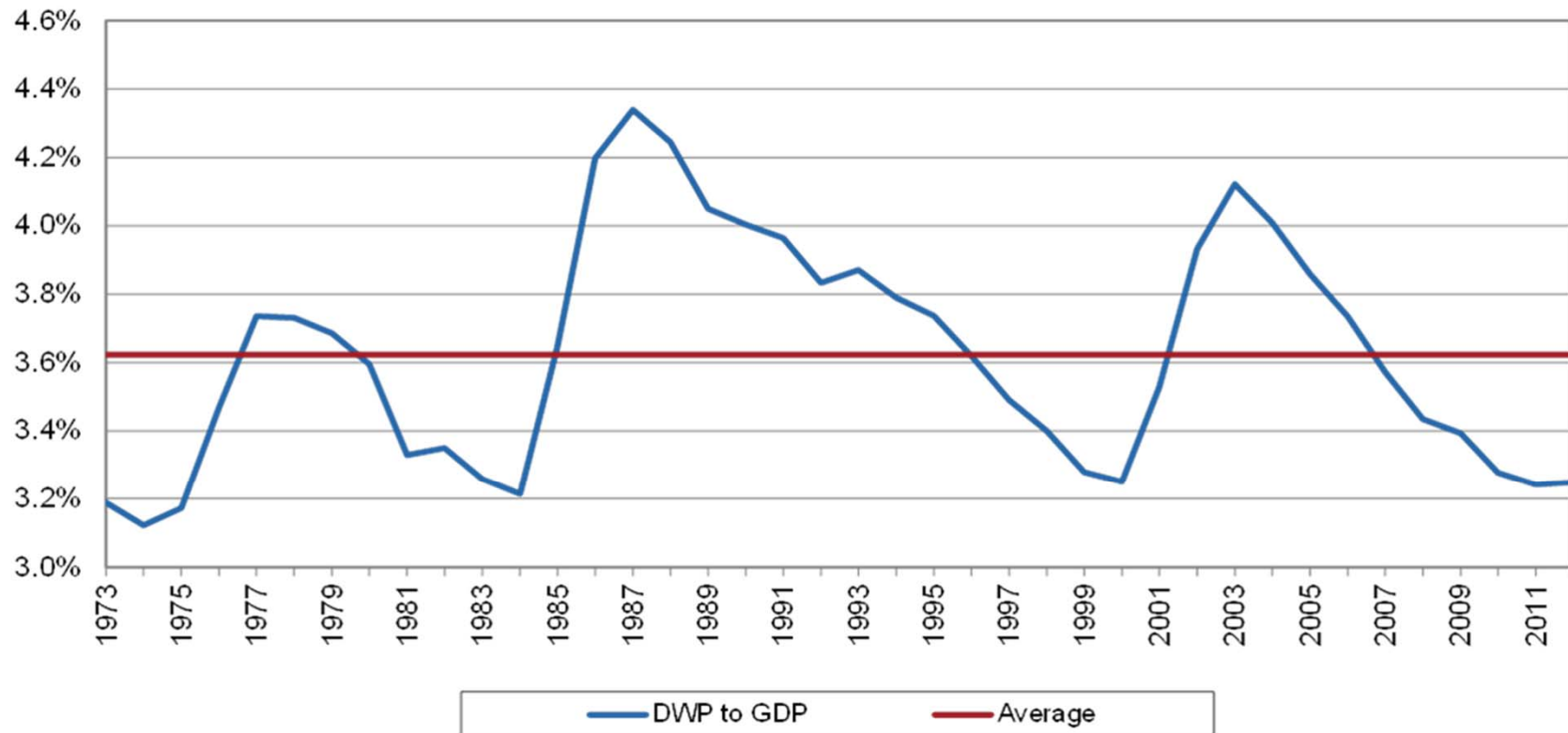
Underwriting Overhaul: Cycle Perspective

CAS In-Focus Seminar:
Expanding the Toolset – Underwriting Collaboration
Rich Lino
October 23, 2015

New Data/Analytical Approaches Change Nature of Cycle?

- Large premium swings go back to 1970s

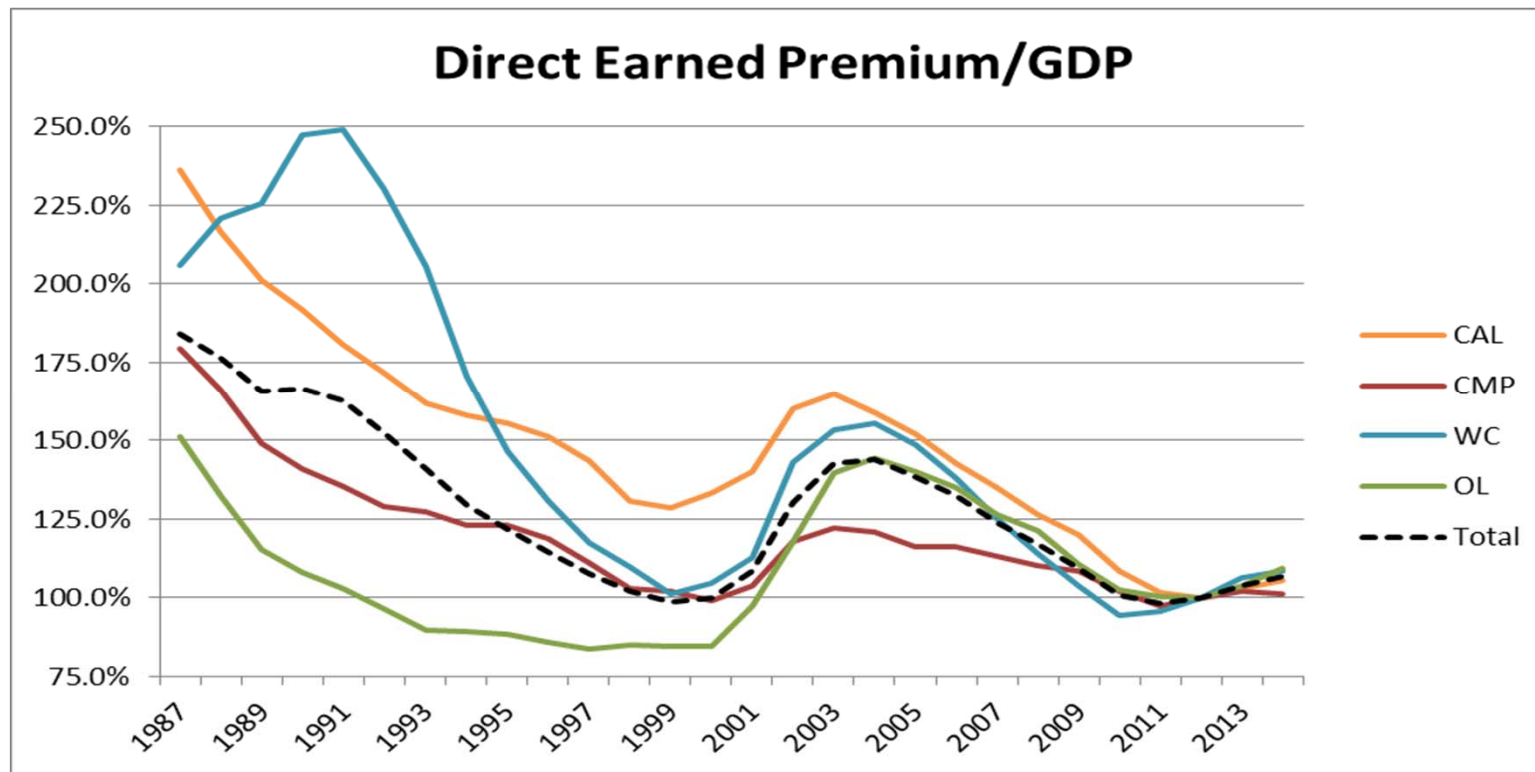
US Industry Direct Written Premium to GDP



Data Source: AM Best Aggregates and Averages and SNL

New Data/Analytical Approaches Change Nature of Cycle?

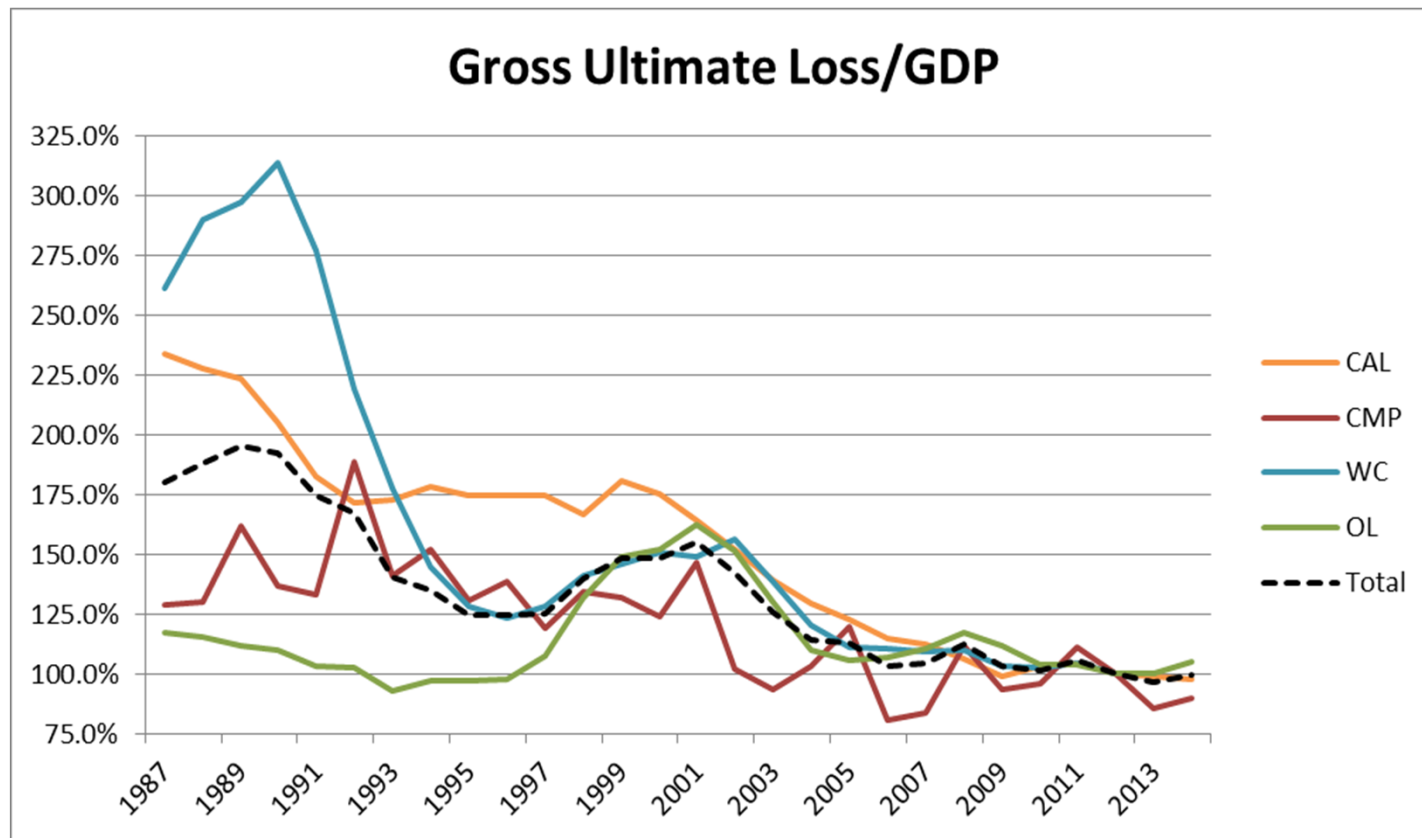
- Swings correlated across lines and are large from peak to trough
 - Self-Insurance contributes to downward trend



Data Source: SNL

New Data/Analytical Approaches Change Nature of Cycle?

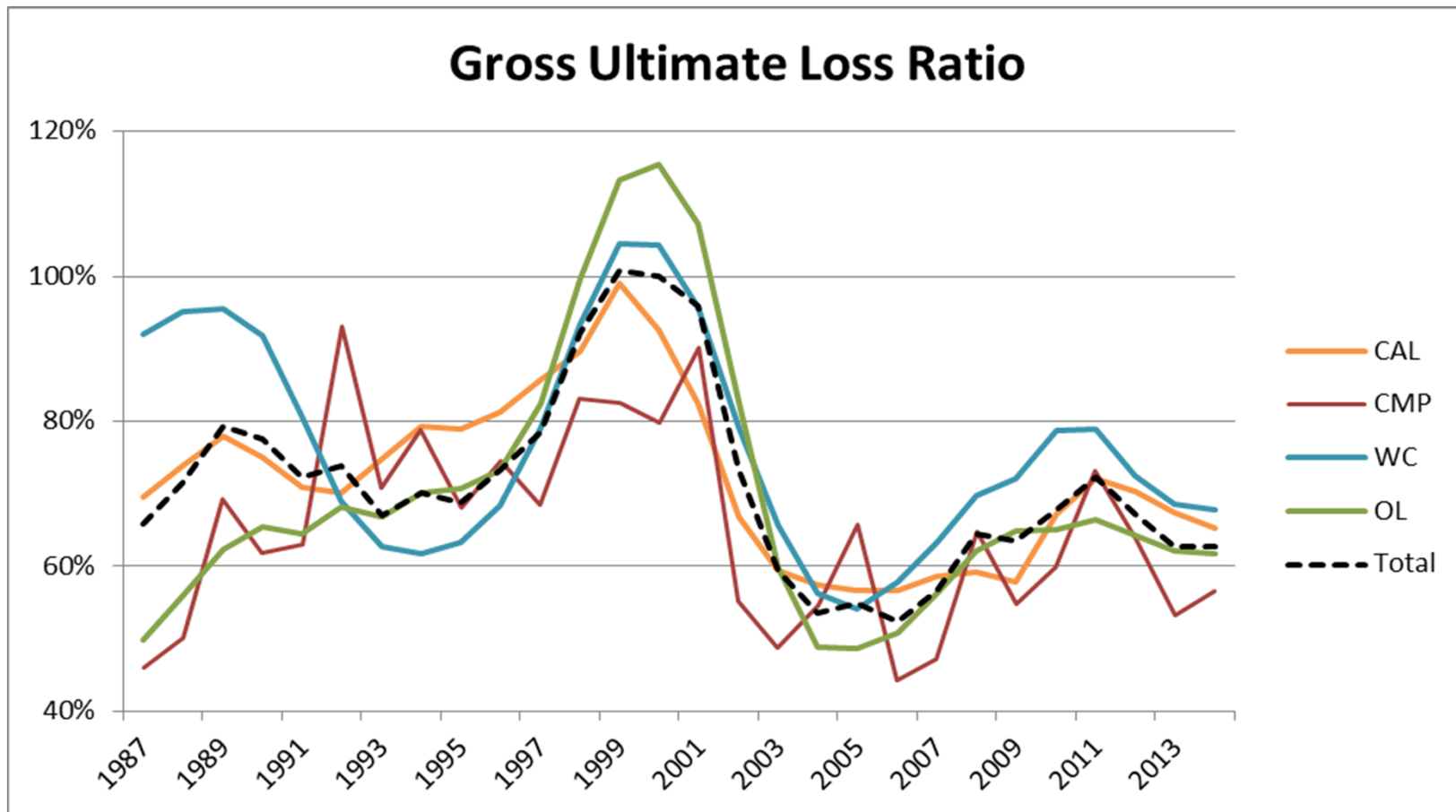
- Downward trend in losses
 - Partially due to Self-insurance + possibly improved loss control



Data Source: SNL

New Data/Analytical Approaches Change Nature of Cycle?

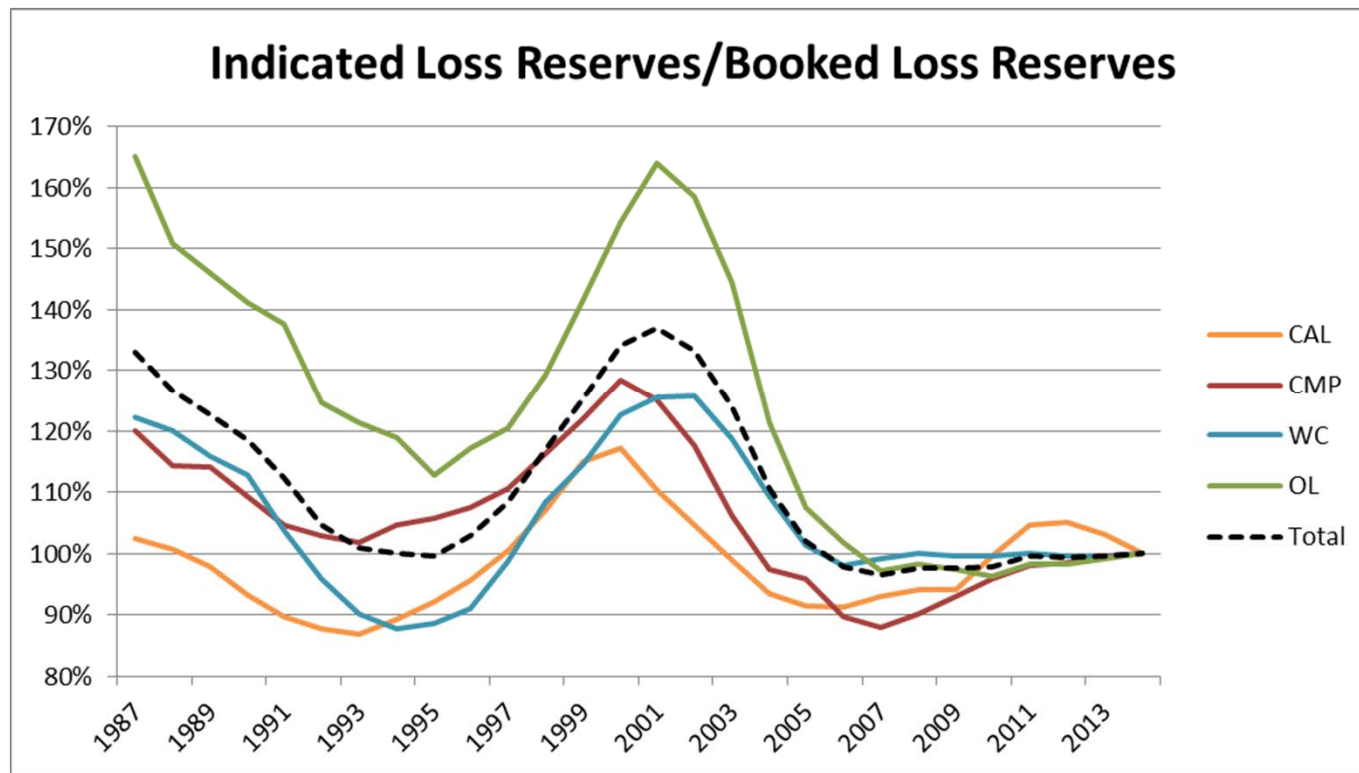
- But, still large cycle in loss ratio (correlated by line, except 1980s WC)



Data Source: SNL

New Data/Analytical Approaches Change Nature of Cycle?

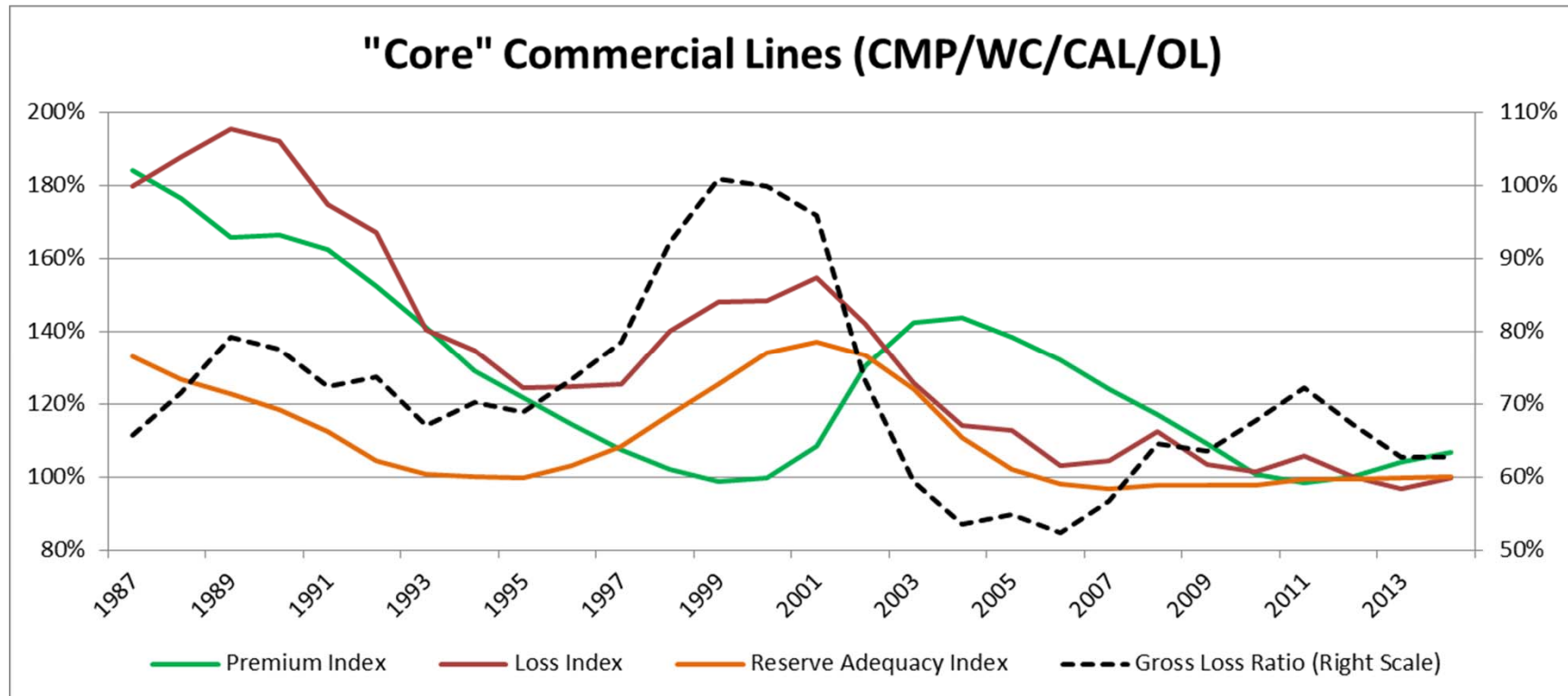
- Reserve adequacy swings mirror premium cycle (and correlated by line)
 - Except late 1980s (asbestos and WC trend surprise)



Data Source: SNL

New Data/Analytical Approaches Change Nature of Cycle?

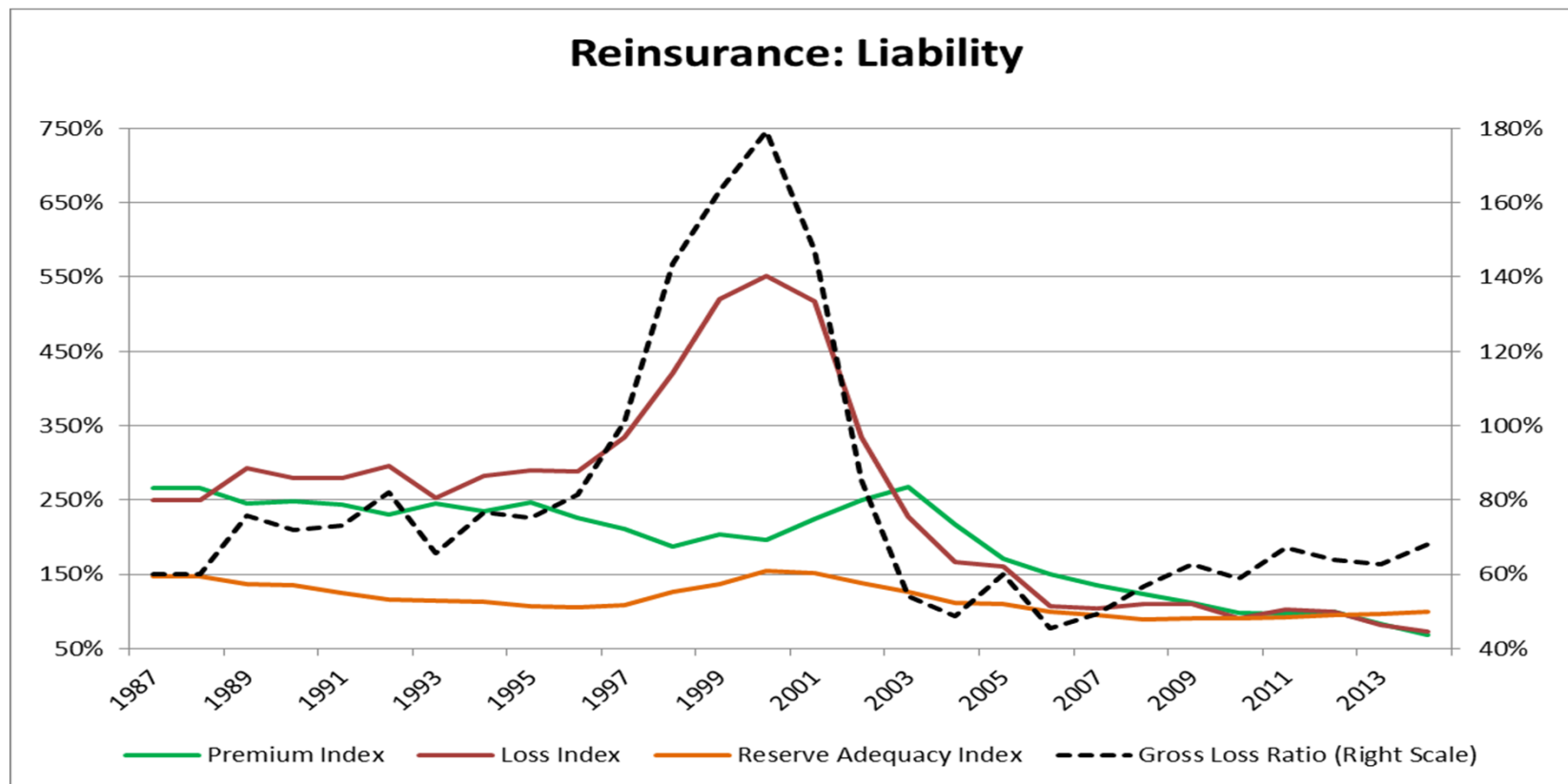
- Last Loss Ratio peak (1998 to 2001) occurred with:
 - Low premiums to GDP
 - High Losses to GDP
 - Inadequate reserves



Data Source: SNL

New Data/Analytical Approaches Change Nature of Cycle?

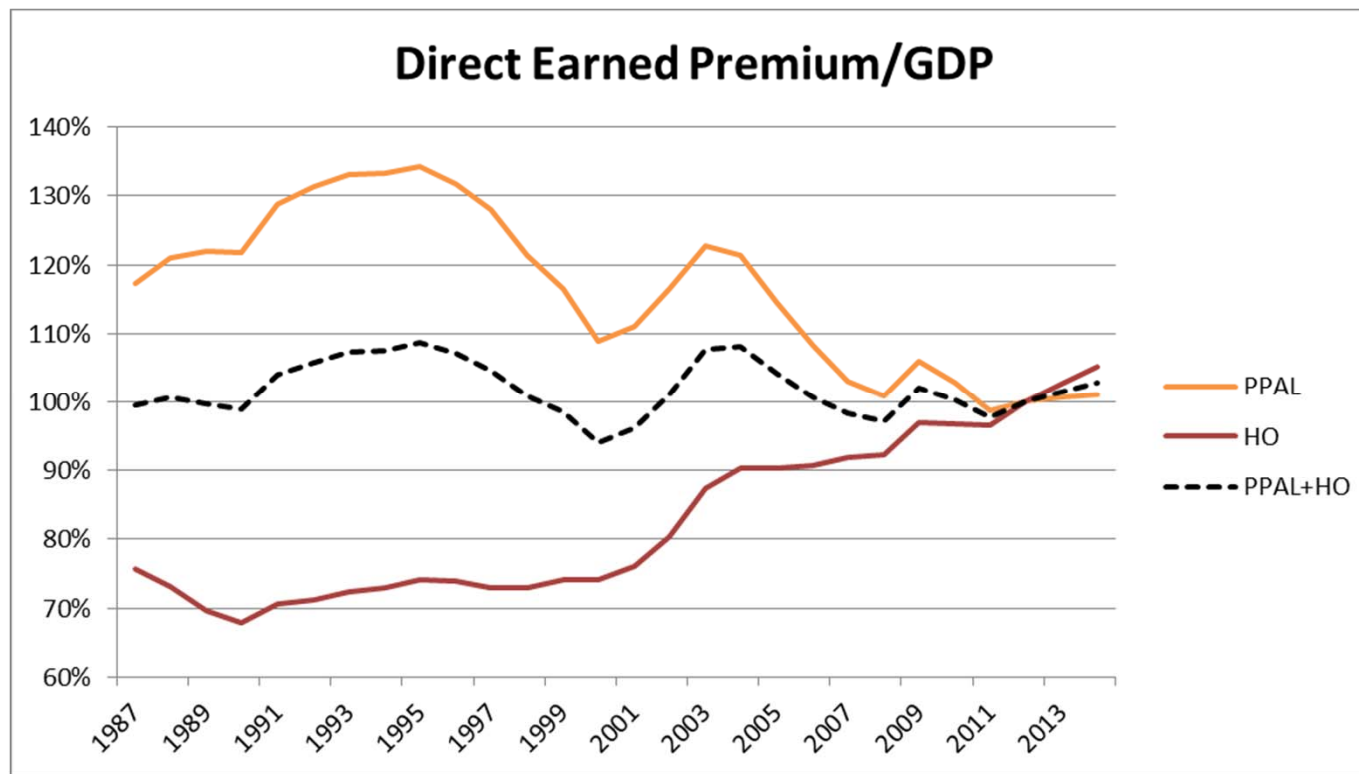
- And, last peak we had big help from our reinsurers
 - Reinsurance Premium down similar to primary industry
 - Huge increase in reinsurer's share of losses



Data Source: SNL

New Data/Analytical Approaches Change Nature of Cycle?

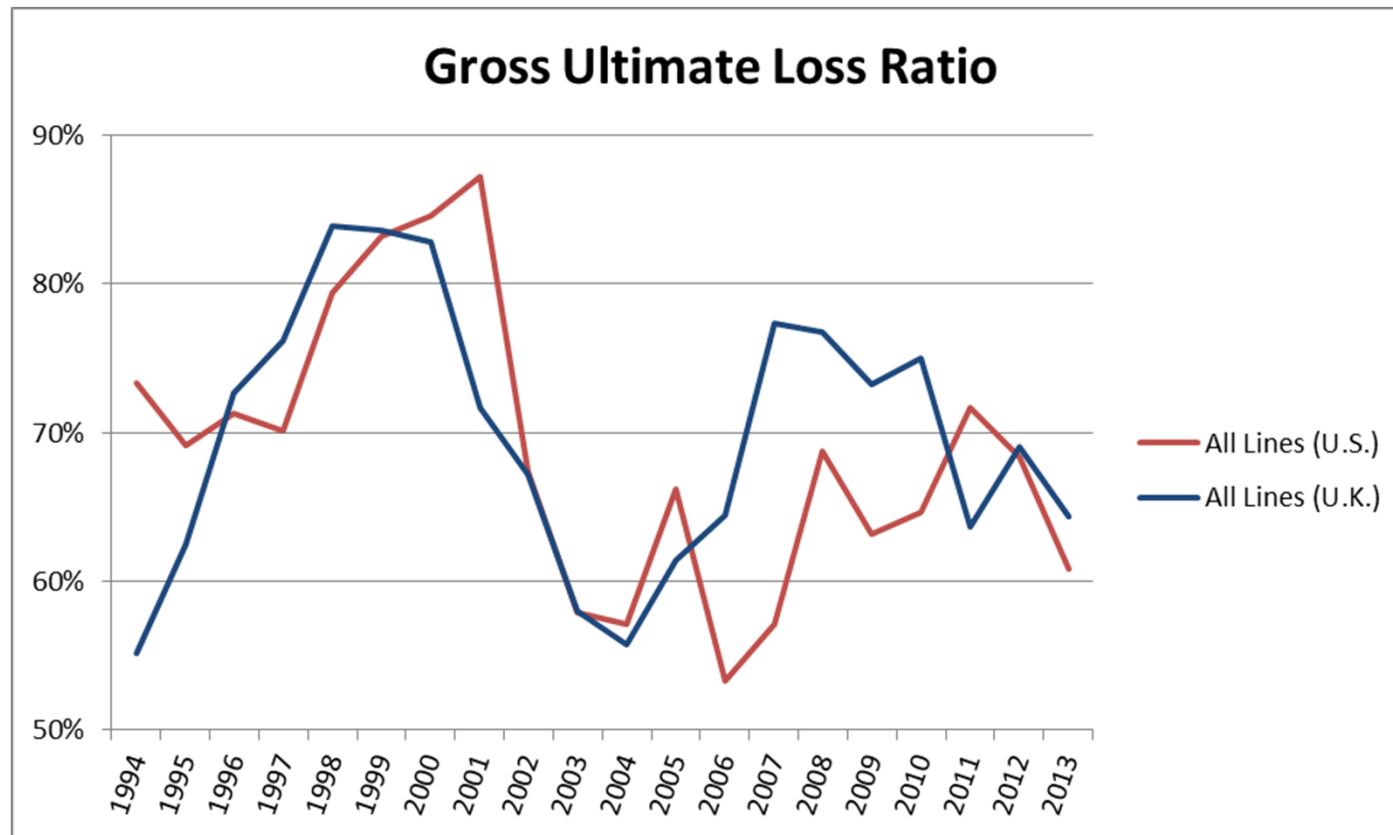
- Personal lines not immune to cycle
- Smaller swings in premium, losses, loss ratio and reserve adequacy



Data Source: SNL

New Data/Analytical Approaches Change Nature of Cycle?

- Other countries not immune to cycle
- UK seems correlated to US



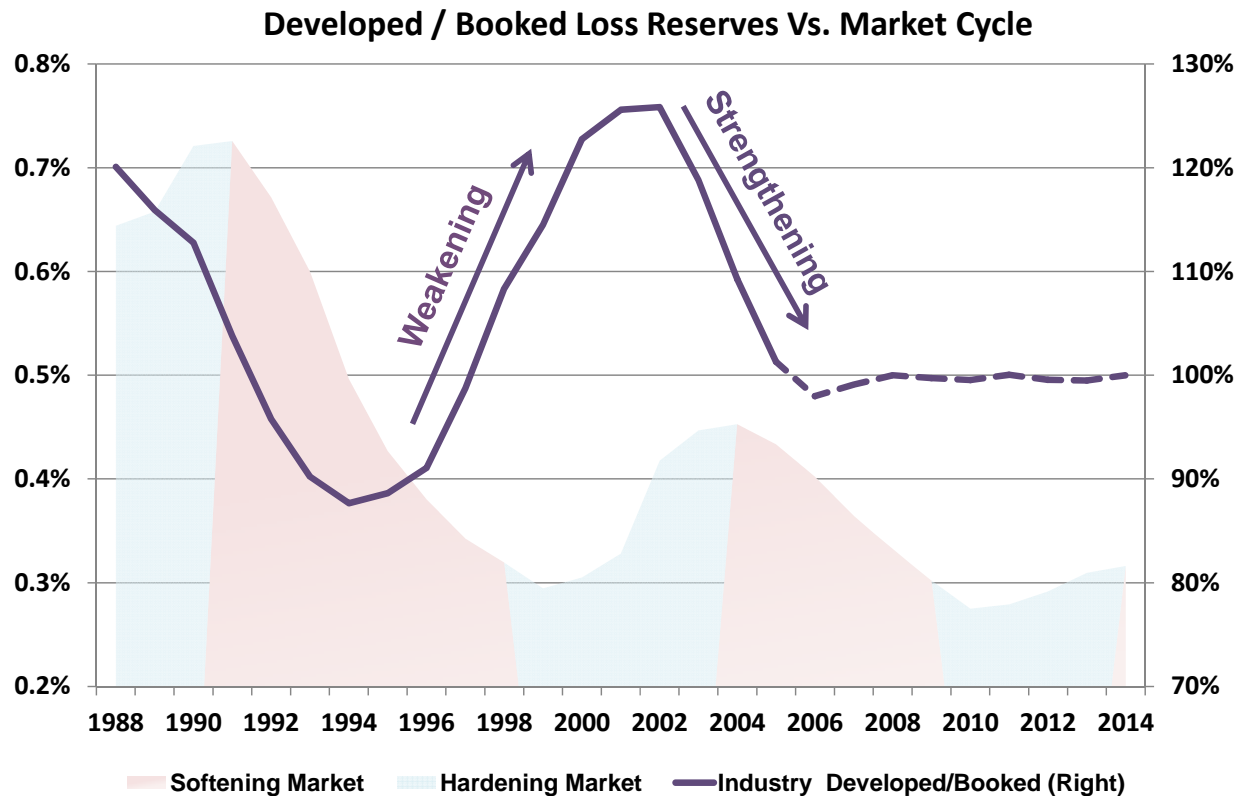
Source:

-U.S. data from SNL

-U.K. data from The data is drawn from Forms 31 and 32 of the Financial Services Authority (FS) (now known as the Prudential Regulation Authority [PRA]) returns. Most of the data reflects business written in the United Kingdom, but some international business is included where written by UK-domiciled insurers. All claims and premium data are in British pound (GBP)."

Impact of Insurance Market Cycle on Reserve Levels Industry Workers Compensation

- Reserves tend to strengthen/weaken during hard/soft markets
- But, not recently (but loss ratios not at ultimate)

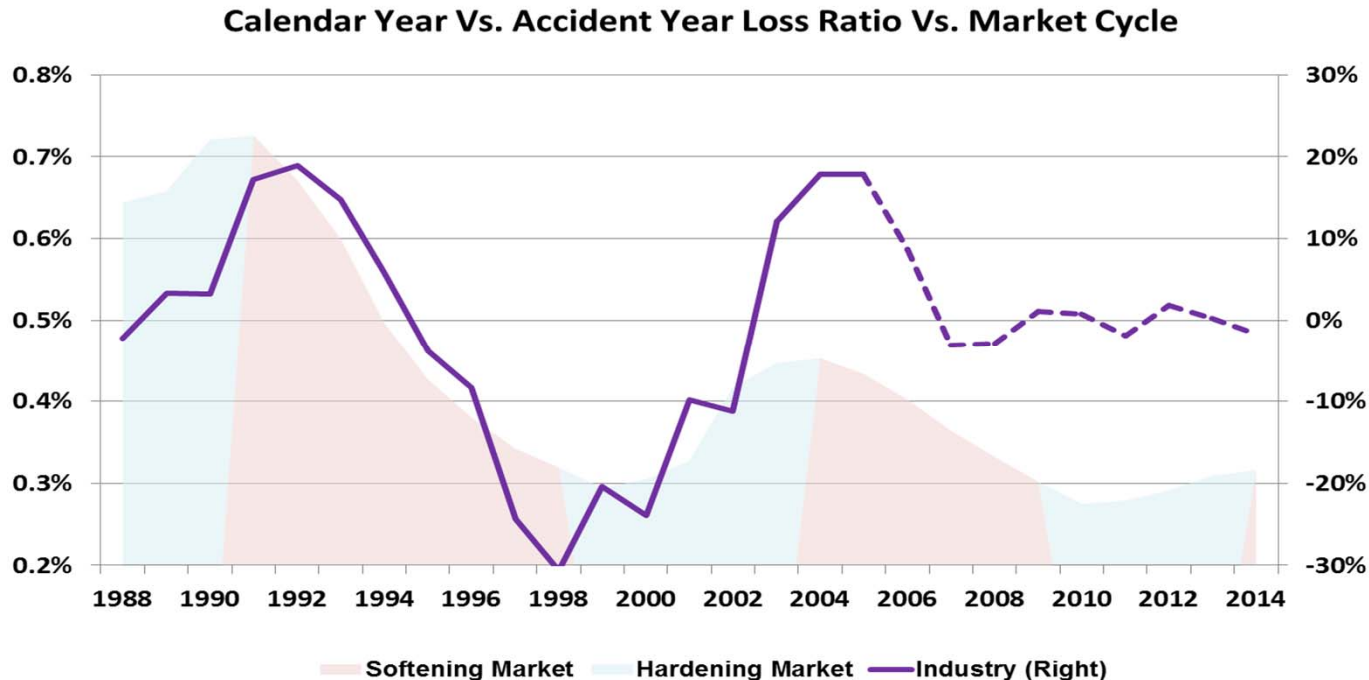


Notes:

- (1) Market Cycle measured by Direct Written Premium to GDP (left hand scale)
- (2) Dashed lines reflect development of losses less than 10 years
- (3) Source: Insurance data from SNL and AM Best , GDP from BEA, etc.

Impact of Insurance Market Cycle on Calendar Year Loss Ratios Industry Workers Compensation

- Premium decline late 1990s
 - reserves weakened,
 - published loss ratios were lower than actual AY loss ratios
 - likely affected underwriting decisions
- Premiums down recently, but has not affected loss ratios

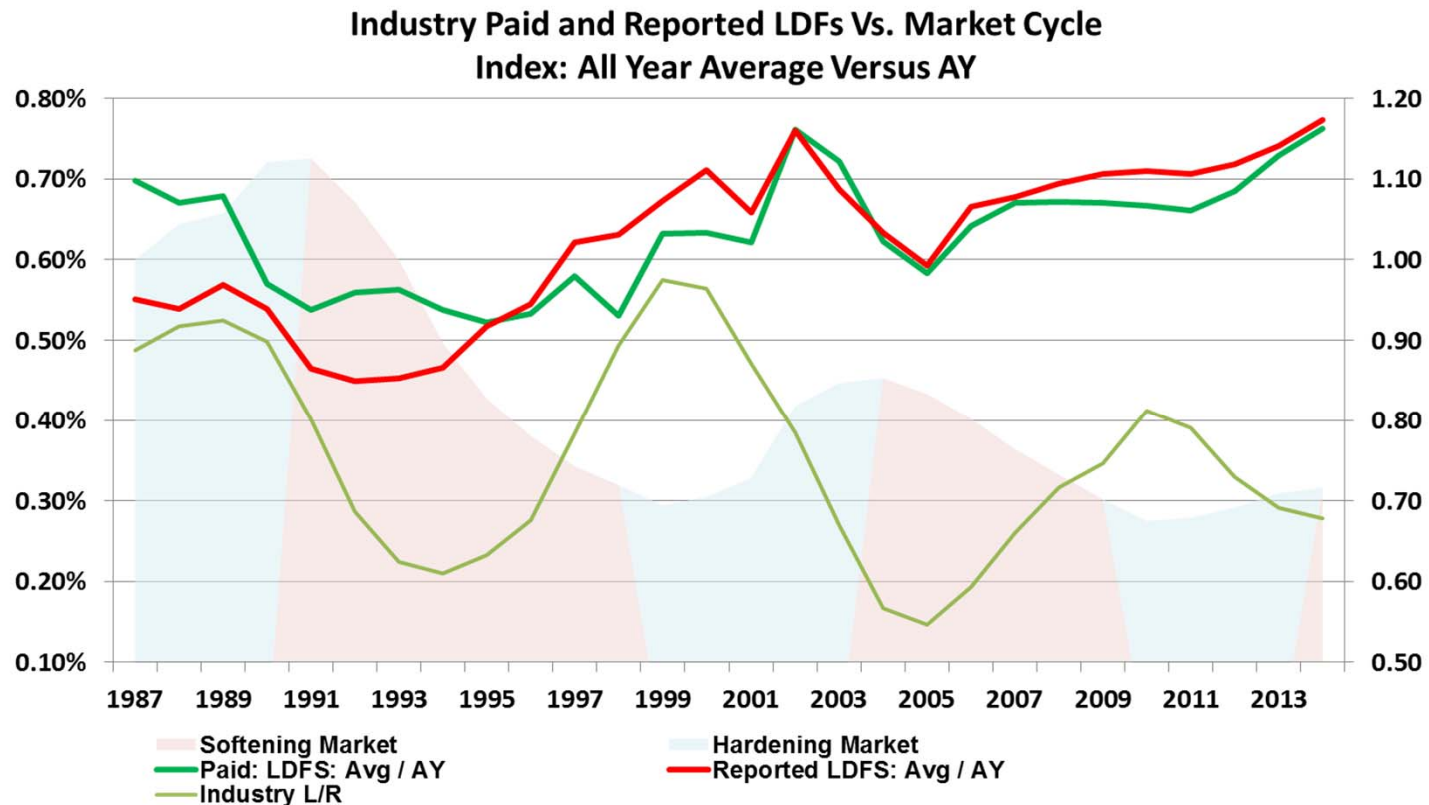


Notes:

- (1) Market Cycle measured by Direct Written Premium to GDP (left hand scale)
- (2) Dashed lines reflect development of losses less than 10 years
- (3) Source: Insurance data from SNL and AM Best , GDP from BEA, etc.

Impact of Insurance Cycle On Loss Development Industry Workers Compensation

- Loss development for both paid (dark green) and reported (red) losses higher than long-term averages in soft market years circa 2000



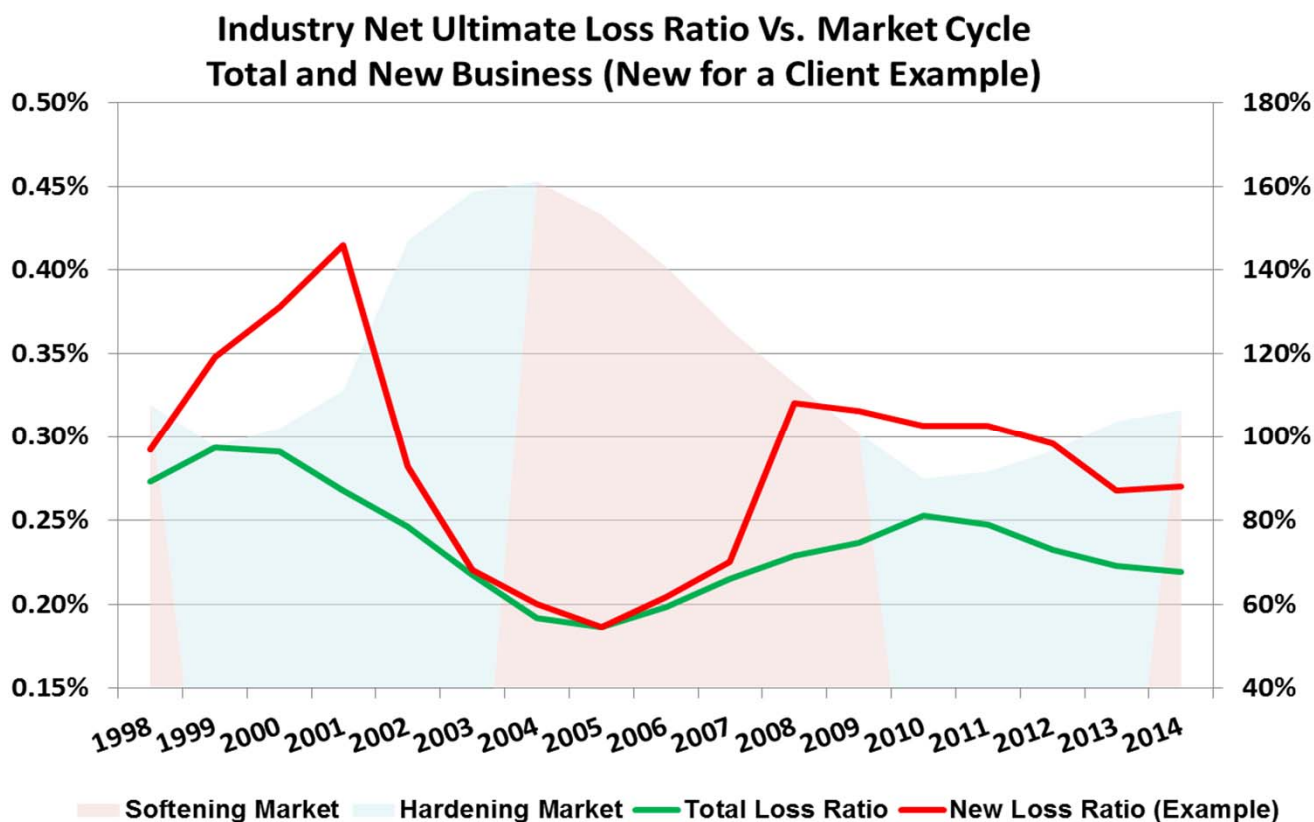
Notes:

- Market Cycle measured by Direct Written Premium to GDP (left hand scale)
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Impact of Insurance Cycle On New Business Loss Ratios

Company Example: Workers Compensation

- New loss ratios increased relative to other business during soft markets



Notes:

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- (2) Source: Insurance data from SNL and AM Best , GDP from BEA, etc.

Data/Analytics for Insurance Cycles

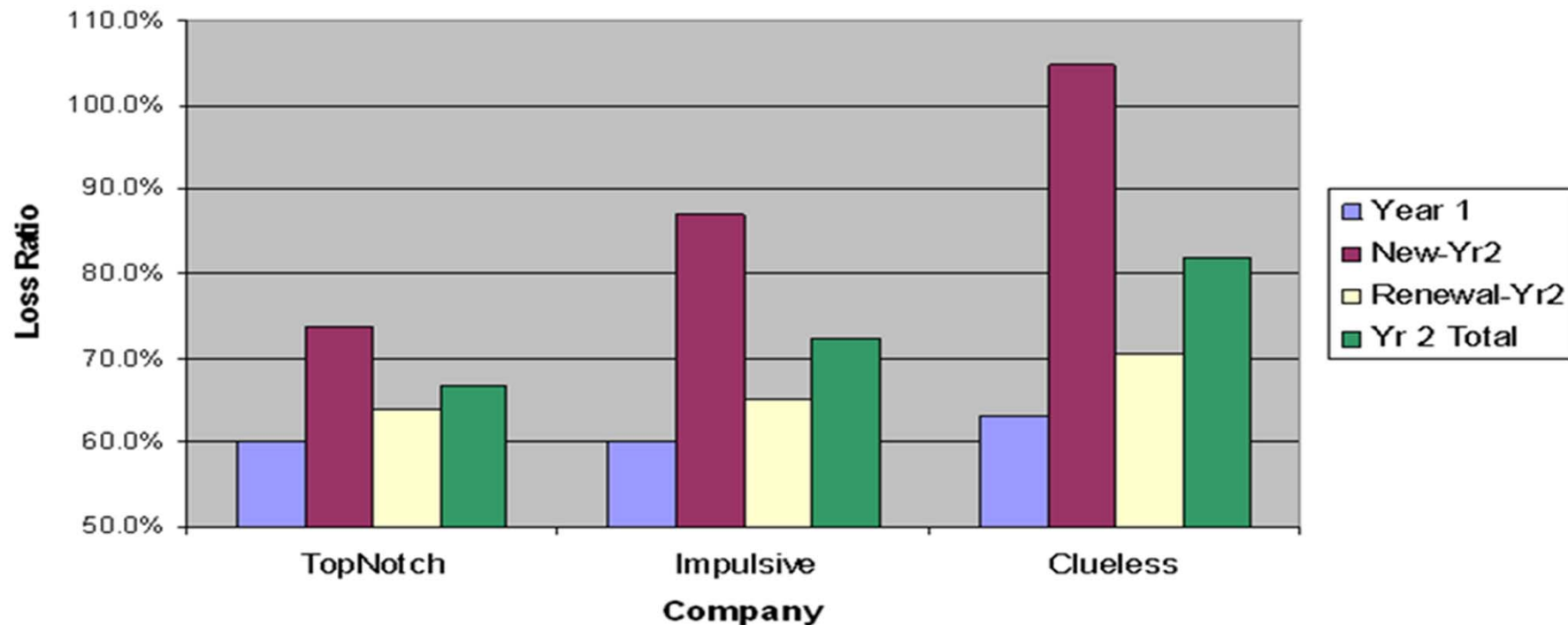
- Consider insurance market cycles when developing data/analytics
- Possible items to study
 - Case reserve adequacy
 - New business vs. renewal across cycles
 - Changes in model scoring of types of business, especially for segments with recent growth
 - Impact of competition
 - Review of growing sectors in soft markets, even if good scores
- Non-modeling actions
 - Additional underwriting audits on new business

Insurance Cycle: Winners Curse

Predict Future Impact of Competition on Loss Ratio

- Top Notch
 - Expected value price = Target (or Technical) Price less 5%
 - Standard deviation of price = 15%
- Impulsive
 - EV = Target less 7.5%:
 - Standard Deviation = 25%
- Clueless
 - EV = Target less 10%:
 - Standard Deviation = 40%
- 60% of renewals shop price
- Move for 5% premium difference

Insurance Cycle: Winners Curse Impact by Company Discipline



- Loss ratios for each company move up
- New business L/R moves up more for less sophisticated insurers
- Renewal loss ratios move up
- Not shown: percentage of new business can also change

Insurance Cycle: Lifetime Value of Client Relationship

Impact of First Year Results and Renewal Retention

	<u>Lifetime Value :</u> Profit Vs. Target	<u>Profit :</u> Year 1	<u>Profit :</u> All Other Years	<u>R/N Retention :</u> Year 1	<u>R/N Retention :</u> All Other Years
Base Case	0.0%	-6.3%	19.4%	91.0%	91.0%
Lower Retention Ratio	-1.4%	-6.3%	19.4%	85.0%	85.0%
New Business in Moderately Soft Market	-2.2%	-15.8%	19.4%	81.0%	91.0%
New Business in Very Soft Market	-9.5%	-25.3%	19.4%	41.0%	91.0%
New Business in Hard Market	-4.4%	19.4%	19.4%	94.0%	91.0%

- Lifetime Value: NPV of new business cohort through all subsequent renewals relative to target profit ratio
- Profit ratios and retention rates can vary through cycle
- Segments within averages can vary significantly from average
- Holy grail: indicators that separate new business quality

Insurance Cycle: Changing Impact on Plan Loss Ratios

Impact of Mix/Quality of New/Renewal Business Over Market Cycle (Example)

- New business increases L/R in soft market (dark blue, years 1 to 4)
- Renewal business (light blue) adversely affect loss ratios in soft market until underwriting action taken on poor new business (years 3 and 4)
- Total impact (black line) increases L/R until hard market (years 4 to 6)
- Speed to fixing prior year New business is key to turnaround

