

October 2018

Risk Benchmarks Research 2018

Executive Summary



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The 2018 Annual Statistical Review provides additional in-depth insight into these and other trends affecting the industry, and we hope you find the information useful when considering strategic enterprise risk management decisions in the coming year. The results of the Risk Benchmarks Research are presented in three parts:

- 1. Executive Summary
- 2. Annual Statistical Review: An industry-wide overview of the Risk Benchmarks Research that summarizes the most popular industry statistics. It includes a detailed collection of industry trend data that provides state and market segment-level data.
- 3. BenchmaRQ® Advisory Services: Through our Global Strategic Advisory practice, we provide custom analysis using data and information from the Risk Benchmarks Research.

Introduction



The accelerating rate of change has been a constant in the property and casualty (P&C) insurance market over the past several years. InsurTech innovations that earlier seemed like science fiction are now top of mind realities for companies seeking opportunities for growth.

The recent performance of the P&C industry seems a departure from the long-term trend, rather than the familiar regression towards it. Formerly stable lines such as personal auto produced significant volatility for carriers, while lines like workers compensation, that have often struggled to produce an underwriting return, are enjoying multi-decade high water marks in profitability. The familiar underwriting cycle has decoupled materially across long-tail casualty lines, with profitability, growth and reserve development moving in widely different directions by line and segment. Insurers' operating environment of today is a very different place than it was just a few short years ago.

During the last decade, the P&C insurance industry experienced lower interest rates and was defined by deep and persistent reserve releases and better than expected returns on equity and other high risk assets. But, lack of reserve redundancies on recent accident year results and re-emergence of volatility in interest rates and claims inflation that have the potential to affect both sides of the balance sheet may signal that there are challenges ahead for the industry.

Profitable growth in the P&C industry over the next 10 years is likely to be driven by realizing greater efficiency by transitioning away from legacy systems to more nimble platforms and leveraging new technology and data to better price, manage and mitigate risk. With every element of the insurance value chain evolving at a rapid pace, insurer understanding of the fundamental shifts in the market is more vital than ever.

The data and analysis presented in this report provides insight to company management, modeling practitioners and industry analysts on what is driving performance and risk today, and which trends bear close attention tomorrow.

Our Risk Benchmark Research Report, prepared by Guy Carpenter's Global Strategic Advisory team, provides insight into market trends for strategic decision making. Whether you are a company looking to simply compare your results to the industry or searching for insight as you manage your capital around expansion or transition of business, the information that follows is intended to facilitate review of intuitive yet critical metrics. We have included breakout analyses by region and across many functional segments. The pressures faced by regional carriers compared with the nationwide stock carriers have subtly changed over the years and these breakouts are intended to personalize this report to those carriers. This year's report also includes new exhibits designed to offer a more critical view of the current state of the reserving cycle, providing deeper insight based on industry and segment IBNR ratios today compared with the prior 15 years.

We hope you find the report useful and insightful and encourage you to further explore our solutions aimed at helping clients navigate the changing dynamics of today's risk environment.

Guy Carpenter's broking, Analytics and Strategic Advisory teams are dedicated to providing each client with data and tools for a tailored approach that addresses its unique challenges and create opportunities for profitable growth.

Please contact your Guy Carpenter representative and share your thoughts and ideas.

We encourage feedback and value our collaborative client partnerships.

Best regards,

Tim Gardner.

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President, North America, Guy Carpenter & Company, LLC

Risk Benchmarks Research 2018: Executive Summary

Today, the P&C insurance industry faces the disruptions and challenges presented by a period of significant competition, uncertainty and rapid evolution. As they navigate the market environment, managers must carefully analyze all factors impacting their ability to adapt and seize the opportunities to achieve profitable growth. Although the fundamental insurance business model has not changed much in 150 years, market dynamics, emerging risks and their effect on performance vary from year to year, and it is important to understand the direction of the market to grasp the risks and opportunities.

In the last eight years, Guy Carpenter has focused on developing and publishing our annual Risk Benchmark Research initiative, which provides the financial data and information necessary for important strategic decision making in the insurance industry. This study is one of the most inclusive and robust collections of unbiased U.S. insurance statutory financial data in the market.

Key Takeaways

- Large-scale catastrophic losses re-emerged in 2017, driving the gross loss ratio of the study's median insurer up 12 percent in just two years to 70 percent. 2017 was the first year to eclipse USD 85 billion in trended North American cat activity since Hurricanes Katrina, Rita and Wilma in 2005.¹
- 2. The year 2017 was defined by divergence in performance across major commercial casualty lines to an extent that had not been seen in more than two decades. This year's report includes a new exhibit that analyzed changes in initial and ultimate booked loss ratio correlation between key lines of business. Our study found that across most major commercial casualty lines, correlations on an initial and ultimate booked basis dropped significantly over the past several years from near-perfect dependence in some cases to near independence or negative correlation, as line-specific claims and exposure trends trumped cyclical market conditions. If this decoupling trend persists, it could mean an increase in diversification benefit for carriers writing a basket of commercial lines, while if the trend reverses, carriers may experience a snap back effect, driving increased volatility in the near term while affected lines return to equilibrium with the market.
- 3. Extremely adverse trends developed very quickly in automobile lines (commercial and personal), taking insurers by surprise. Claims frequency and severity rose as road congestion, repair costs and jury awards grew; average road speeds increased; and more drivers were distracted by phones and GPS devices. These trends represented a major shift for many carriers who until recently viewed personal auto insurance as a source of steady profitability. As carriers rethink the risk to reward trade-off of the auto insurance line, many have chosen to tactically focus more

- on homeowners or diversify into commercial lines, including small commercial insurance products, where limits and year-toyear volatility may be higher, but opportunities to deploy capital profitably may be more attractive going forward.
- 4. Many recent property events have involved non-modeled losses. The events were "unusual" and not part of insurers' standard risk modeling and management procedures. These events, largely regional, occurred in Florida, Colorado and California; for example, wildfires, non-weather water losses in Southern California and an uptick in Assignment of Benefits-attritional losses in Florida. The proliferation of new risk sources such as wildfire and climate change-driven weather severity also have significant implications on existing risk models that are calibrated based on historic data. As awareness grows of these new sources of risk, carriers must factor these and other unforeseen events into their capital and risk management strategy.
- 5. Favorable trends in workers compensation continue to manifest themselves. Even as rates declined, 60 to 70 percent of carriers in this line have achieved an underwriting profit since 2013. Advancements in claims management and workplace safety are responsible for much of the improvement in loss cost trends, with insurers, employers and companies sharing in the benefit of safer workplaces. Looking forward, many carriers have adjusted their loss trend assumptions to largely factor in many of these benefits, which has led some industry experts to question how much additional upside can be realized from the recent mitigation efforts. Additionally, other trends may emerge that could offset some of the benefits carriers have enjoyed in the recent cycle. As the unemployment rate has fallen, employee turnover has increased, while worker experience and job readiness has decreased. Complicating matters further, trends in opioid abuse as well as legalization of recreational marijuana raise additional implications for safety at the worksite. Workers compensation writers have enjoyed a historic level of profitability in recent years, but must remain disciplined and risk-aware to maintain continued profitability if and when the environment changes.

¹Source: Property Claims Services (PCS) Insured Cat Loss Estimates.

Key Market Developments

Several key storylines defined the P&C industry in 2017 and these continued to play out through 2018. Driven by very strong equity market performance, total industry policyholder surplus reached its highest level in history, while the median carrier's gross loss ratio increased 12 percent since just 2015.

The biggest push on the loss ratio increase has been the recent re-emergence of significant catastrophe losses, with 2017 being the largest year for North American cat activity on a trended basis since Hurricanes Katrina, Rita and Wilma in 2005. Many affected carriers benefited from reinsurance recoveries from these large losses, with net loss ratios increasing only half as much as gross from 2015 through 2017 (6 percent).

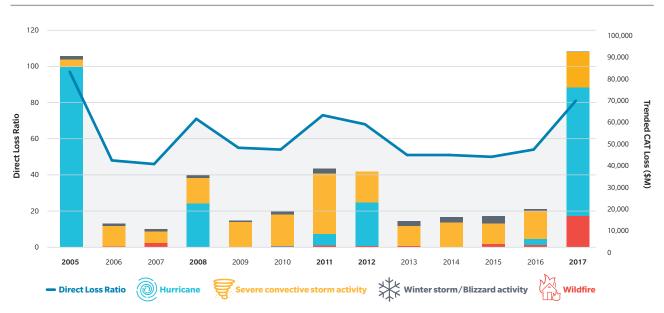
Overall, 44 percent of P&C writers made a positive underwriting return in 2017, down from an average of 59 percent from 2014 through 2016. The P&C insurance industry experienced a 3.8 percent underwriting loss in 2017, compared to a loss of 0.4 percent in 2016 and a profit of 1.6 percent in 2015.

The 2017 catastrophe events had a greater impact on the property writer segments. 47 percent of property writers made a positive underwriting return in 2017, down significantly from an average of 72 percent from 2014 through 2016 (See Figure 2).

The year 2017 was defined by divergence in performance across major commercial casualty lines to an extent that had not been seen in more than two decades. This year's report includes a new exhibit that analyzed changes in initial and ultimate booked loss ratio correlation between key lines of business. Our study found that across most major commercial casualty lines, correlations on an initial and ultimate booked basis dropped significantly over the past several years from near-perfect dependence in some cases to near independence or negative correlation, as line-specific claims and exposure trends trumped cyclical market conditions. Initial booked loss ratio correlations between commercial auto liability and general liability occurrence fell from 95 percent in 2010 to less than zero percent in the years following 2013.

For commercial auto liability and workers compensation, booked ultimate loss ratios were more than 70 percent correlated as recently as 2012 but have since become negatively correlated. General liability and medical professional liability experienced

FIGURE 1. Catastrophe activity impact on property line loss ratios



a similar trend, while booked ultimate loss ratio correlations for general liability and workers compensation dipped slightly in the most recent years but to a lesser extent than other casualty line combinations. This phenomenon was unique to casualty; property lines remained as strongly correlated today as they have been historically.

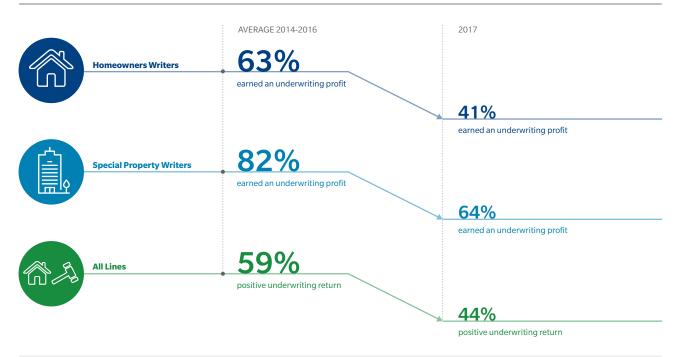
Underwriting Performance and Calendar/ Accident Year Profitability

Rate actions varied by line of business and region but generally began to trend favorably through 2017 and the first half of 2018, driven by significant rate gains in commercial and personal auto lines and some increases in loss-affected property markets. Rate trends bear close monitoring for long-tail lines, as it is easy to overshoot the true risk-appropriate rate.

• Medical professional liability, one of the best-performing lines through the last hard market cycle, has experienced an uptick in initial expected loss ratios of 2 to 3 percent since 2016 for the median carrier due to a persistent soft pricing market. However, they remained well below the last cyclical peak in the late 1990s. As rates fell between 2011 and 2017, the percent of medical professional liability writers achieving an underwriting profit dropped from over 60 percent to fewer than 30 percent. Additionally, Accident Years 2015 and 2016 through yearend 2017 did not develop as favorably as did Accident Years 2014 and earlier at the same stage of development. Without

- the benefit of continued favorable development, the medical professional liability line could see challenges ahead.
- Commercial auto liability carriers experienced consistently elevated loss ratios over the past seven years despite cumulative rate increases over 30 percent in that period.² Fewer than 20 percent of commercial auto liability writers made an underwriting profit during any accident year in that period. In what may be an encouraging sign for stressed carriers, industry median booked accident year loss ratios dipped slightly from 2016 to 2017 due to continued rate increases. Despite the significant rate changes and awareness of the challenging underwriting conditions, commercial auto carriers may face additional challenges before conditions shift to profitability. Commercial auto loss ratios have developed adversely by an average of 7 percent per year on Accident Years 2011 through 2016, and the line's current booked loss ratios exceeded the industry all-lines average by 6 to 12 percent per year for each year in that period.
- Personal auto carriers experienced unfavorable trends similar
 to those of commercial auto writers, albeit to a slightly lesser
 extent. Reported accident year loss ratios reached a peak in
 2015 and have since fallen as a result of carrier rate increases.
 Even with these improvements in pricing, only 20 percent of
 personal auto carriers made a positive net underwriting return
 in 2017, an improvement from the 8 to 12 percent in 2015 and
 2016. Personal auto loss estimates for Accident Years 2014

FIGURE 2. Catastrophe losses in 2017 impacted property lines-focused writers (Net Accident Year)



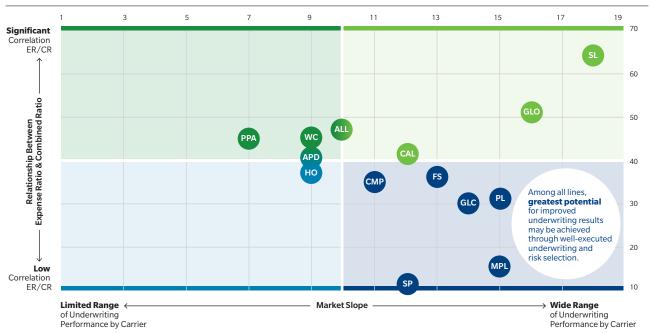
Source: Guy Carpenter

²Source: CIAB Rate Monitor.

through 2016 deteriorated slightly from initial booking (1 to 2 percent). This is a major change from the last 25 years, given the medium-tail, low-severity nature of the line and the historic pattern of consistently favorable development across the industry for nearly every accident year studied prior to 2015.

 Personal auto continued to be one of the lines of business most greatly affected by supply chain disruption and data analytics, as larger carriers with direct-to-consumer distribution and a lower expense structure continued to capture market share.
 From 2008 to 2017, the top 15 personal lines writers increased their annual spending on direct to consumer advertising from USD 3.3 billion to USD 4.9 billion, or over 50 percent. In that same period, spending on advertising for all other carriers fell from USD 1.1 billion to USD 1.0 billion, while the entire independent agent channel's advertising spend added up to a fraction of the spending of one of the top five carriers. Carriers with the size and scale to advertise extensively to consumers have an advantage in brand recognition and cost structure. Due to the highly competitive nature of this line, personal auto has operated at a loss ratio higher than the overall P&C industry for all but two years since 2001 and is one of the lines with the highest correlation between carrier gross expense ratio and combined ratio (45 percent). Smaller carriers that have been adversely selected against face difficult business decisions regarding the efficacy of continuing in this competitive line

FIGURE 3. Drivers of underwriting results differ by line of business



Significant correlation ER/CR-Low expense ratio likely to improve overall underwriting results outcomes.

Limited range of overall underwriting results outcomes among writers of these lines.







Significant correlation ER/CR – Low expense ratio likely to improve overall underwriting results outcomes.

Wide range of overall underwriting results outcomes among writers of these lines.







ALL All Lines of Business

Low correlation between ER and CR (<40%) – Well executed underwriting and risk selection likely to have strong impact on improving overall underwriting results outcomes.

Limited range of overall underwriting results outcomes among writers of these lines.

HO Homeowners/ Farmowners Low correlation between ER and CR (<40%) – Well executed underwriting and risk selection likely to have strong impact on improving overall underwriting results outcomes.

Wide range of overall underwriting results outcomes among writers of these lines.













or expanding into new products that offer better prospects for profitability, such as small commercial business owners policies, workers compensation and property products.

 Workers compensation, one of the best-performing lines in recent years, saw initial expected loss ratios tick up 2 to 3 percent from those of 2016 as carriers digested rate decreases; however, they remain nearly 15 percent below the last cyclical peak in 2010. Even as rates downshifted, 60 to 70 percent of carriers in this line have achieved an underwriting profit since 2013. Advancements in claims management and workplace safety are responsible for much of the improvement in loss cost trends in workers compensation, with insurers, employers and companies sharing in the benefit of safer workplaces.

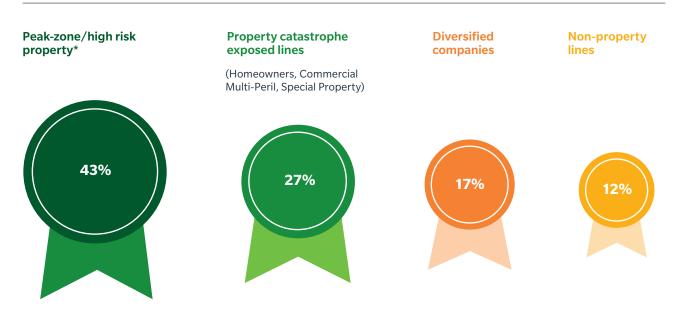
In this report, we looked at the correlation between expense ratio and combined ratio among the top 100 carriers by line of business. Lines with low correlation, such as medical professional liability, commercial multi-peril, general liability claims made and special property, tend to allow more pricing freedom and therefore have greater differentiation in underwriting performance based on risk selection and underwriting expertise. Lines with high correlation, such as workers compensation and private auto, are often highly regulated and viewed as more commoditized products where expense management is paramount to achieving underwriting profitability.

Reinsurance Utilization and Impact on Volatility

Ceded ratios among homeowners writers in the Southeast region excluding Florida ticked up 3 percent from 2016 to 2017, as Texas catastrophe losses flowed through carriers' balance sheets and reinsurance programs. Florida homeowners writers experienced a reduction in ceded ratio from a peak in 2005 to a low in 2015. However, that decline stalled in 2016 and 2017 and is expected to reverse in 2018 as reinsurance markets absorb losses to lower layers of cat programs, generating reinstatement premiums. This led to a reinsurance rate environment at January 1 and July 1, 2018 renewals that was slightly firmer than in recent loss-free years. Both commercial and automobile liability writers increased their use of reinsurance in recent years, especially among smaller writers and excess and surplus line carriers, in order to take advantage of a favorable pricing environment and mitigate severity risk.

One of the key utilities of reinsurance is the protection from large-loss volatility provided to carriers. Across all lines of business, comparing net underwriting results with gross results demonstrates a reduction in accident year underwriting volatility by an average of 17 percent for a median carrier, 18 percent for a carrier with highly volatile experience and 15 percent for a carrier with low historic underwriting volatility. The volatility reduction and tail protection that reinsurance provides is a vital component of many carriers' capital strategy, particularly for carriers writing higher risk business.

FIGURE 4. Property catastrophe-exposed lines have historically received the greatest benefit in Accident Year volatility reduction from reinsurance.



Source: Guy Carpenter

^{*}These carriers fall into one or more of these categories: 1) These carriers tend to have their insured business geographically concentrated in high risk/catastrophe-prone areas. 2)
They may be excess and surplus lines carriers (they insure risks standard carriers won't cover). 3) They may have insured business in coastal (hurricane/storm surge-prone) areas.

Property catastrophe-exposed lines (homeowners, commercial multi-peril and special property) have historically achieved the greatest benefit in accident year volatility reduction due to reinsurance, with the median property writer achieving a volatility reduction of 27 percent when gross results are compared to net results; for non-property lines, this benefit averaged 12 percent. For a property writer with a highly volatile book, the volatility reduction in net results compared with gross results averaged nearly 43 percent.

Performance by Region

- For commercial property lines, the catastrophe-affected states of Tennessee, Colorado and Texas experienced the highest combined ratios over the last three years, with each averaging more than 115 percent over the 2015 through 2017 period. Northeast, Rust Belt and Pacific Coast states performed better than the industry in the same period. Overall, nationwide direct combined ratios were 91 percent, indicating generally profitable results for diversified, countrywide underwriters. Commercial property lines in California did not perform as poorly as those in other catastrophe-impacted states due to the collection of loss-free premium supporting the earthquake peril and the wildfire losses disproportionately hitting homeowners lines compared with business owners. Only about 28 percent of California wildfire losses over the past three years were absorbed by commercial property insureds, while over 71 percent were from homeowners.³
- Commercial liability lines delivered current-year combined ratios of 104 percent over the last three years – close to breakeven when accounting for longer-tail duration of the risk. Highly litigious states such as California, Florida, New York, New Jersey and Louisiana underperformed the industry, with combined ratios of over 110 percent. South Carolina, Georgia, Alabama and New Mexico also experienced elevated combined ratios of more than 110 percent over this period. Midwest and New England states generally outperformed the industry over this period, with combined ratios mostly under 100 percent.
- Despite the significant catastrophe losses in 2017 that impacted personal lines, homeowners insurance combined ratios outperformed those of personal auto by 9 percent in the last three years (96 percent and 105 percent, respectively), underlining the profitability pressures that auto writers have faced in recent years. Top-performing homeowners insurance regions in the last three years included the Northeast states (84 percent combined ratio), where carriers were able to drive significant rate improvement after the historic 2015 winter storm season, and the Midwest (91 percent), where states like lowa, Indiana, Ohio, Wisconsin and Michigan each achieved current-year combined ratios of 90 percent or better over the past three years.

Despite the significant catastrophe losses in 2017 that impacted personal lines, homeowners insurance combined ratios outperformed those of personal auto by 9 percent in the last three years...

- The worst-performing region for homeowners carriers by a wide margin was the West Coast (118 percent), highlighted by California's three-year average combined ratio of 145 percent. The significant drivers of the West region's sudden dip in profitability were the California wildfires, non-weather water claims in Southern California and an above-average frequency of catastrophe activity in Colorado (110 percent). In the Southeast, Texas (110 percent) was the state most challenged due to Hurricane Harvey and a variety of smaller catastrophe losses that included significant hailstorm losses in the greater Dallas region. Despite Hurricane Irma and an uptick in Assignment of Benefits claims, Florida outperformed the national average over the last three years by delivering an average direct combined ratio of 94 percent.
- Personal auto performance was poorer in states with significantly large metropolitan areas and in states with claimant-friendly judicial systems. New York, Florida, California, Louisiana, Texas and Nevada each exceeded the national average in the past three years. Midwest states, with the notable exception of Michigan, stood out as among the best-performing auto markets, led by sub-100 combined ratios in Oklahoma, Kansas, Iowa, Wisconsin, Minnesota, Indiana, Ohio and West Virginia. Increases in road congestion coupled with higher average speeds and distracted driving were significant factors in the unexpected uptick in auto claims frequency. One reason for the relatively strong performance of Midwest states is their lower population density, resulting in less road congestion and lower frequency trends than in more densely populated regions.

Asset Allocation and Capital Strategy

The expansion of industry capital in recent years occurred while the return profile of the business was considered to be below its cost of capital. Growth of industry capital during this period of subpar returns provides insights into the expectations for carriers' opportunities and challenges in the years ahead. The opportunities may include improved pricing in loss-affected lines, ongoing economic expansion and recently emerged insurable risks such as flood, cyber and e-commerce. The potential challenges for carriers may include unexpected increases in claims severity, the risk of sudden economic shocks and disruption in the insurance value chain and end-market demand.

- Insurers' investment strategies shifted in the past several years toward a greater allocation to equities (26 percent in 2017, up from a low of 18 percent in 2010), Schedule BA assets (9 percent in 2017, up from 5 percent in 2009) and corporate bonds (27 percent, up from 23 percent in 2010). Companies reduced their allocation to U.S. government bonds (7 percent in 2017, down from 10 percent in 2011), municipal bonds (13 percent, down from 19 percent in 2011) and foreign government bonds (8 percent in 2017, down from 11 percent in 2011). The industry leverage ratio fell from a post-financial crisis high of 2.35 in 2011 to 2.12 in 2017, as surplus grew faster than net written premiums plus reserves.
- Comparing the investment holdings of the Top 25 carriers with non-Top 25 carriers, it appears that larger insurers have significantly higher allocations compared with the other carriers of stocks (31 percent to 16 percent, respectively) and Schedule BA assets (11 percent to 4 percent, respectively). The higher allocations are balanced by lower allocations to U.S. government bonds (6 percent to 10 percent, respectively), municipal bonds (9 percent to 20 percent, respectively) and corporate bonds (24 percent to 32 percent, respectively). The Top 25 carriers also averaged a slightly higher credit risk in their fixed income portfolio and slightly lower portfolio duration.

Reserve Development

Industry-wide, favorable reserve development in medical professional liability, workers compensation and short-tail insurance lines was largely offset by adverse development in both commercial and personal auto. Overall, during the last three calendar years industry reserve development was largely flat in aggregate; prior to 2015, the industry reported 12 consecutive years of material favorable development.

In a new analysis added to this year's report, we compared booked incurred-but-not-reported (IBNR) ratios at year-end 2017 against the prior 15-year average while controlling for development-year vintage. This analysis is intended to provide insight into relative reserve conservatism at the end of 2017 compared with the average over a full reserving cycle, without conducting a full actuarial reserve review.

• Large carriers notably reduced their IBNR ratio in general liability claims made insurance, particularly in the last two to three accident years — a trend that runs counter to that of

Industry-wide, favorable reserve development in medical professional liability, workers compensation and short-tail insurance lines was largely offset by adverse development in both commercial and personal auto.

- smaller carriers, which increased their IBNR ratios compared with the historic average for recent development year vintages.
- In the general liability occurrence line, all segments of the market booked higher IBNR ratios on the most recent accident year, while larger carriers held less IBNR on older accident years compared with their historic average. In contrast, smaller carriers increased IBNR ratios across nearly all development vintages.
- In workers compensation, large carriers held larger buffers of IBNR, especially for more recent accident years, signaling that even with significant market softening carriers still reserved cautiously. Smaller carriers held slightly less IBNR across all vintages than in prior years.
- Within multi-peril lines, carriers of all sizes held less IBNR than in prior years, with the exception of the most recent development year, which was slightly above the historic average. Years of persistent softening and reserve releases appeared to slightly reduce the conservatism of multi-peril lines writers' reserving practices.
- In commercial auto liability, even with significant reserve development, most carriers continued to hold a lower IBNR ratio than in the past for all years except the latest. This indicates the potential for further adverse development on Accident Years 2016 and prior, as many carriers stair-step reserve estimates to smooth recognition of calendar year losses.
- Focusing on the personal auto insurance reserve development cycle, Accident Year 2016 developed adversely at the 24-month vintage, but to a lesser extent than did Accident Year 2015, although Accident Year 2015 continued to deteriorate slightly.
- Homeowners loss reserves for Accident Year 2016 exhibited uncharacteristic adverse development for a year not largely affected by catastrophes, largely due to non-weather water losses in California and assignment of benefits claims in Florida.
- Workers compensation insurance continued to develop favorably across each of the last 10 accident years and prior, as benign loss cost trends in the line reduced average claim count and duration below actuaries' initial expectations.
- Medical professional liability reserves continued to show favorable development for Accident Years 2014 and prior; but Accident Years 2015 and 2016 remained largely unchanged from initial booked loss reserves, signaling that the cumulative impact of years of flat to negative rate trends diminished some of the conservatism from initial loss estimates.
- General liability occurrence experienced minor adverse development on Accident Years 2013 through 2016, largely driven by actions taken by a small number of large writers.
- Overall commercial liability reserve development excluding auto (general liability, occurrence, claims made and commercial multi-peril) was uncharacteristically flat over the last six

accident years, signaling a temporary reversal from the more than 20-year prior period of high amplitude, multi-year reserve development cycles.

 Commercial auto reserves continued to develop adversely at a significant rate for each of the last four accident years, signaling continued underestimation of loss cost trends by underwriters in this line. Recent rate action in this line may result in some improvement in reserve experience going forward, but historic development patterns indicated Accident Years 2015 and 2016 are likely to experience additional increases.

Direct Written Premium and Expense Trends

- In commercial lines, direct written premium growth remained depressed at 3 percent, nearly the same growth rate as in 2016 (2.8 percent) and below the five-year average of 3.9 percent. The slowest growing lines included workers compensation (0.0 percent), medical professional liability (-0.7 percent), general liability claims made (2.0 percent) and special liability (-1.7 percent).
- The fastest growing commercial lines included commercial auto (9.0 percent) and general liability occurrence (5.4 percent).

 Personal lines grew at a rate of 6.6 percent in 2017, more than

- twice the growth rate of commercial lines and 1.1 percent above the five-year average, driven mostly by favorable rate change and growth in policies in-force in personal auto (8.0 percent).
- Aside from loss experience driving rate increases, the largest influence on premium growth was exposure expansion, driven at a macro level by demographic and economic factors that differ at a geographic level. States experiencing population growth and economic prosperity Colorado, Nevada, South Carolina, Florida and Utah experienced total direct written premium growth of 4.5 percent or more. Those facing more difficult economic conditions in 2017 Oklahoma, New Hampshire, Vermont, Tennessee and Puerto Rico experienced increase in total direct written premium of less than 3 percent.

For more information on this report, please email us at riskbenchmarks@guycarp.com.

Effective capital modeling is critical for today's insurers as they address the ever-increasing expectations of all stakeholders, from regulators and rating agencies to board members and policy holders. Guy Carpenter's full suite of solutions, in-depth industry knowledge and experience, and unparalleled support as a trusted advisor can help your company further develop and customize your capital model to assist with important risk-based decisions.

Guy Carpenter's suite of capital modeling solutions is designed to meet the needs of a wide spectrum of insurers. Whether your firm's needs are less complex and you are new to the process or you represent a large company with a fully developed in-house model, Guy Carpenter can work with you to customize and implement the solution that best serves your needs.

MITIGATE RISK → CREATE OPPORTUNITIES **DETERMINISTIC MODELING INITIAL CAPITAL MODELING CAPITAL MODEL OWNERSHIP** · Multi-Year Financial Planning · Develop understanding of · Comprehensive assessment of COMPANY capital model usage company-specific risks • Stochastic Based BCAR impacts NEED • Use the model for risk profile • Building and validating of customized Scenario testina analysis, peer benchmarking, stochastic models Stress testing validating risk tolerances and • Solvency assessment, capital allocation improving ERM/ORSA processes · ERM metric measurements decisions, strategy formulation Moderate risk parameterization • Fuller risk parameterization **GUY CARPENTER** SOLUTION GC PROJECTOR™ BENCHMARQ® BENCHMARQ®+ METARISK* **INCREASING VALUE-CREATION**

Increasing Accuracy, Customization and Support for Risk-based Decisions

A Complete Range of Solutions to Fit Your Needs

Solution		Key Benefit	User Profile
GC PROJECTOR™	Deterministic multi-year model that projects financials and provides insights into key metrics to assist with business planning, stress testing and rating agency evaluations.	Traditional financial planning tool with stress testing overlay and direct links to BCAR results to enhance capital management and interactions with rating agencies.	Smaller regional insurers with less complex modeling needs seeking to manage their risk downside using deterministic assumptions and with limited resources to run the model.
BENCHMARQ*	Standardized pre-built stochastic model using industry data and proprietary risk models. Simulates one year of company performance and provides financial statements associated with various outcomes.	Benchmarks risk profile relative to peers, features user-friendly reports and graphics and informs risk tolerance setting.	Mid-sized companies that desire substantial risk-based information and a better understanding of using stochastic capital models but do not have resources to build one at this time. Also, companies with internal models that want to compare modeling outcomes.
BENCHMARQ*+	Customized version of BenchmaRQ® that includes company-specific enhancements.	Provides single or multi-year stochastic projections. Helps with underwriting planning, managing reserve risk and noncat reinsurance purchasing.	Companies that need specific, customized enhancements in their modeling, yet are not prepared to own and maintain an in-house model.
METARISK®	Customized single or multi-year stochastic model that assists clients in building a fully parameterized model that provides a comprehensive assessment of risks. Powerful software application for capital modeling, in addition to reinsurance evaluation, catastrophe management, assumed reinsurance pricing, capital allocation and curve-fitting.	The industry's leading timeline- based capital modeling software, fully customized with fuller risk parameterization. Full-time access to support from capital modeling experts.	Primarily large companies, but also smaller and medium-sized ones, that typically have internal modeling capabilities and seek comprehensive assessment of company-specific risks.
METARISK® RESERVE™	Stochastic reserving software that enables companies to quantify reserves and measure reserve risk through generalized linear modeling. Integrates seamlessly with MetaRisk or can be used on a standalone basis.	Incorporates inflationary effects into reserve risk assessments. Outputs can be used with any capital model.	Companies seeking a clearer picture of their reserve risk and variability.
MODEL VALIDATION	Independent evaluation of a company's existing capital model by comparing it to a parallel model developed by Guy Carpenter.	Parallel models developed by industry-leading developers and actuaries. Capital modeling experts provide evaluation and consultation.	Companies with fully developed internal models that require validation and consulting services.

Notes			

About Guy Carpenter

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