P&C Industry Trends

2016 CAS Spring Meeting

Sheraton Seattle Hotel
Seattle, WA

MAY 16-17, 2016

Blake Berman, FCAS

Preparing for Tomorrow's Insurance Market

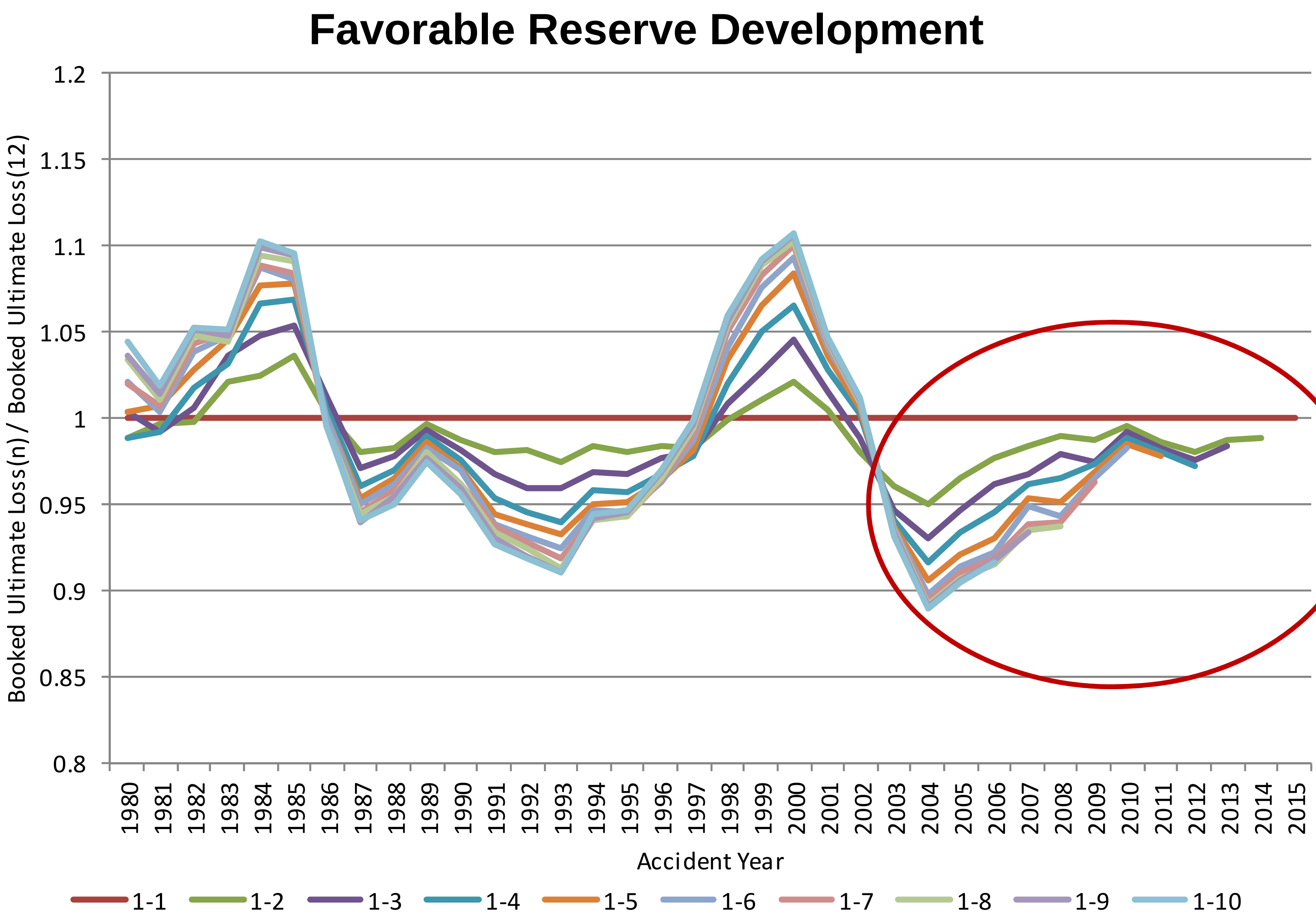
Some trends affecting insurance industry today are **Cyclical**, some are **Secular**.

Cyclical trends can change at any time, and are a result of temporary, market forces.

Secular trends are permanent societal changes, and will accelerate over time.

Preparing for Tomorrow's Insurance Market

Cyclical Trends in Insurance Today



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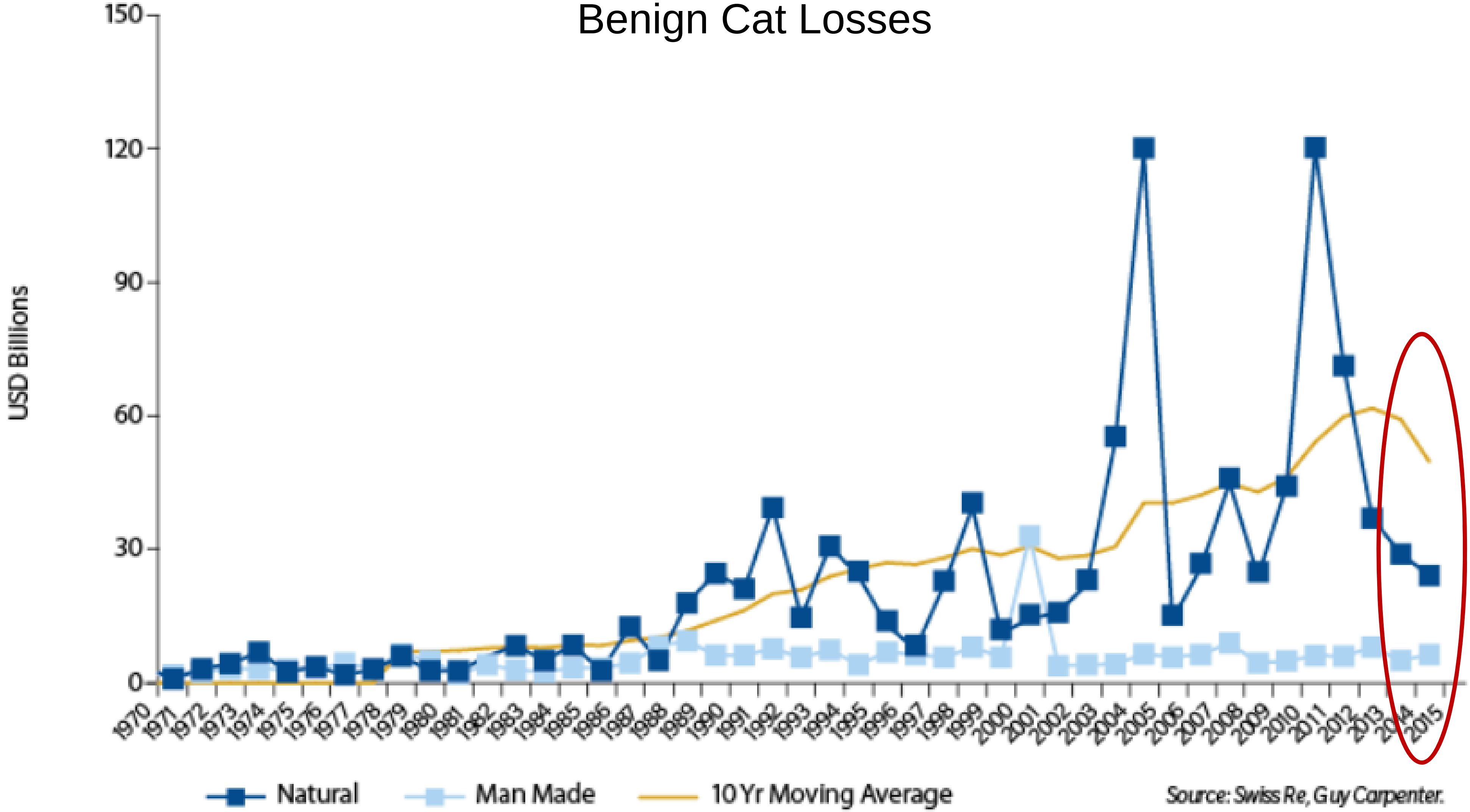
Cyclical Trends in Insurance Today

Benign Cat Losses



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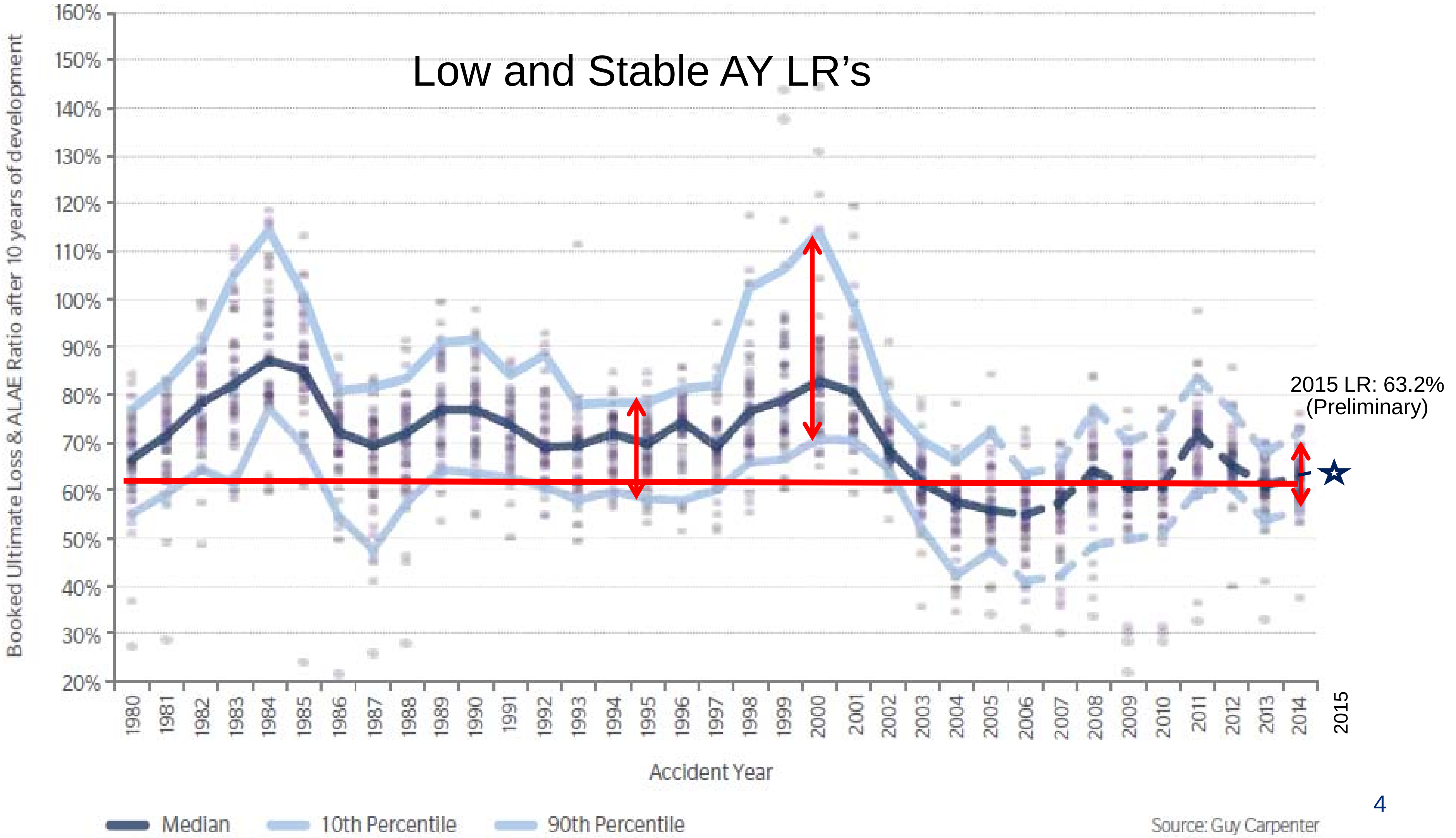
Cyclical Trends in Insurance Today



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Cyclical Trends in Insurance Today
Low Interest Rate Environment

Source: Yahoo Finance

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Cyclical Trends in Insurance Today
Equity Bull Market

Source: Yahoo Finance

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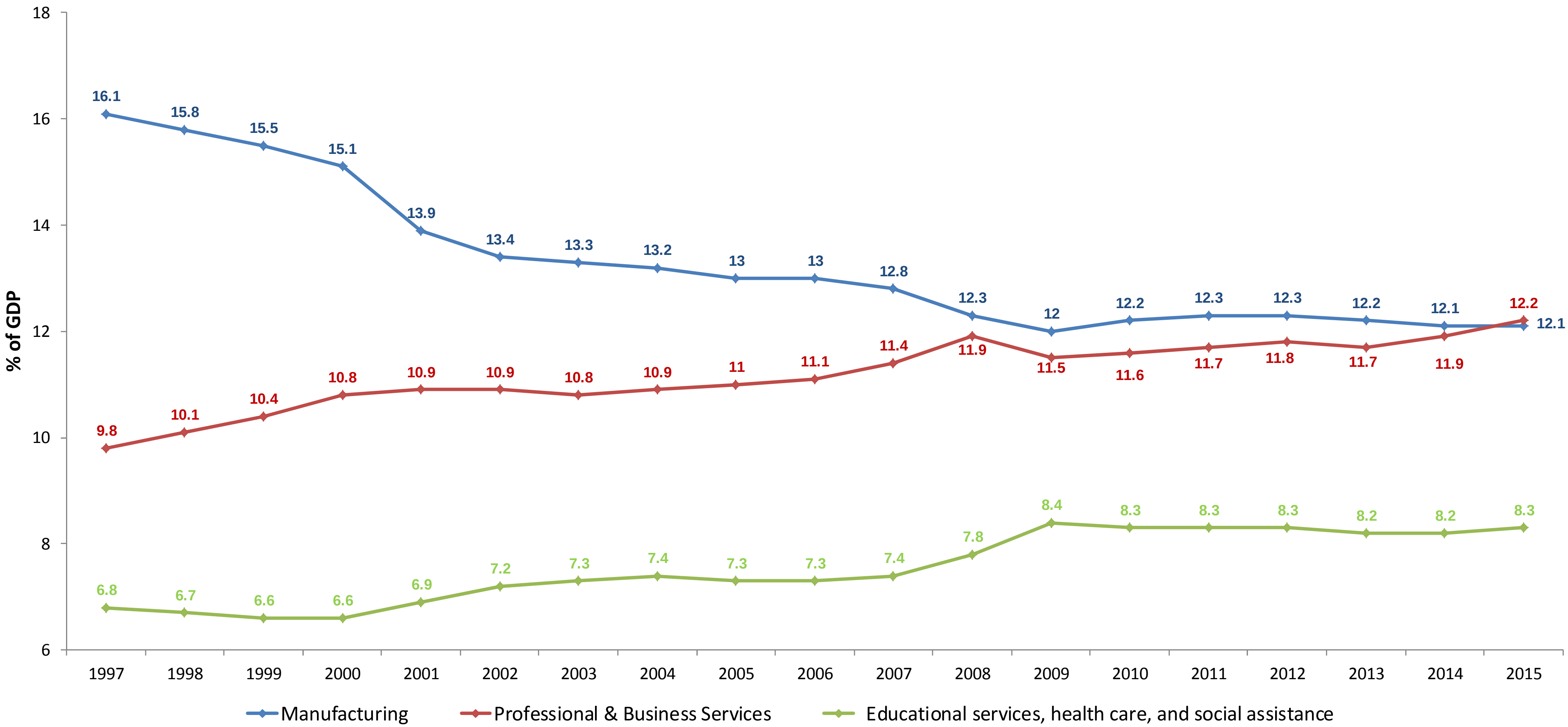
Secular Trends in Insurance Today

More of economic value / risk in "non tangible" difficult to insure industries



Source: BEA.Gov

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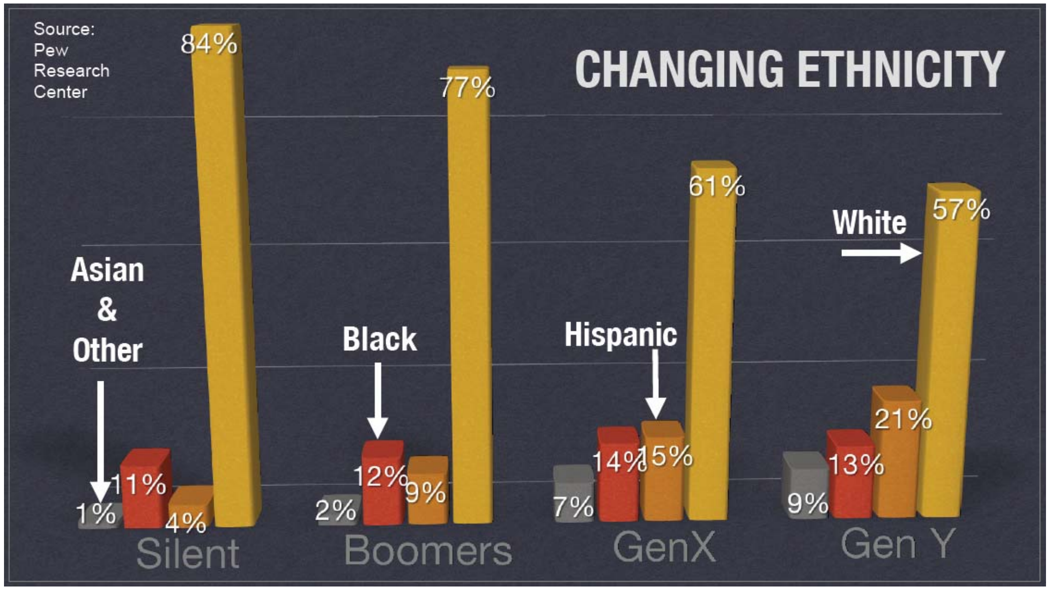
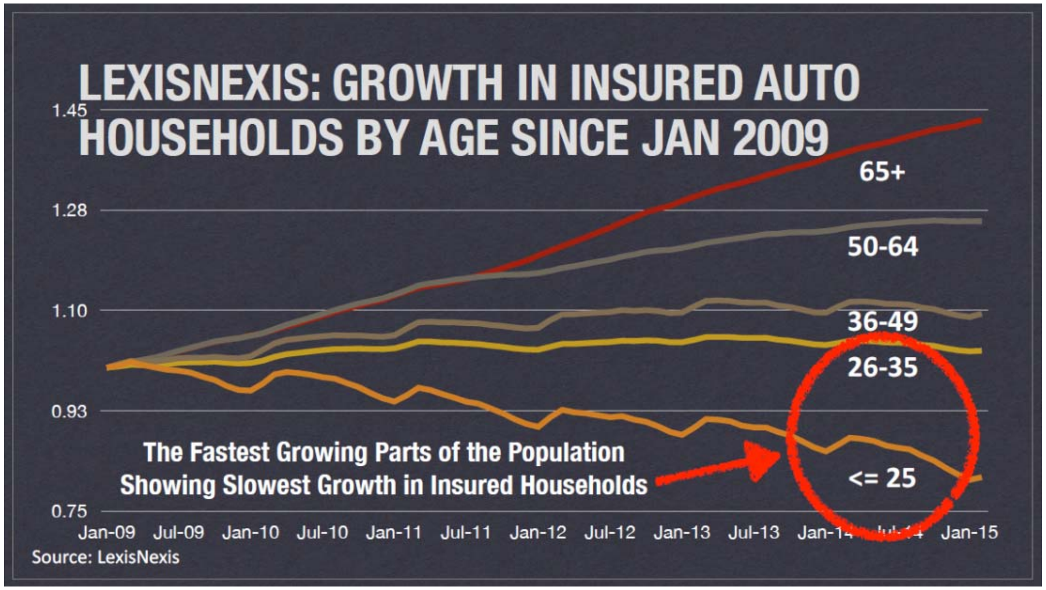
Secular Trends in Insurance Today

Changing US and Global Demographics





Source: Risk Information Inc.

Secular Trends in Insurance Today

Technology Driven Process Improvements

Key Changes:

- **Data Capture:** More data can be collected, easily stored, queried
- **Process Automation:** Repetitive processed can be done more cheaply with less possibility of error
- **Communication Tools:** Global communication is instantaneous and costless

Effects:

- Costs across industries are **reduced**
- Worker efficiency is **increased**
- Competition between firms is **increased**

Secular Trends in Insurance Today

Applications of Algorithms in Decision Making

Requirement: availability of credible, predictive data

Secular Trends in Insurance Today

Applications of Algorithms in Decision Making

<u>Example: Advertising</u>

Data Least Available & Credible

Data Most Available & Credible

Full Adoption:
SEO, Targeted advertising

No Use

In the advertising industry, data has become reliable and credible, so there is a **high level of adoption of algorithms in decision making**

Secular Trends in Insurance Today

Applications of Algorithms in Decision Making

Example: Baseball

Data Least Available & Credible

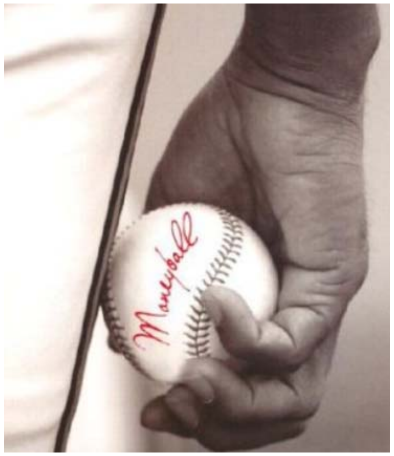
Data Most Available & Credible

No Use

Traditional Scouting

Use of Analytics with in combination with traditional scouting

Full Adoption



In Baseball, **algorithms have added value** to scouting, but has **not fully supplanted** traditional scouting judgement

Secular Trends in Insurance Today

Applications of Algorithms in Decision Making

Example: P&C Insurance Pricing

Data Least Available & Credible

Data Most Available & Credible

No Use

Underwriter Judgement

Large Risks, Commercial Lines:
Use of actuarial pricing models in combination with underwriting judgement

Personal Lines:
GLM, Machine Learning, and Predictive Model driven pricing

In P&C Pricing, as data quality increases, the role of predictive algorithms in pricing will increase

Secular Trends in Insurance Today

Applications of Algorithms in Decision Making

Example: P&C Capital Management

Data Least Available & Credible

Data Most Available & Credible

No Use

Deterministic planning, traditional reserving

Scenario Planning, reserve ranges, Capital model helps inform management decision process

Capital Model fully drives decisions

In P&C capital management, there is a wide range of adoption of modeling amongst companies.

As insurance industry improves data capture and sharing, value of algorthms in decision making and business planning will increase.

Agenda

- **State Level Analysis**
- Industry Premium and Expense Trends
- Trends in Insurer Financial Management

Industry Premium by State

Northeast/ Atlantic	All Lines 2014 DWP $000's	Premium Per Capita
CT	7,670,253	2,146
DC	1,601,146	2,661
DE	2,126,569	2,368
MA	12,793,742	1,954
MD	10,090,005	1,748
ME	1,989,303	1,498
NH	2,177,242	1,654
NJ	19,036,355	2,165
NY	40,243,449	2,077
PA	21,614,204	1,702
RI	2,047,507	1,945
VT	1,376,424	2,200
WV	2,810,654	1,517
Total	125,576,854	1,949

Southeast/ Gulf	All Lines 2014 DWP $000's	Premium Per Capita
AL	7,227,729	1,512
AR	4,437,855	1,522
FL	41,578,619	2,211
GA	15,472,911	1,597
LA	10,330,825	2,279
MS	4,570,770	1,540
NC	13,165,851	1,381
OK	7,402,619	1,973
SC	7,633,106	1,650
TN	9,796,570	1,544
TX	45,322,549	1,802
VA	11,888,583	1,486
Total	178,827,987	1,769

Midwest	All Lines 2014 DWP $000's	Premium Per Capita
IA	5,499,527	1,805
IL	22,155,304	1,727
IN	9,778,925	1,508
KS	5,665,629	1,986
KY	6,430,645	1,482
MI	17,002,276	1,720
MN	9,986,591	1,883
MO	9,894,280	1,652
ND	2,134,762	3,174
NE	3,929,634	2,152
OH	14,596,488	1,265
SD	2,116,038	2,599
WI	9,042,095	1,590
Total	118,232,193	1,659

West	All Lines 2014 DWP $000's	Premium Per Capita
AK	1,685,351	2,373
AZ	8,858,355	1,386
CA	62,665,812	1,682
CO	9,598,291	1,909
HI	2,216,373	1,629
ID	2,216,421	1,414
MT	2,003,153	2,025
NM	2,886,216	1,402
NV	4,122,535	1,527
OR	5,747,494	1,500
UT	3,767,392	1,363
WA	9,730,471	1,447
WY	1,020,206	1,810
Total	116,518,071	1,620

Source: Guy Carpenter

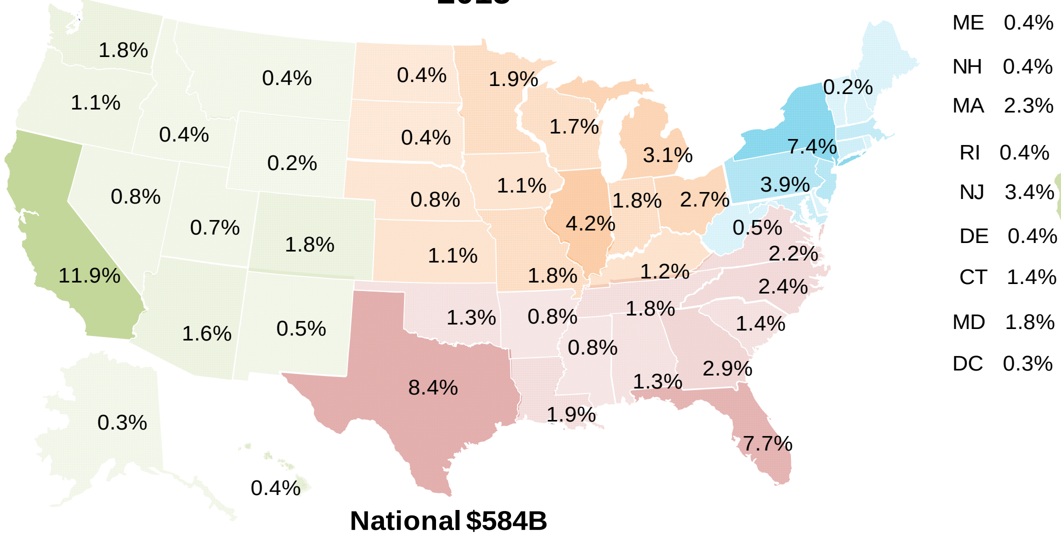
- States with the highest ratio of premium per capital include **ND, SD, DC, DE, LA, AK,** and **FL**.
  - ND, SD, LA, and AK have significant exposure to the **energy sector**.
  - FL, LA, DC, and DE have **HU** exposure.

- The **Midwest** and **West** regions have **lower DWP per capital** than the **Northeast / Atlantic** and **Southeast** region.

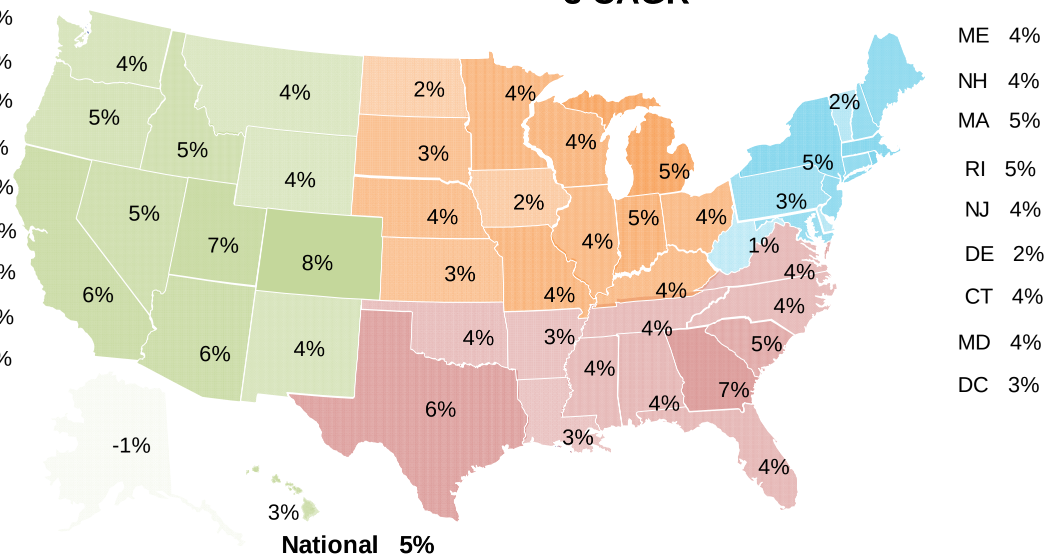
NorthEast	MidWest	SouthEast	West

Industry Premium by State

% of US DWP
All Lines
2015



Annual DWP Growth
All Lines
3 CAGR

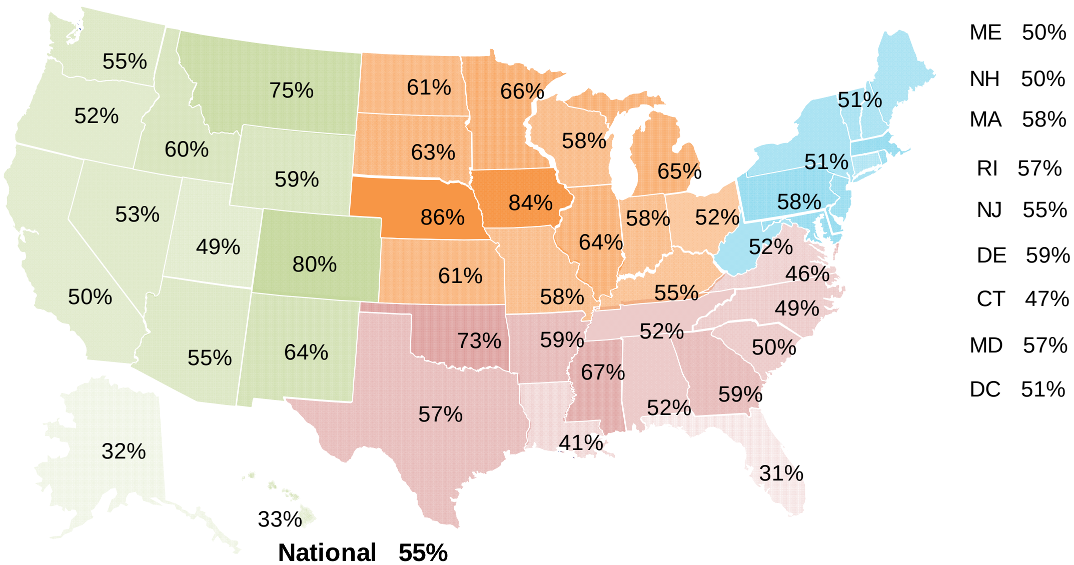


- The top 4 states (**CA**, **TX**, **NY**, **FL**) account for over **35%** of P&C industry DWP.
- **Fastest growing** region in the US is the **south/west**, lead by TX, CO, UT, CA, AZ.
- **Slowest growing** regions are the **Midwest** and **Northeast**, as well as **AK** and **HI**

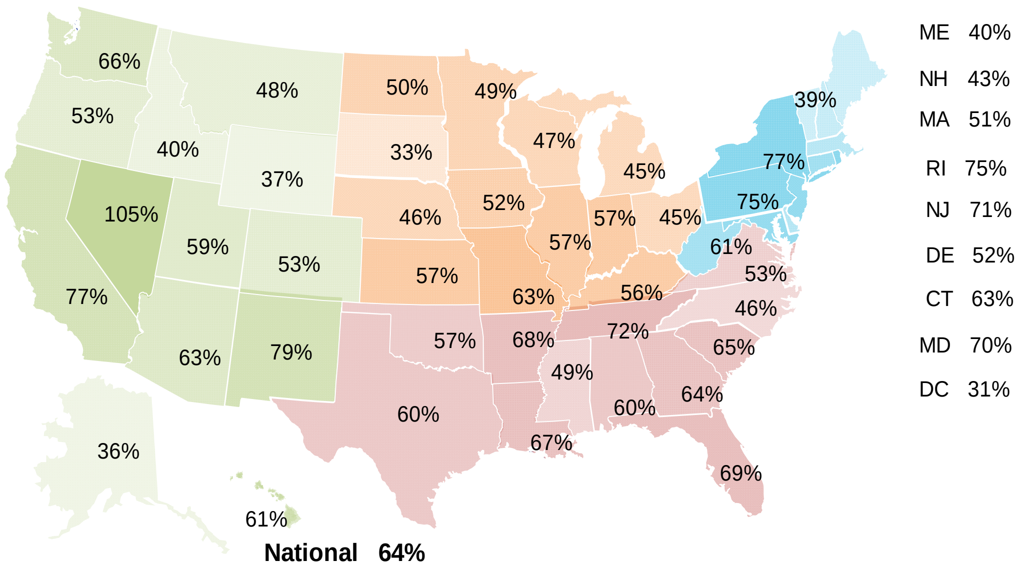
NorthEast	MidWest	SouthEast	West

Property and Casualty Performance by State

Direct Loss + ALAE Ratio
Property
2013-2015



Direct Loss + ALAE Ratio
GL + PL + MPL
2013-2015



- In the **absence** of recent **HU** and **EQ** activity, property performance has been best in the **West Coast** and in **Florida**.
- States with the **worst property LR's** include **NE**, **IA**, **MN**, and **CO**, which have experience losses in **crop** business and through **SCS activity**.
- **Casualty LR's** are **highest** in **CA**, **NY**, **PA**, and **NV**
- **Casualty LR's** are **lowest** in **Great Plains** / **Midwest**.
- Overall, in the absence of significant cat activity, **property LR's** have been **9% better** than **casualty LR's** over the last 3 years.

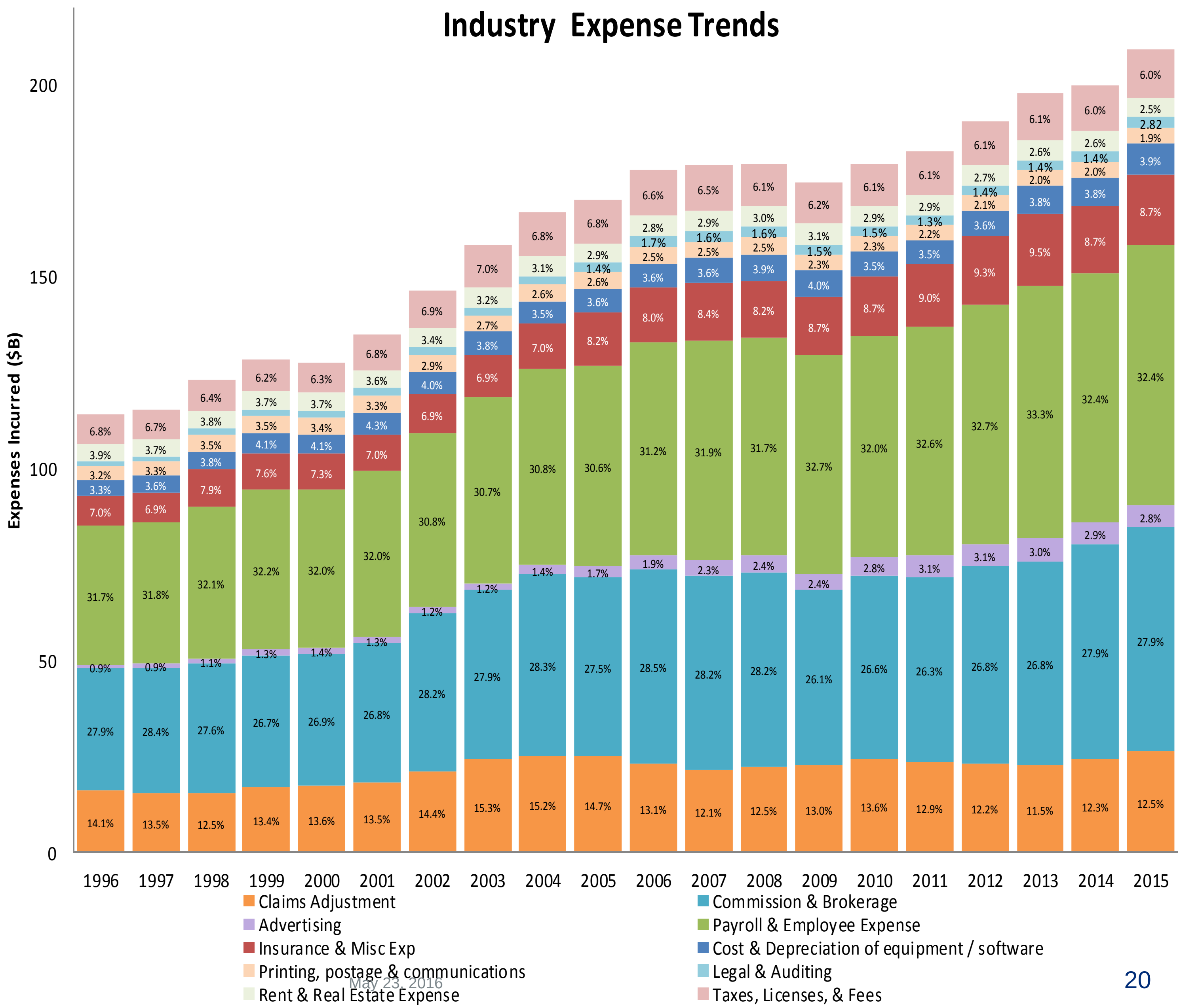
NorthEast	MidWest	SouthEast	West

Agenda

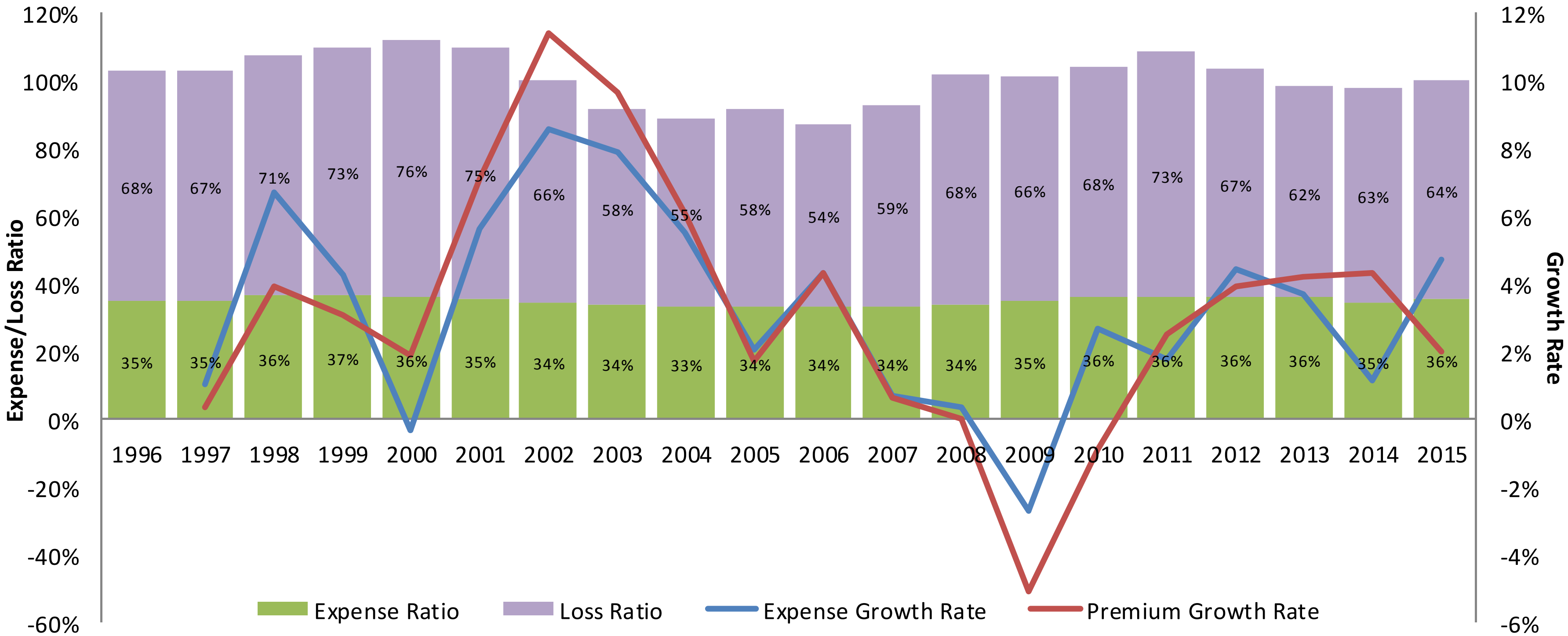
- State Level Analysis
- **Industry Premium and Expense Trends**
- Trends in Insurer Financial Management

Insurance Industry Expenses by Component

- Over the past 2 decades, the expense structure and expense ratio of the insurance industry has **not changed significantly.**
- Spending on **advertising** across the industry has **increased** from **<1%** in 1996 to **2.8%** in 2015.
- **Insurance** and **Misc**. expenses have increased from **7.0%** to **8.7%**.
- **Rental & Real Estate** Expenses as well as **printing** and **postage** expenses have **decreased**.

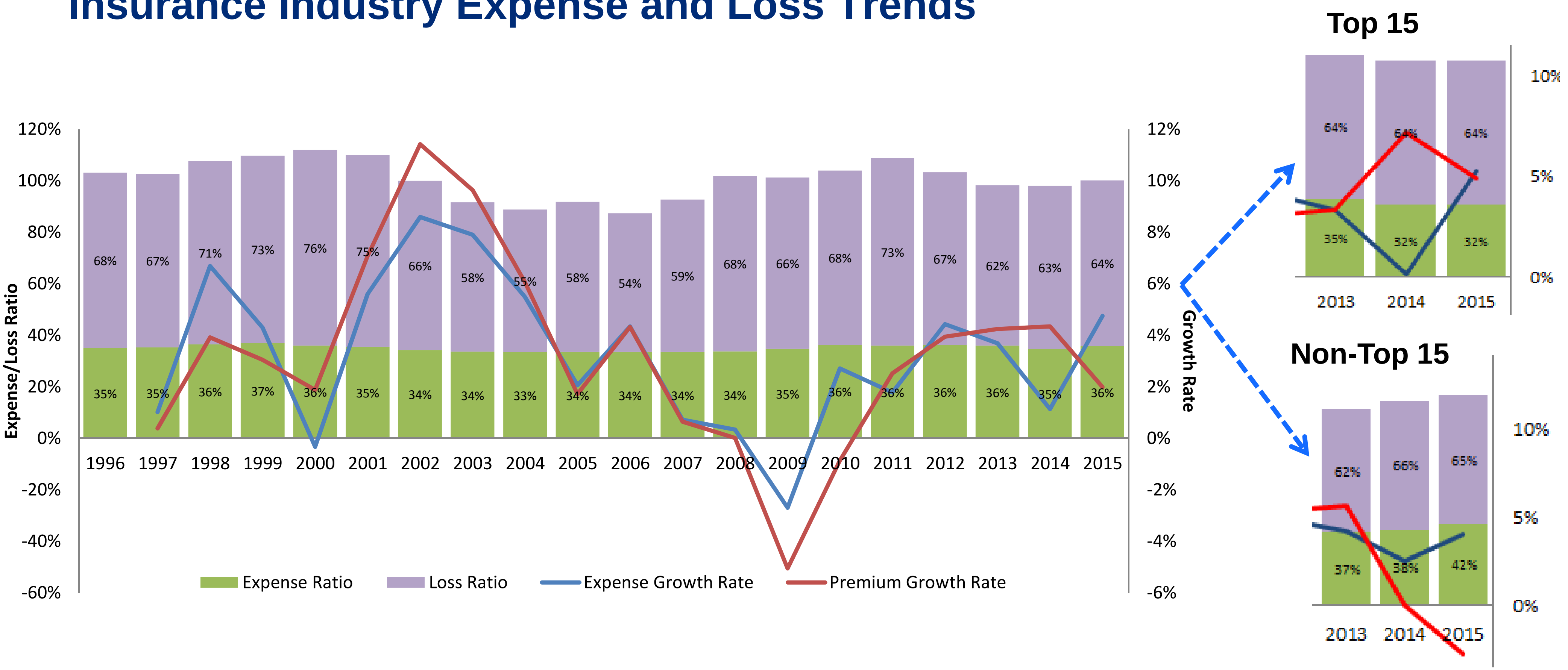


Insurance Industry Expense and Loss Trends



- The Expense Ratio of the industry (including LAE) has stayed relatively constant at **33-36%** over the past 2 decades.
- Generally the expense growth rate has been **less volatile** than the premium growth rate – growing slower in expansionary years (**2000-2004**) but not decreasing as quickly during contractions (**2009-2010**)
- In **2014** expense growth **slowed** to **1%** while premium growth **increased to >4%.**
- Guy Carpenter projects expense growth will continue to trail premium growth for the near term as insurers focus on **operational efficiency,** resulting in **lower industry expense ratios.**

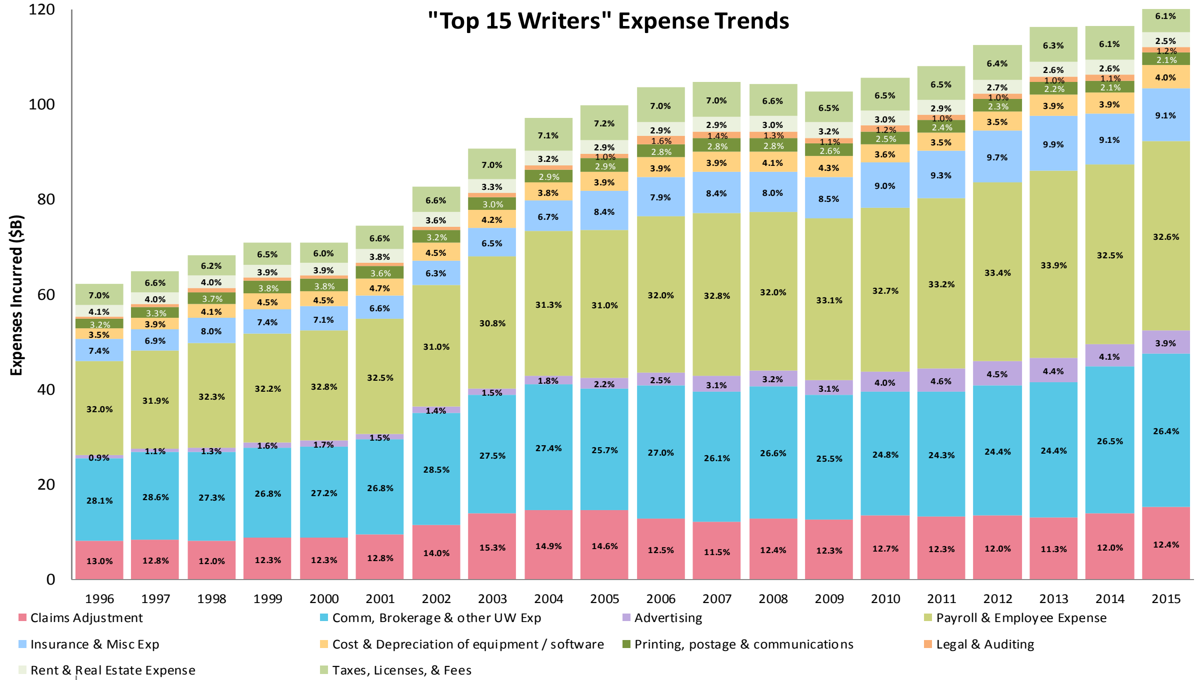
Insurance Industry Expense and Loss Trends

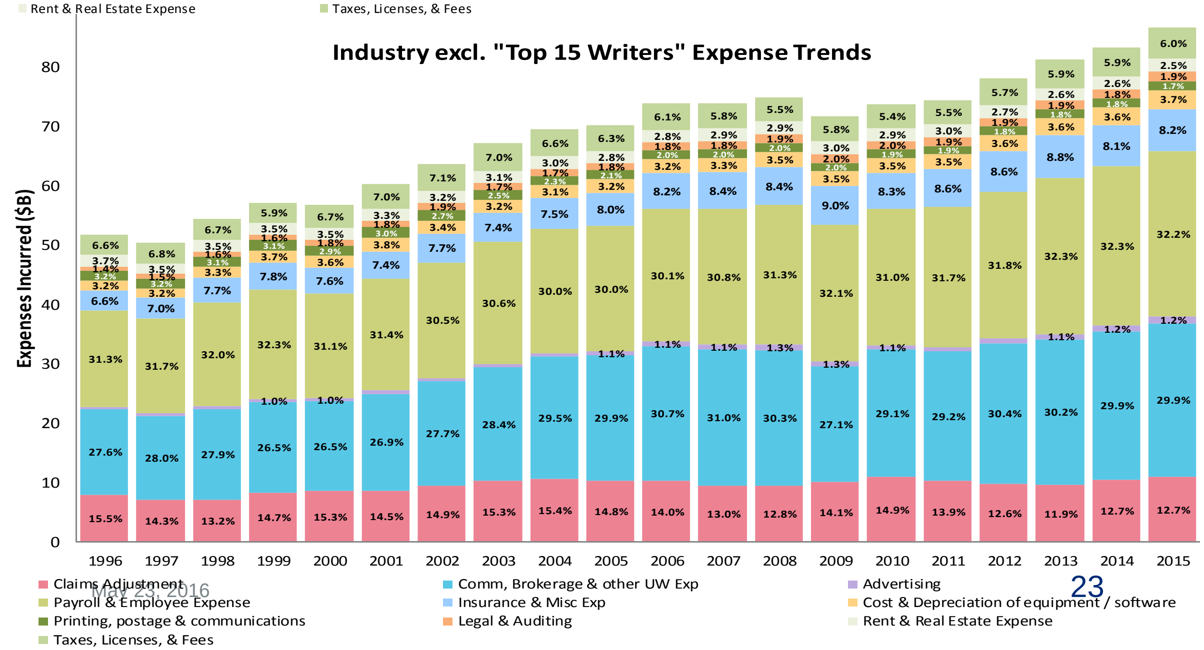


- In 2014-2015, materially **all** of the **premium growth** experienced in the industry was **concentrated** among the **top 15** carriers.
- **Top 15** carriers grew premiums by **5-7%**, while expense grew 0-5%, while **non-top 15** carriers had **flat to declining** premiums, and expenses grew by **2-4%.**
- **Top 15** companies reported an expense ratio of **32%** in **2015,** while **non-top 15** carriers reported an expense ratio of **42%**. This is the **widest gap** in expense ratios between top 15 and non-top 15 in the past **19** years.
- **This is a trend that bares continued monitoring in 2016 and beyond.**

Expenses by Component: Top 15 vs. all Other Companies

- Top 15 writers spend significantly more on **advertising** (**3.9%** vs **1.2%**) of total expense.
- Non-Top 15 writers spend more on **commission and brokerage expense** (**29.9%** vs. **26.4%**).
- Non-Top 15 companies spend slightly more on **claims adjustment** and **legal and auditing**.
- Top 15 companies spend slightly more on **miscellaneous expenses**.





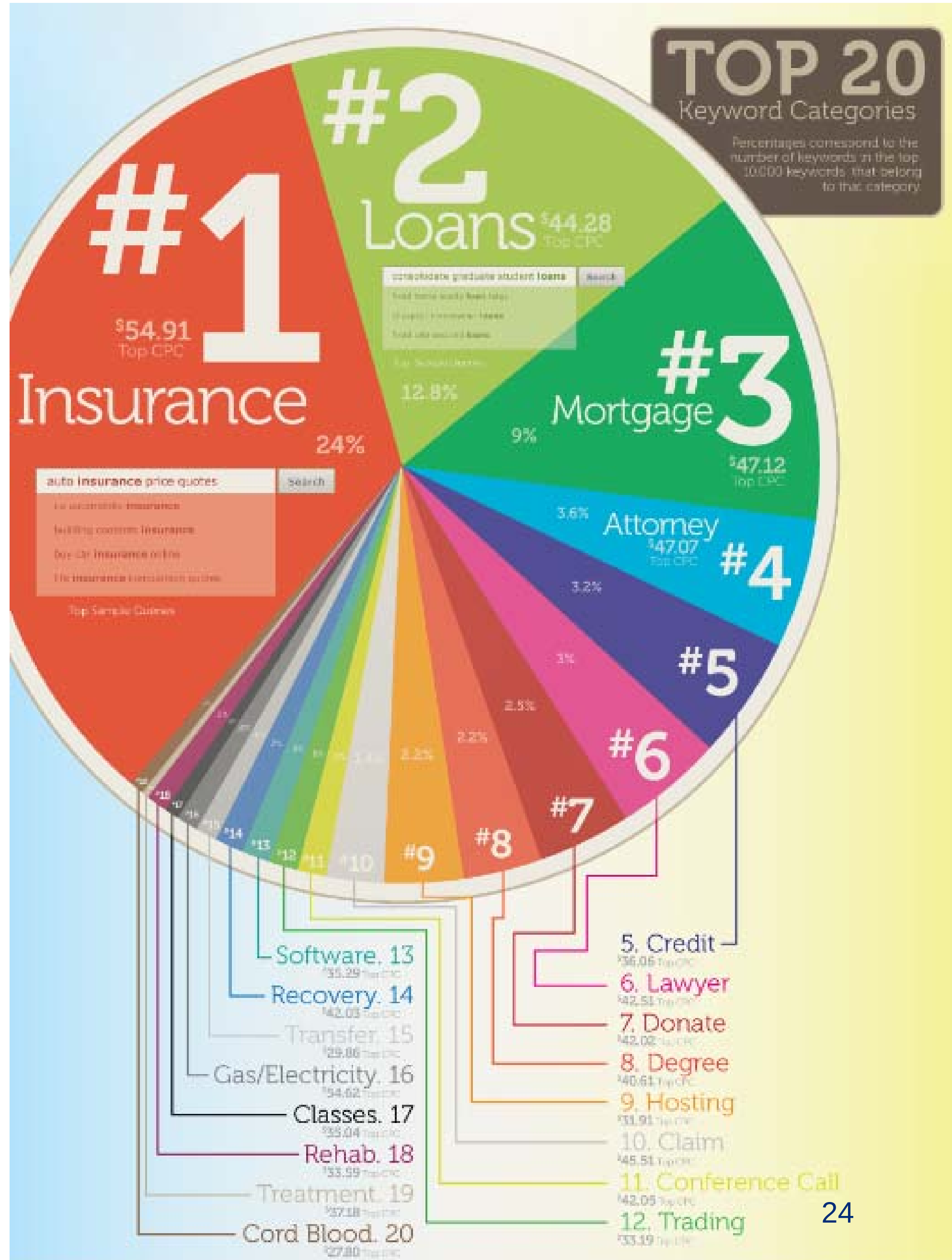
Expenses by Component: Advertising

- **5** of the top **100** advertisers in the US are P&C insurers (**GEICO, Progressive, State Farm, Allstate, Liberty Mutual**)

- Insurance is the **#1** highest price search term in Search Engine Advertising **($54.91 / click)**

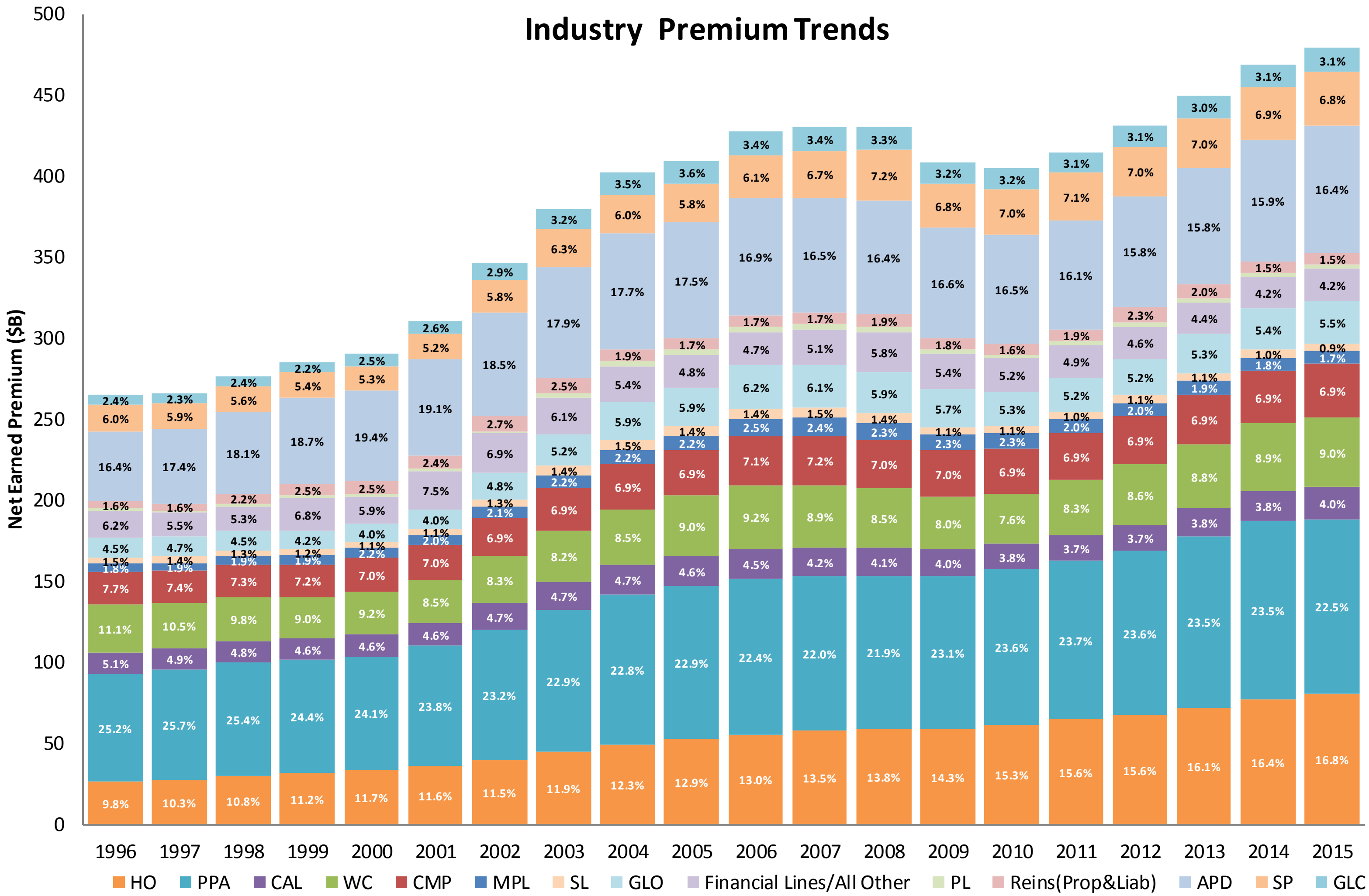
- **24%** of keywords in the top 10,000 keywords are related to **insurance.**

- **Online Direct to Consumer Marketing** is an extremely **competitive** and **fast growing** distribution channel for **P&C Insurance.**



Source: Adbrands.net

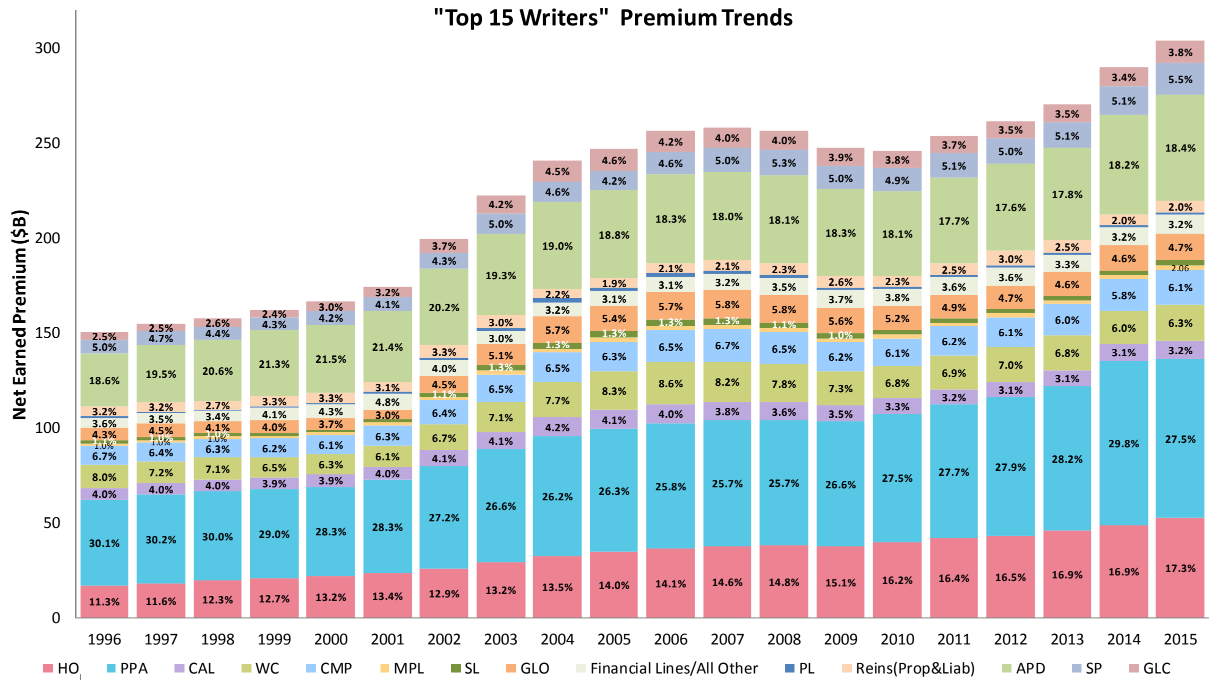
Premium by Line: P&C Industry

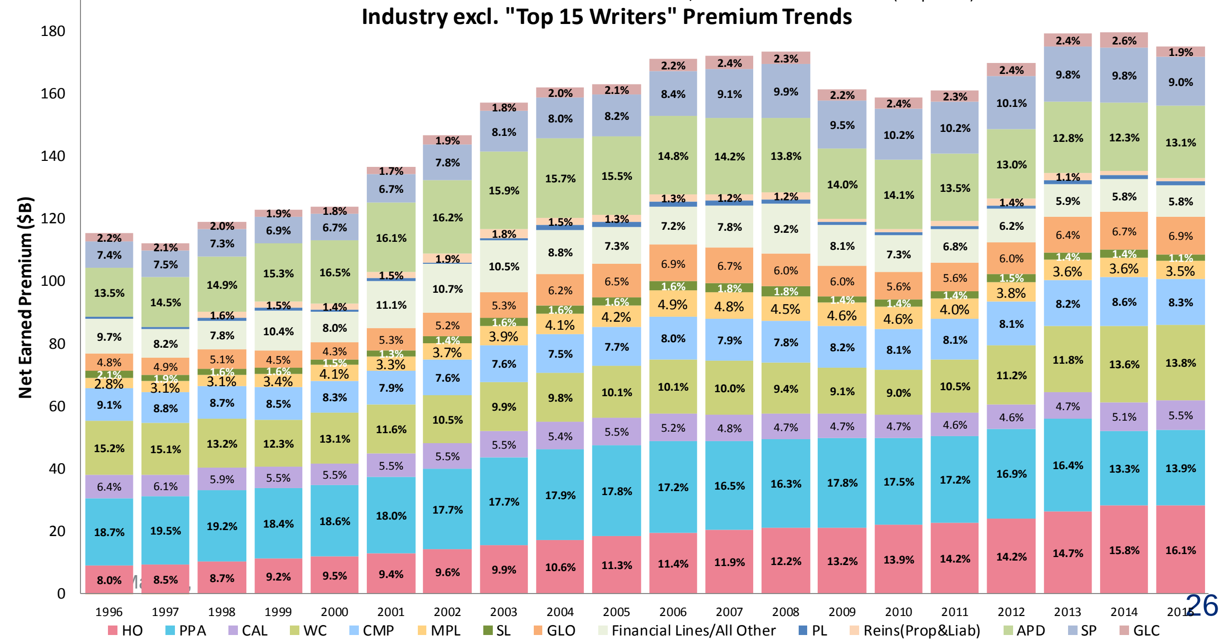


- Over the past 2 decades, there have been significant changes in the premium composition in the industry.
- Lines that have **decreased** as a portion of the industry total include **WC** (**11-9%**), **CAL** (**5-4%**), **Financial Lines** (**6-4%**).
- Lines that have **increased** as a portion of the industry total include **HO** (**10-17%**), **SP** (**6-7%**), and **GL** (**7-9%**).

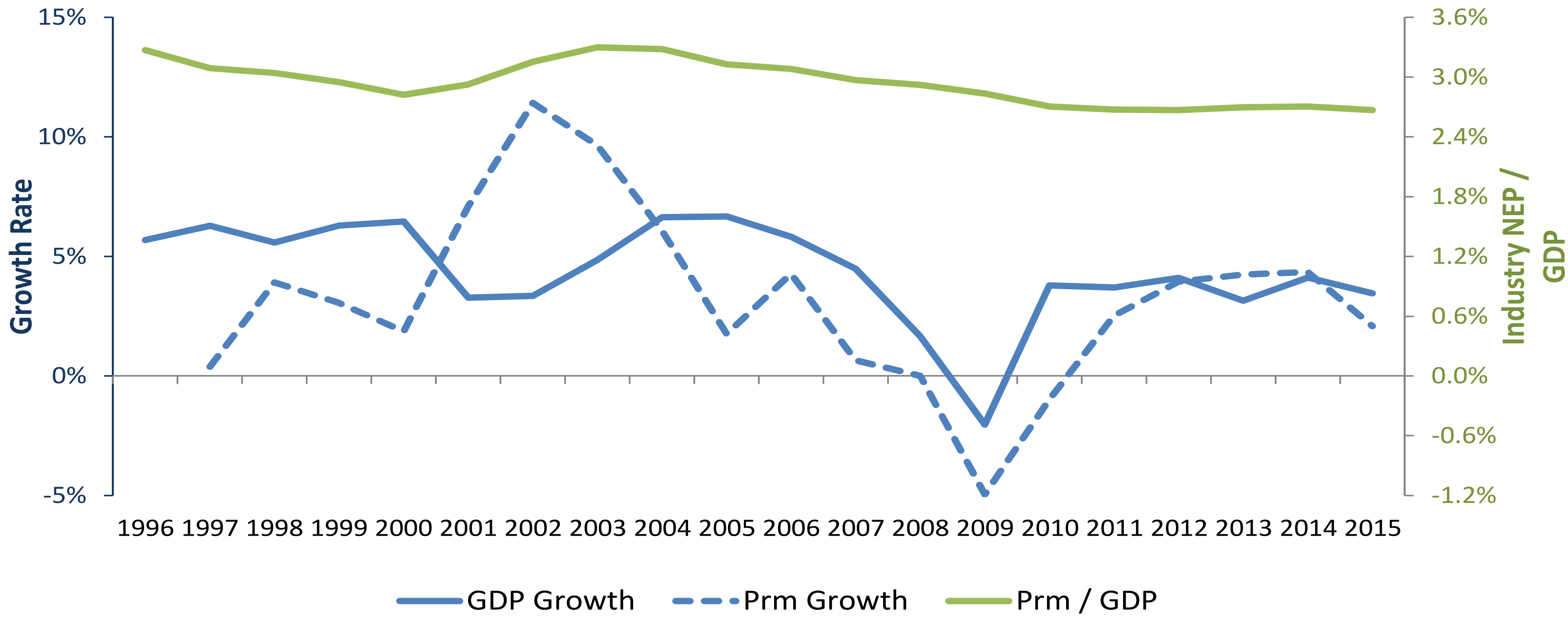
Premium by Line: Top 15 vs. all Other Companies

- The Top 15 companies in the industry write more premium than all other insurers combined
- Top 15 companies are more heavily concentrated in **PPA** (**28%** vs. **14%**) and **APD** (**17%** vs. **13%**) than other carriers.
- Non-Top 15 companies write significantly more **WC** that Top 15 carriers (**14%** vs. **6%**)
- Non-Top 15 companies write significantly more **Special Property** that Top 15 carriers (**9%** vs. **5%**)



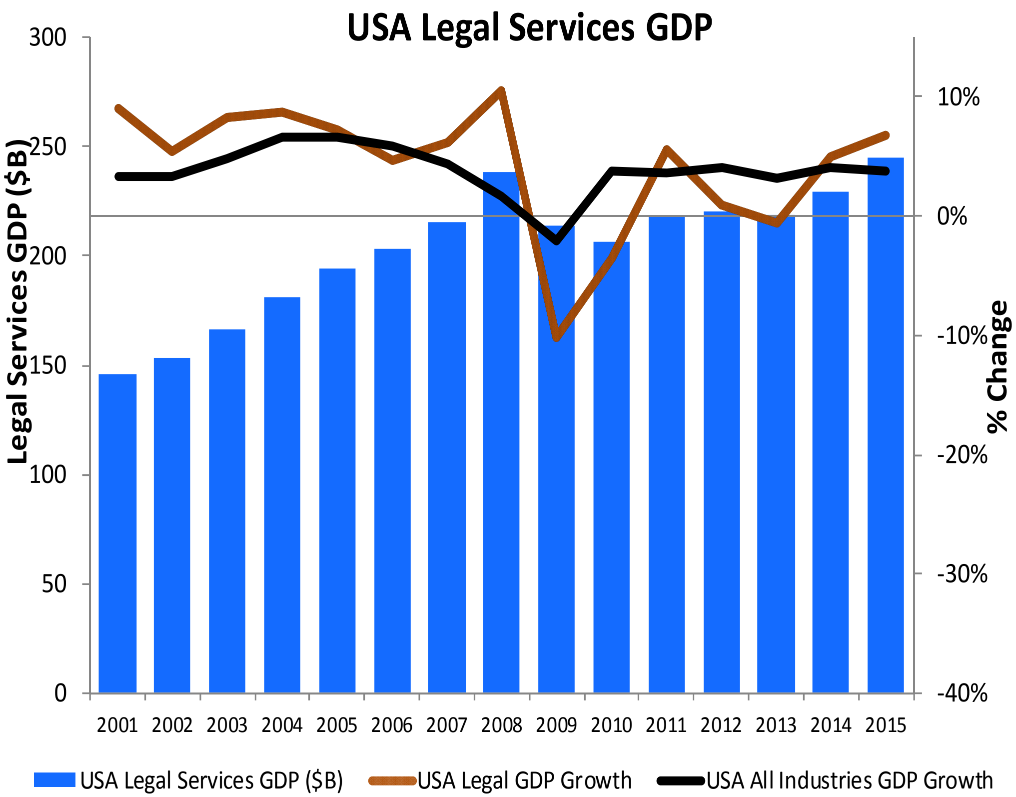


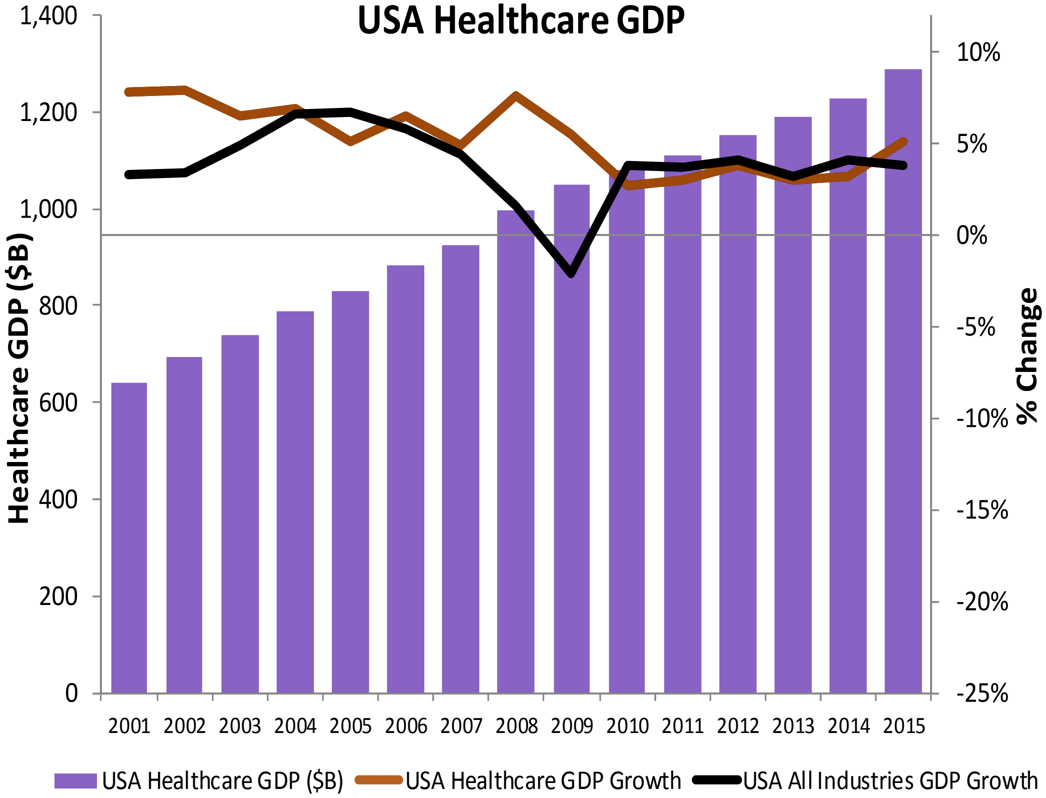
Premium Growth vs. GDP



- Since **2004**, premium growth has been **lower** than GDP growth.
- From **2001-2003**, premium growth was **significantly higher** than GDP growth, as companies increased rates significantly to correct for underpriced casualty business from AY's **1997-2000**.
- Premium to GDP ratios have fallen from **3-3.5%** in the late **1990's** and early **2000's** to **2.6-2.7%** in **2011-2015**.

Workers Compensation Claim Cost Drivers



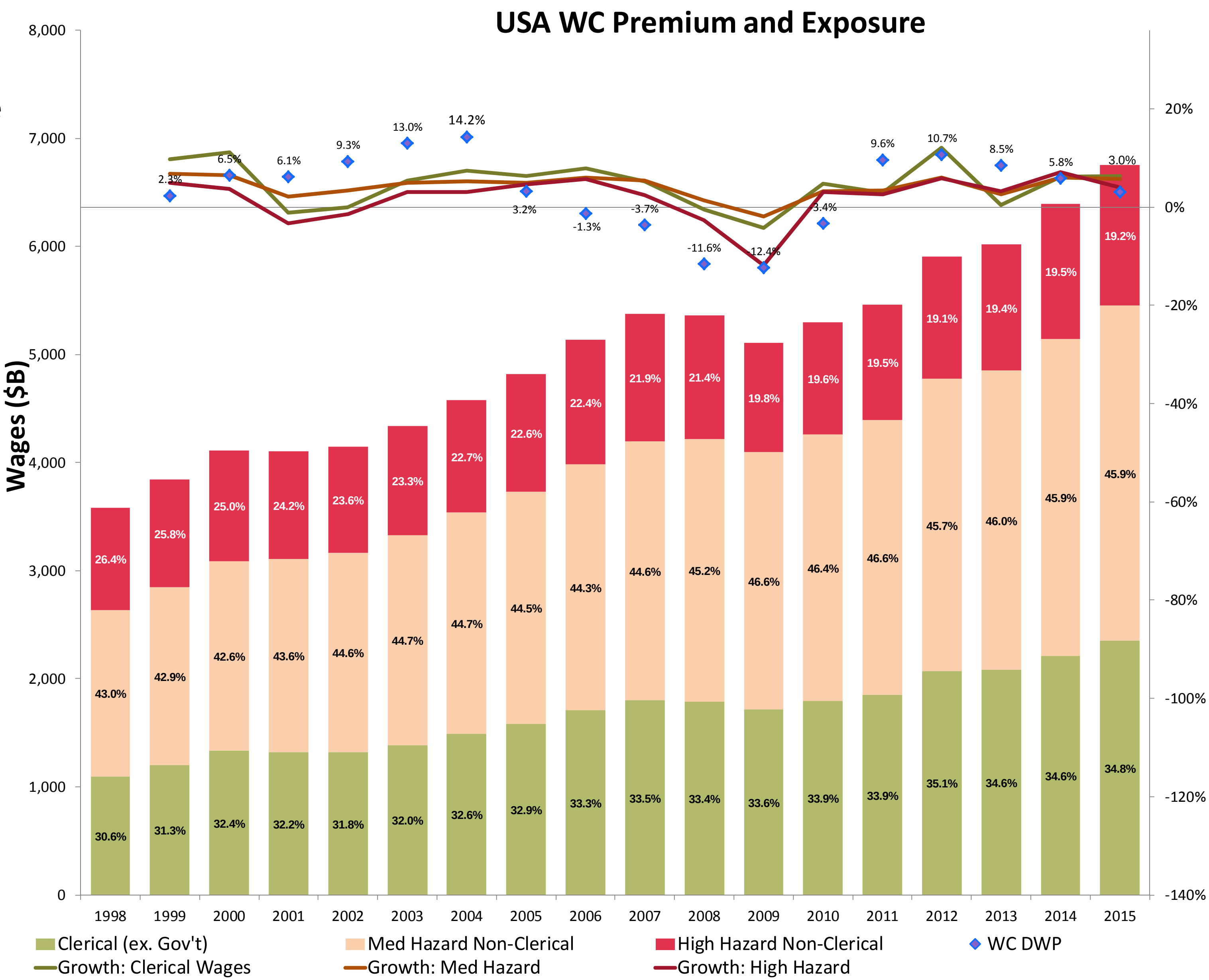


- Growth in **legal services** GDP has been **more volatile** than all industries total GDP.
- From **2008-2013**, legal services grew more **slowly** than the overall economy.
- In **2014-2015** legal services have begun growing **faster** than the economy.
- Growth in **healthcare** GDP has been **less volatile** than all industries total GDP.
- During **2008-2009** when overall economic growth stalled, **healthcare spending** continued to **increase**.

Source: BEA.Gov

Workers Compensation Exposure Drivers

- There is a strong historic correlation between wage growth and WC DWP, particularly for high hazard occupation classes.
- US WC DWP growth in the early to mid 2000's was also affected by CA market reforms.
- Since 1998, clerical wages have increased from 31% to 35% of total, while wages from high hazard occupations have decreased from 26% to 19% of total wages.
- In 2015 total WC DWP increased by 3%, the smallest increase in 5 years.



Source: BEA.Gov

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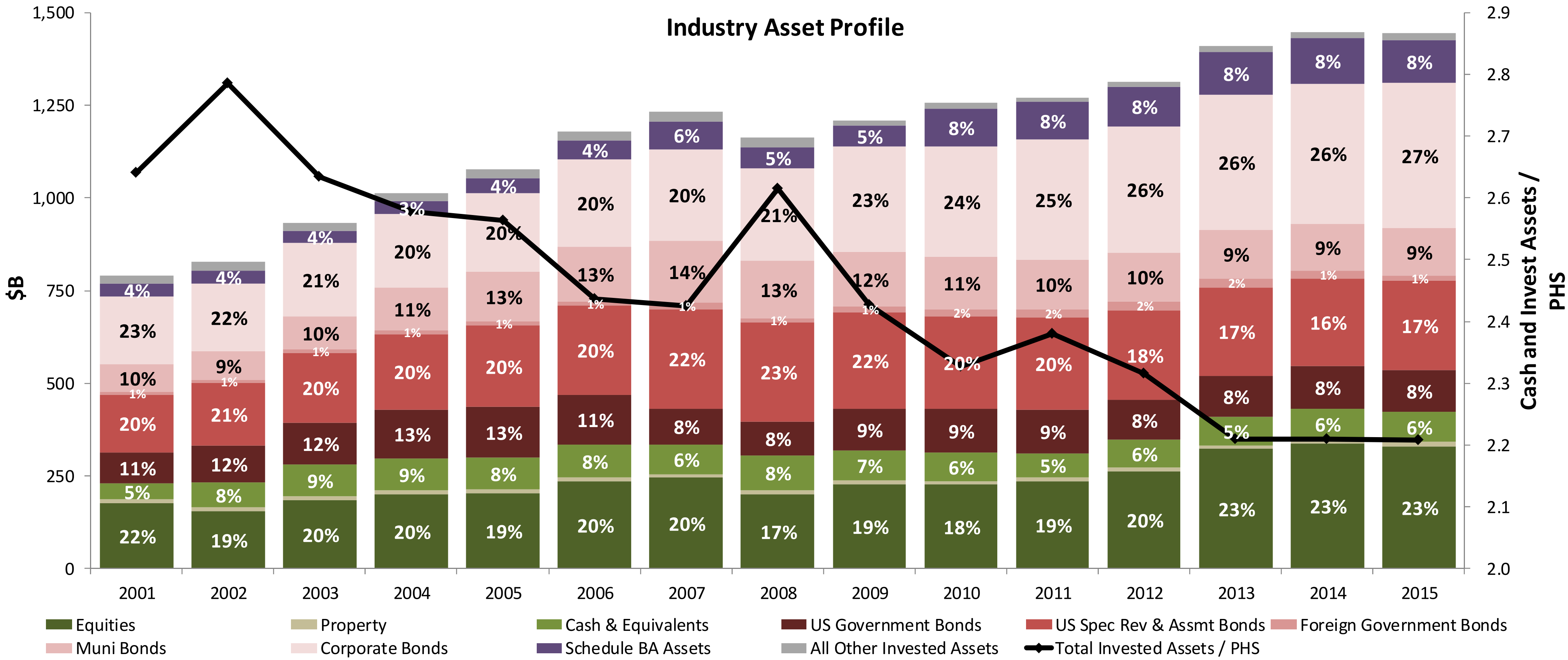
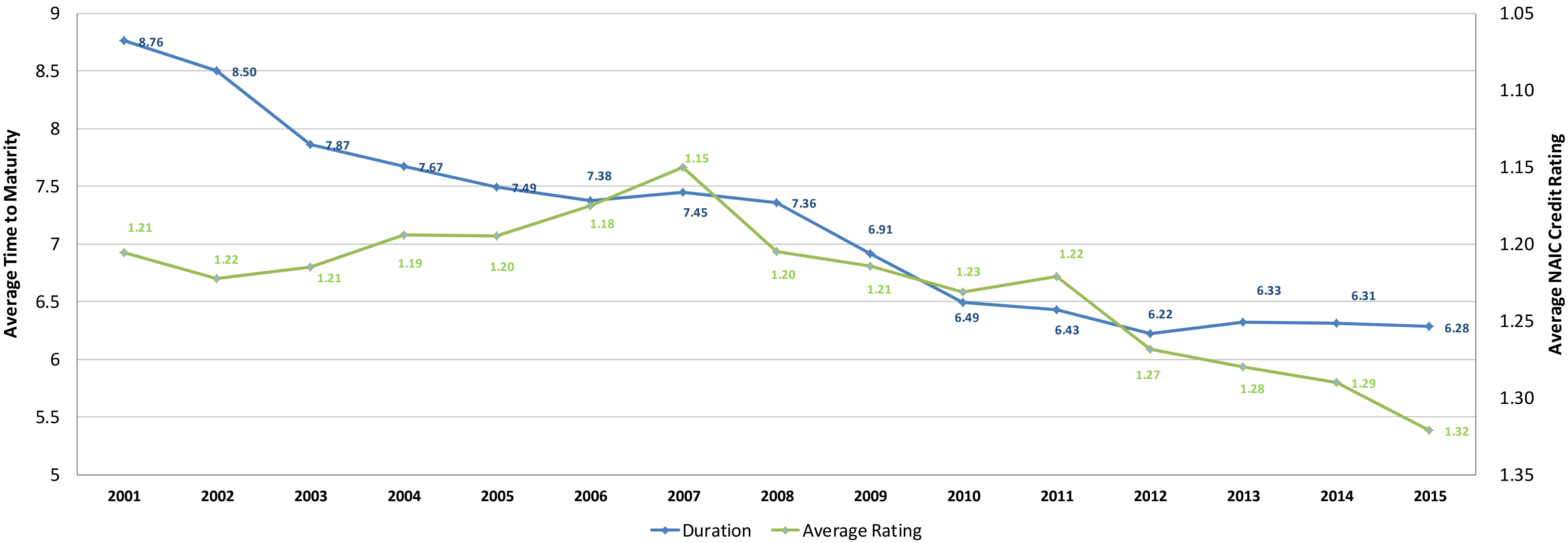
- **Trends in Insurer Financial Management**

Trends in Industry Asset Profile



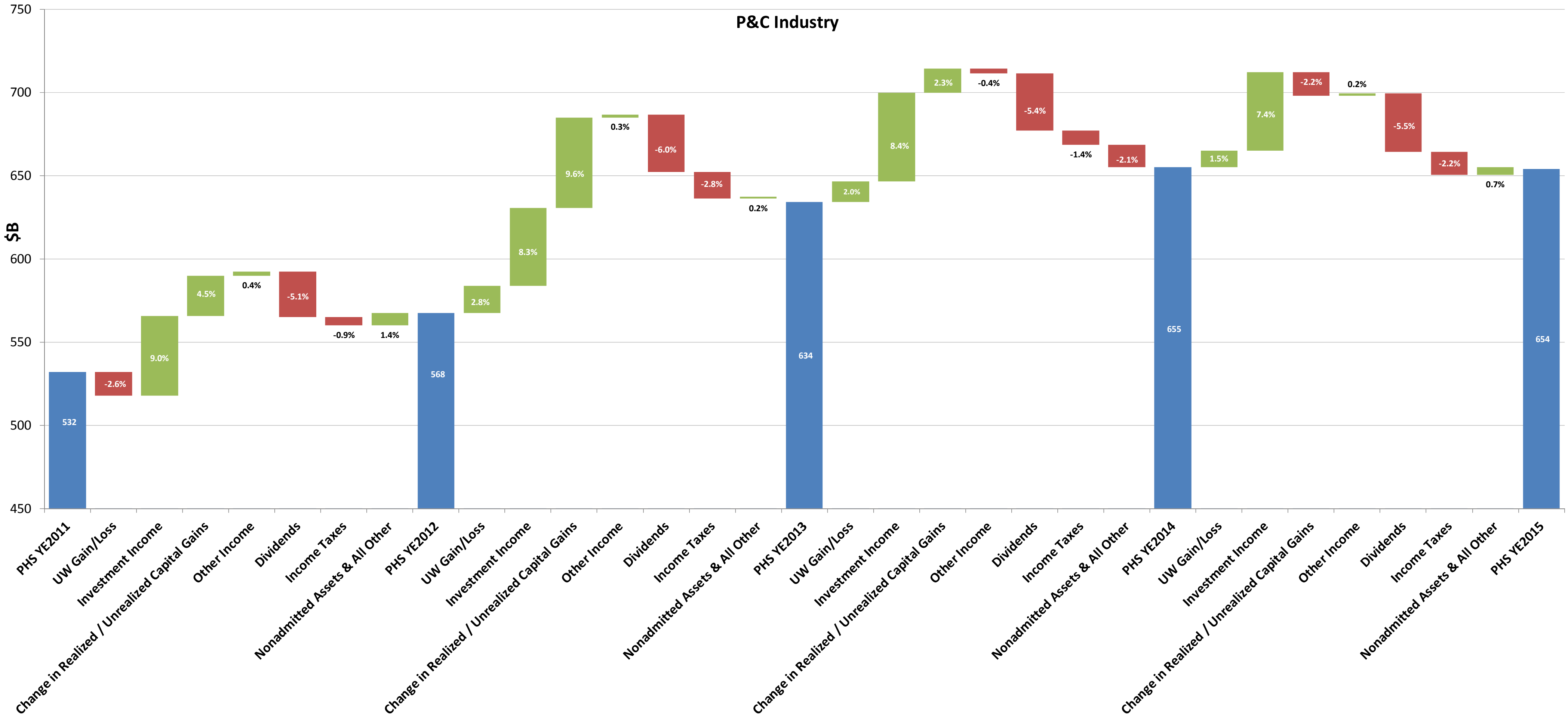
- Since **2001**, Companies have **decreased** their allocation in **US Gov't** and **special revenue bonds** from **31%** to **25%.**
- Over the same time insurers have **increased** their allocation in **Schedule BA** assets (**private equity**, **hedge funds**) from **4%** to **8%.**
- Insurance sector asset to surplus **leverage** has **decreased** significantly, from **2.8x** in 2002 to **2.2x** in 2015.

Trends in Industry Bond Portfolio



- Since **2007**, average credit quality of insurer bond portfolios has **decreased** from an NAIC rating of **1.15** to **1.32** (higher ratings are associated with lower creditworthiness).
- Since **2001**, industry invested asset average time to maturity has **decreased** from 8.5-9 years to 6.3 years, as insurers have sought to reduce **duration risk**.

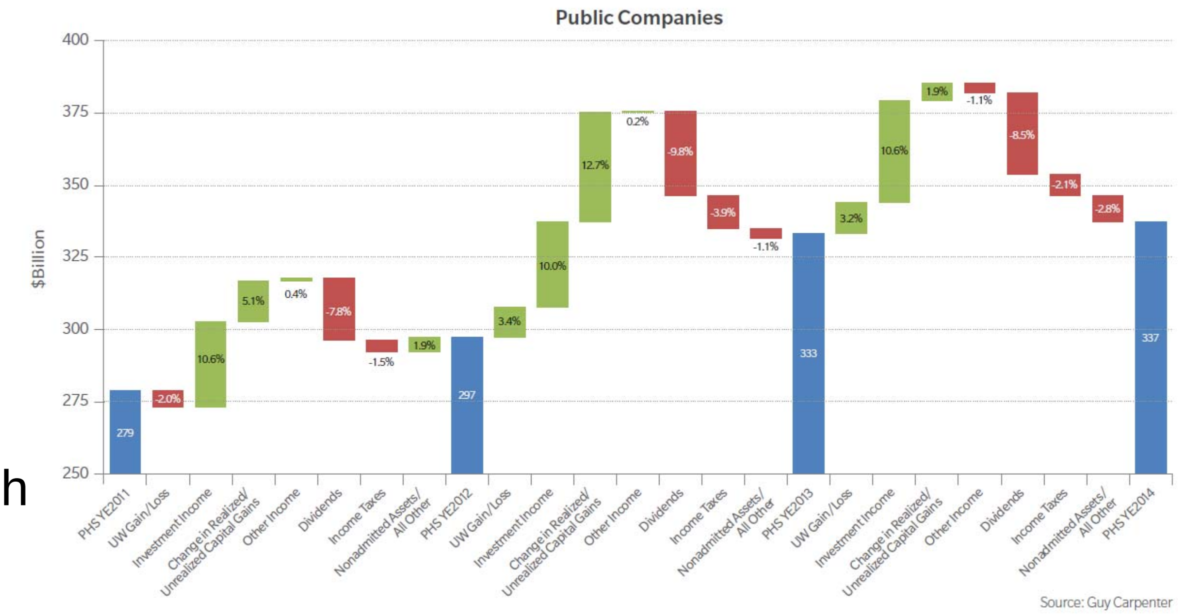
Industry Surplus Growth

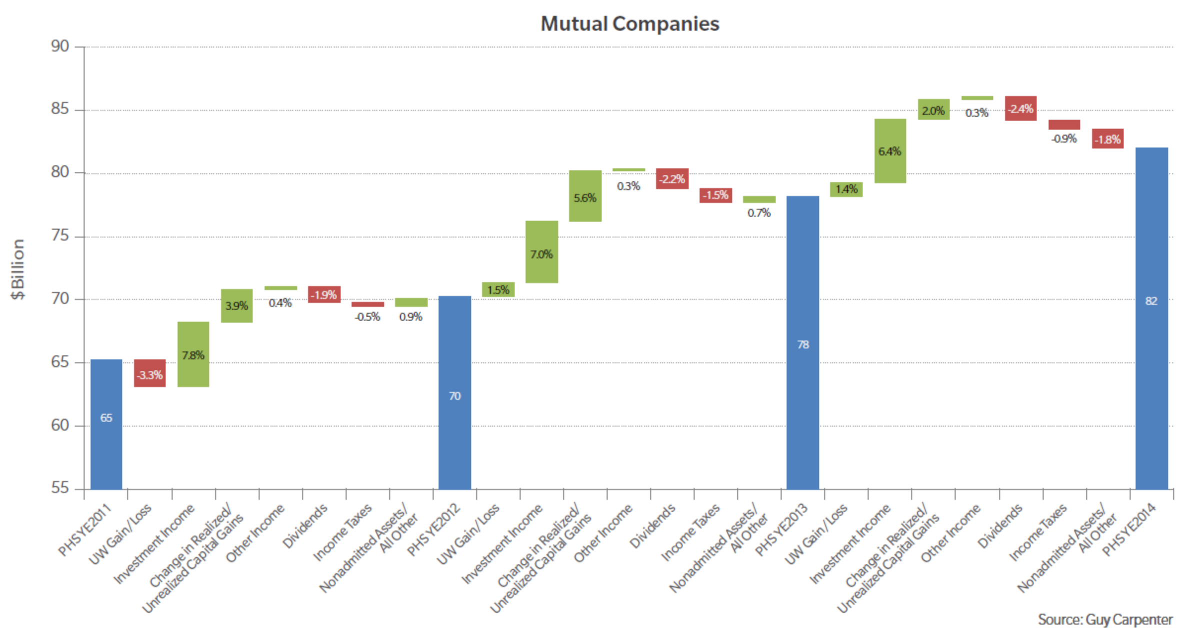


- In **2013-2015**, the industry recorded a net underwriting profit. Three or more consecutive years of UW profits has only happened one other time since 1995, in **2004-2007**. There have been **8** years of profitable UW results in the past **21**.

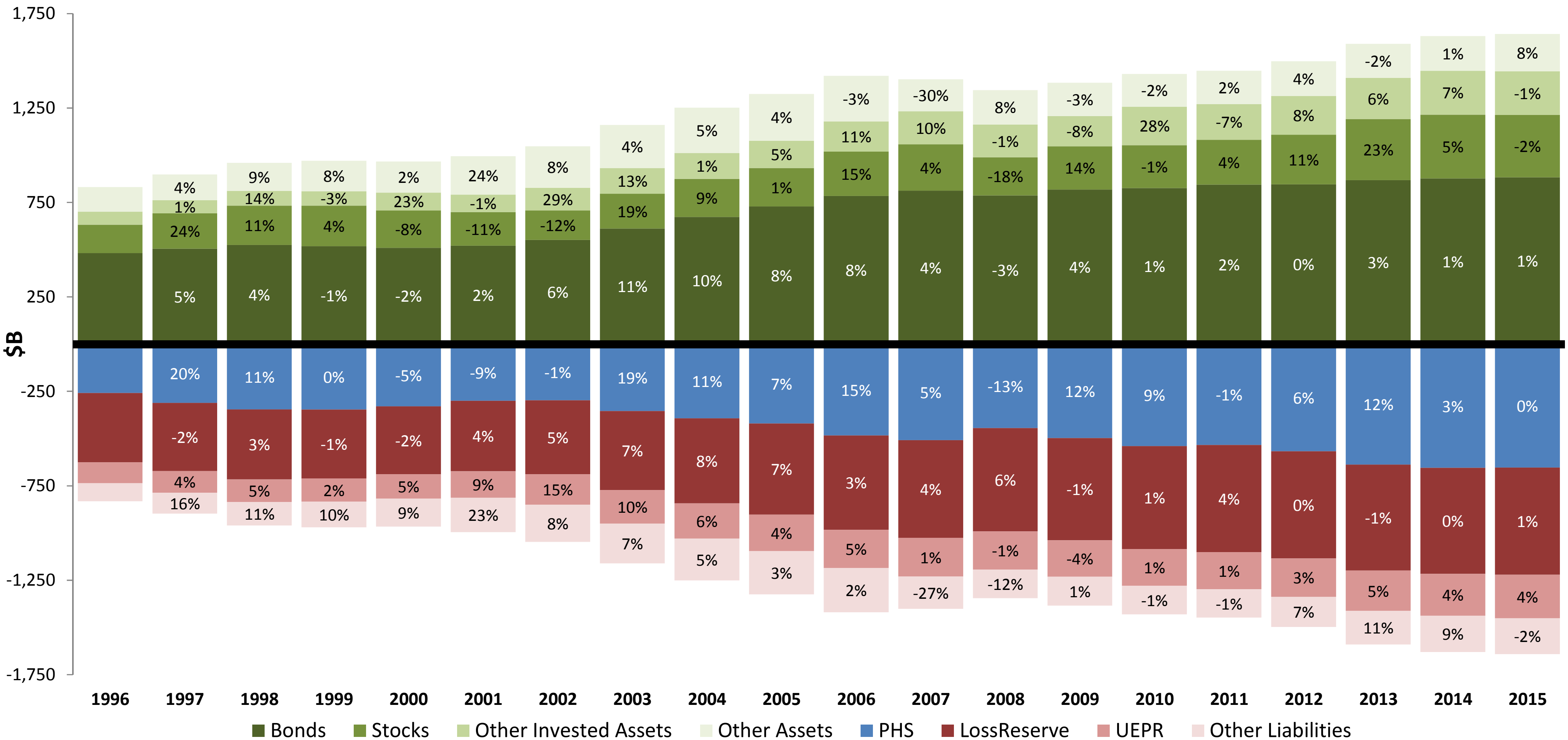
Surplus Growth by Segment

- **Mutual** companies with DWP <$2B have recored slightly **lower underwriting profits** and **investment income** than **public** companies in each of the past 3 years, but have grown surplus faster (**26%** vs. **21%**) due to significantly **lower dividends**.





Industry Asset and Liability Growth by Type



- Since 1996, The insurance industry has **grown surplus** in **13** years and **lost surplus** in **5** years.
- Industry **loss reserves grew** at a **3-8%** rate per year from **2002-2008**, but since **2008** have been relatively **flat**.
- Industry **stock** portfolio has **grown** significantly **faster** than **bond** portfolio since **2011**.

Conclusion

The insurance industry is going through a time of change, which will continue for the forseeable future.

Some of those changes are **Secular**, some are **Cyclical**.

The companies that are best able to use the data that exists today, and to harness new sources of data, will be best positioned to thrive in the new marketplace.

Successful companies that are able to adapt and stay relevant to their clients will be best positioned to manage through this time of transition.

GUY CARPENTER