

Specialty Practice Briefing

An update from Structured Risk Specialty

October 2007

Guy Carpenter Casualty Reserve Index Managing the Unknown

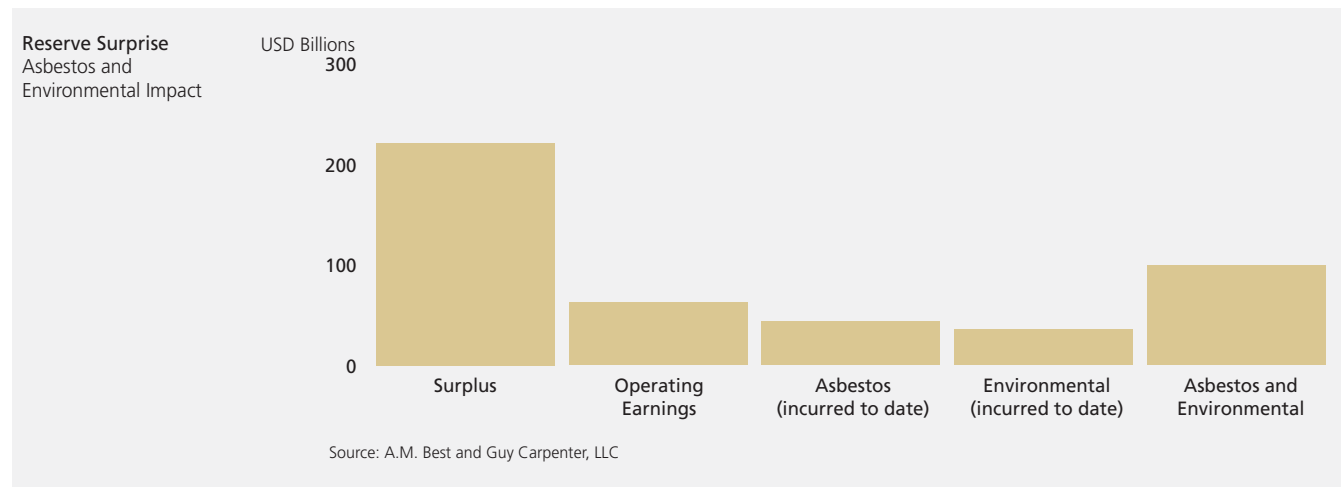
According to A.M. Best, the number one cause of financial impairment of insurance companies is inadequate reserves. Under-reserving can arise from a number of causes including systemic risk. Systemic risk includes new areas of toxic torts (“the next asbestos”) and adverse judicial decisions regarding insurance cover. While the industry continues to struggle with reserve adequacy against unanticipated loss developments, Guy Carpenter has developed hedging tools built to address the risk of reserve inadequacy arising from systemic risk.

The under-reserving problem:

Under casualty policies, the insurer agrees to pay policyholders when they are legally required to compensate other parties who have suffered injury or property damage.

There is often a significant time difference between the date of an accident and the final settlement of the claim. So the insurance company, upon notice of a claim, sets up a reserve, so that they will have the funds to pay claims. However, reserving is hardly equivalent to a physical science, as many unknown factors can come into play and impact reserves, both positively and negatively.

The following chart illustrates the impact of asbestos and environmental lawsuits on insurers.



The total insured cost of asbestos and environmental claims was estimated to be USD121 billion for the years 1991 to 2006. Had this cost been recognized in a single year, it would have wiped out operating earnings. Further, surplus of commercial lines carriers would have declined by about 50 percent to a level below USD100 billion. Such a decline in surplus could be expected to lead to regulatory and rating agency activity for individual companies.

Identifying Casualty Reserve Risk

History has proven that drastic changes in reserves are a major contributor to an insurer's reported calendar year results. As casualty reserves grow over time the potential for any deficiency in reserves to have a substantial impact on the current calendar year results grows, particularly if future growth is constrained for any reason. Guy Carpenter's analysis suggests that such a reserve inadequacy is fundamentally driven by two components:

- 1) A deficiency that is attributable to the insurer's own assessments of the claims potential in their portfolio of business and their own reserving strategies, processes and decisions. The impact of any individual company's strategies can, given the richness of information available, be tracked and understood. Early warning signs can be observed. Most importantly, the reserving strategies of the company can be changed and adapted to the new and more detailed information.
- 2) Systemic risk which arises out of unknown, unforeseeable or wholesale changes in the insurance environment, may affect all risk takers with similar portfolios. Systemic risk arises from a rather diverse set of causes such as:
 - aggregation risk, which is an exposure concentration affecting similar types of insureds or a particular coverage involving multiple accident years arising out of a particular product, substance or some common causative factor, for example, such as a design, business activity, error or omission
 - a new legal theory or coverage interpretation such as might be found in the Keene Corporation or Montrose Chemical of California decisions
 - liability arising out of a relatively new or existing product or technology
 - a change in macroeconomic conditions such as medical inflation driven by a costly new technology or unforeseen cost shifts associated with universal health insurance
 - subsequent alterations in the legislative, political and regulatory environment

Given the extended time required for many casualty lines to develop and mature, systemic risk may contribute significantly to the volatility in the financial results of casualty insurers/reinsurers. Unforeseen exposures, or exposures not completely understood, may add uncertainty to an insurer's books for quite some time before the exposure is recognized or subject to accurate assessment or controls.

For such uncertainties, Guy Carpenter's review of adverse loss development suggests that the impact of systemic risk can be evaluated, understood and hedged. The availability of such a hedge would, we believe, be of value to our clients.

The Hedge

Given cedants' apparent need for products to hedge the systemic risk associated with long-tail casualty lines, and investors' desire for new diversified products, Guy Carpenter is developing a hedge against systemic risks. The objective of the product is to offer cedants and the market with transparent means of protecting against unpredictable adverse loss reserve development. Guy Carpenter is currently market testing the product which will be available for Private Passenger Auto Liability, Commercial Auto Liability, Workers' Compensation, Commercial Multi-Peril, Medical Malpractice and Other Liability.

Industry Loss Development Indices and the Underwriting Cycle

The anticipated hedge products will be based upon industry loss development indices. We have begun by examining Industry loss development indices for Workers Compensation and Other Liability.

In Exhibits 1 and 2 below, the brown bars represent the development on the reserves for each accident year (reserves at 24 months developed an additional 5 years). The influence of the underwriting cycle is readily apparent. To the extent that cycle-related development is readily predictable, this will be reflected in market pricing. A hedge against all downward development in a soft cycle would be rather expensive.

In fact, most of the development represented by the brown bars was predictable, using simple standard actuarial methods. The green bars represent the remaining unpredicted development, after correcting for what would have been predicted.

Exhibit 1:

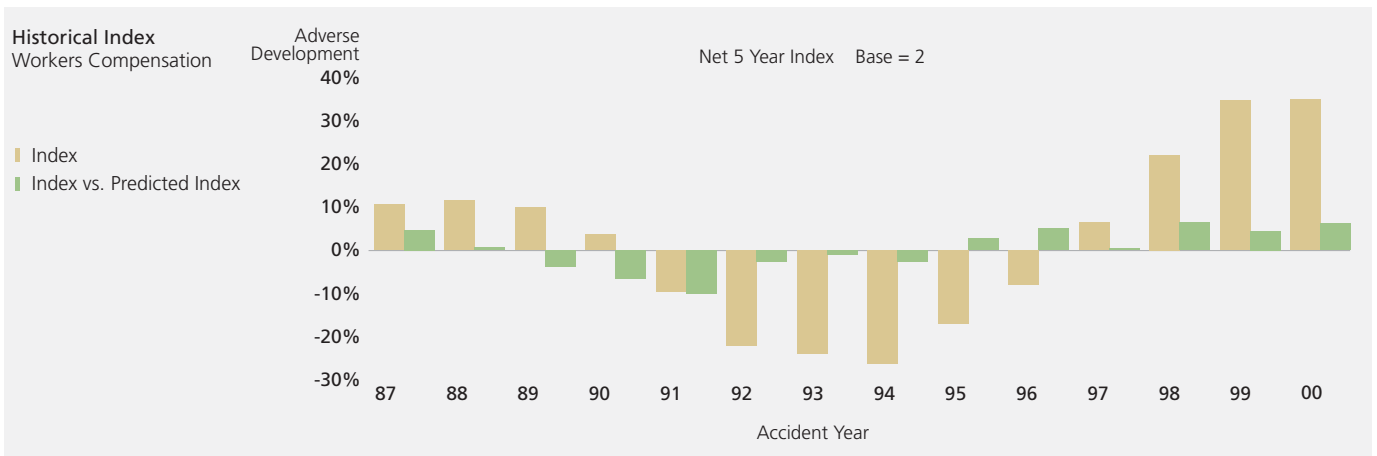
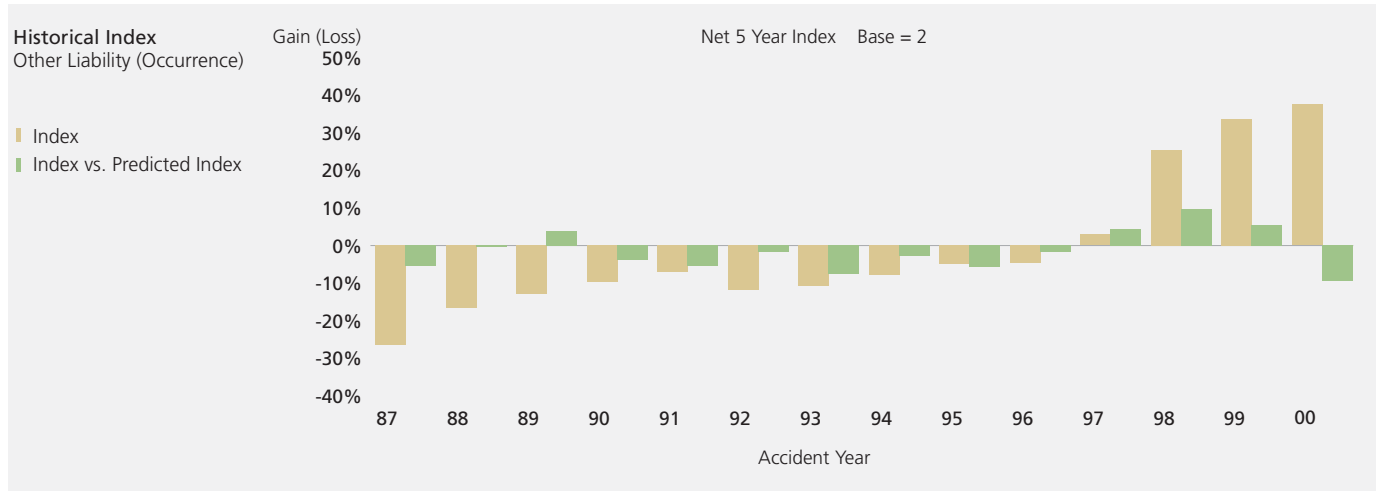


Exhibit 2:



The green bars represent unpredictable industry development, the systemic risk that can be hedged cost-effectively. Note the substantially reduced volatility, and that the unpredicted development retains some of the cyclical behavior. This may indicate that not all of the cycle risk is predictable, but it is also possible that more sophisticated projections may further reduce the residual cycle risk.

The Hedge for a Specific Company

Exhibits 3 through 6 illustrate the impact of hedging Workers Compensation and Other Liability reserves for specific large national writers of these lines. We use two statistics to describe the basis risk associated with the hedge:

- 1) Efficiency Percentage: A measure of over-hedging. A hedge is 90% efficient if 90% of the recoveries on the hedge offset the adverse development actually experienced. In the examples below, Guy Carpenter adjusted the parameters to create hedges that are at least 90% efficient, assuming that companies will not want to spend excessively on over-hedging.
- 2) Recovery Percentage: The portion of actual adverse development that is offset by the hedge. Adjusting the hedge to increase efficiency reduces the recovery percentage, and vice versa.

Using the data and methodology we have developed, Guy Carpenter can help clients maximize these measures by recommending the appropriate attachment points and other parameters of an index hedge.

In Exhibits 3 and 4, the hedge is against the total industry adverse development (i.e., the brown bars on Exhibits 1 and 2), for a 5 year term for Workers Compensation and Other Liability reserves, respectively. In Exhibit 3, the company purchases coverage equal to 78% of its current workers compensation reserves and in Exhibit 4 the company purchases coverage equal to 125% of its current Other Liability reserves.

The Exhibits compare the company’s actual adverse development over time with the amount it would have recovered under the hedge, along with the corresponding efficiency and recovery percentage.

Exhibit 3:

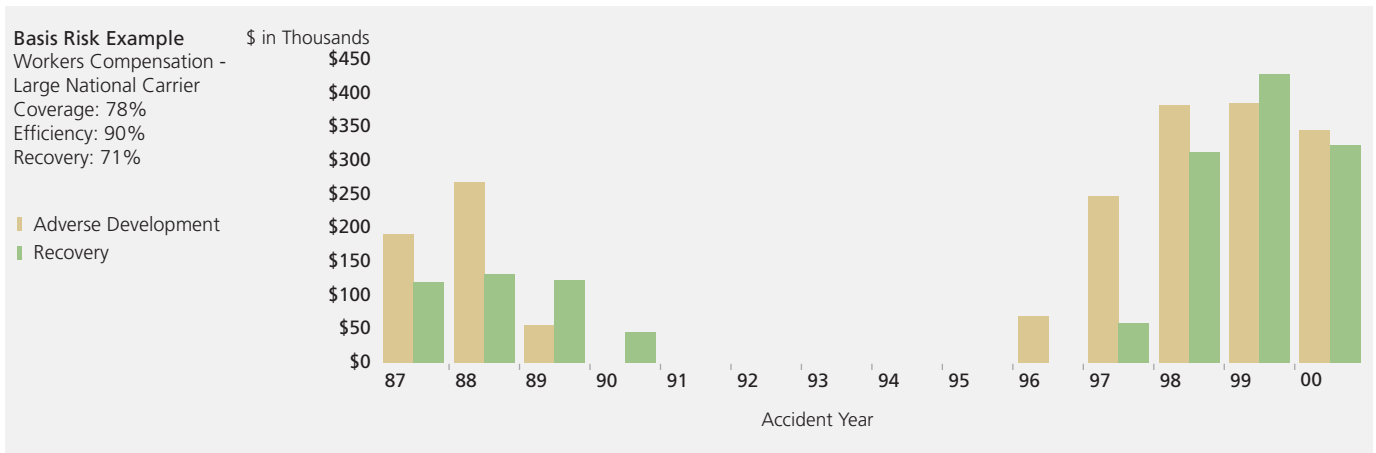
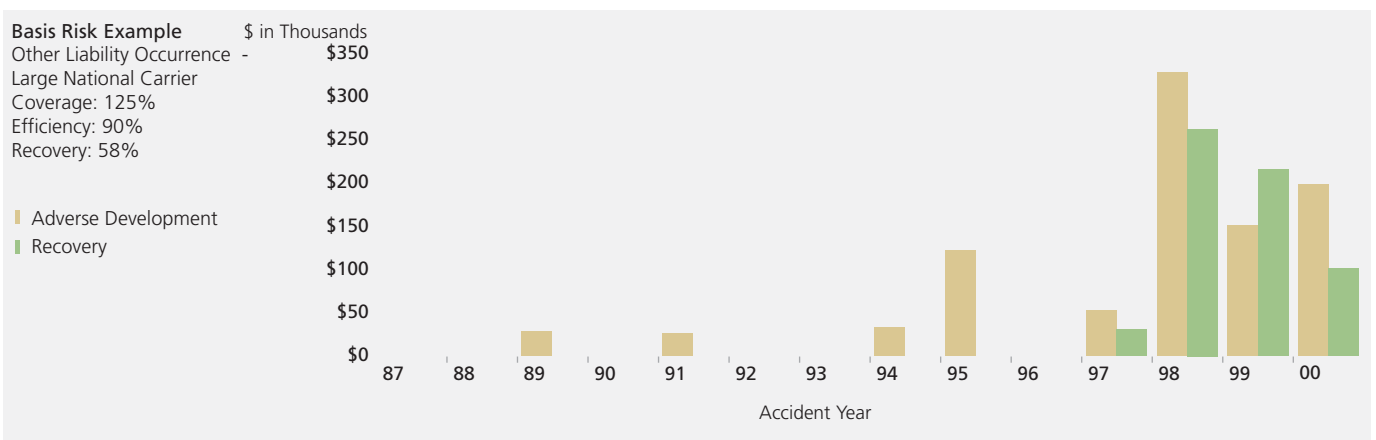


Exhibit 3 illustrates that the hedge would have been quite effective for this company. While spending no more than 10% on over hedging, the company was able to offset 71% of its adverse development. Accident Years 1990, 1991 and 1999 cause the efficiency ratio of hedge to be less than 100% given that recoveries are in excess of the actual reserve development. Accident Years 1987, 1988, 1997, 1998 and 2000 demonstrate that the hedge did not provide full recovery for the adverse development experienced in those years.

Exhibit 4 below provides another example of an effective hedge.

Exhibit 4:



As previously noted, hedging against the total industry adverse development may not always be cost-effective. In Exhibits 5 and 6 below, the hedge for the same company is against only the unpredicted development (i.e., the green bars on Exhibits 1 and 2). To maximize the recovery percentage, we increased the coverage to 200% of carried workers compensation and other liability reserves.

Exhibit 5:

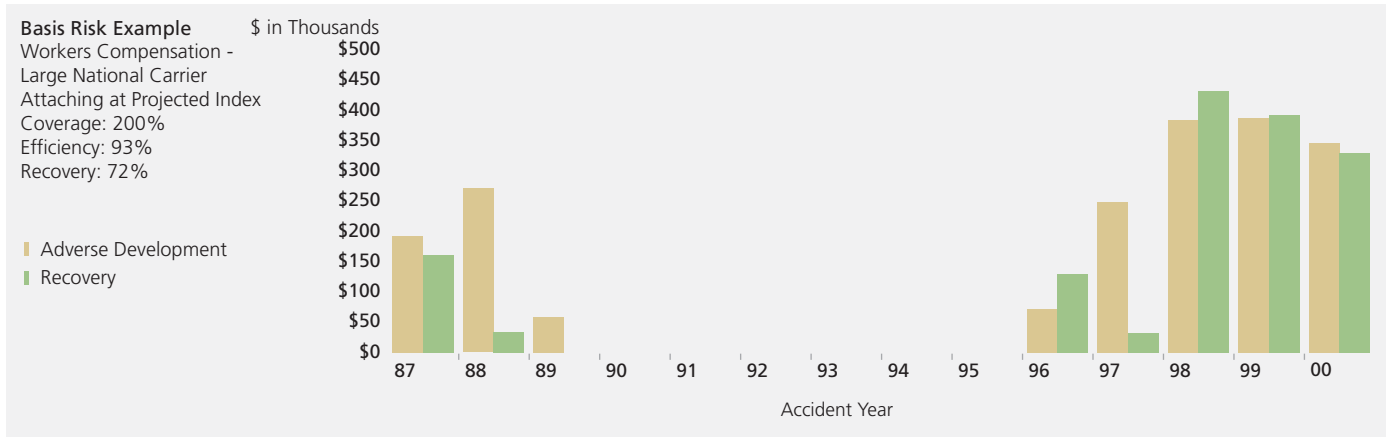
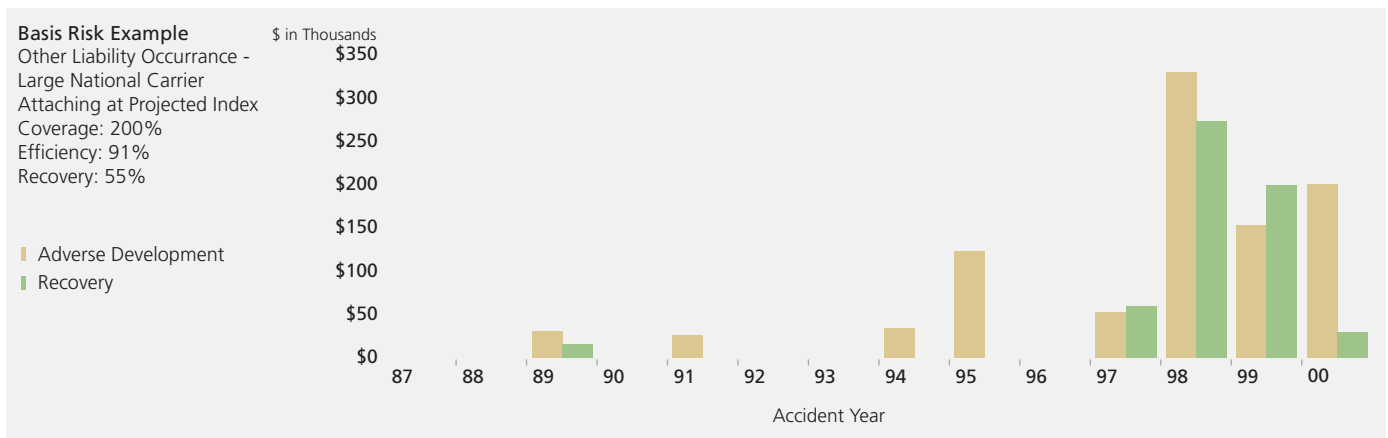


Exhibit 6:



Typically, we would anticipate the recovery percentage of the hedge to be reduced when applied to only unpredictable development; however, the results in Exhibit 5 and 6 indicate that we were able to maintain the same recovery percentages because the unpredictable development in industry data still coincided fairly closely with market cycles. In practice, more sensitive projections may further mute the impact of the cycle, which would reduce recovery percentages.

Note that not all companies' development corresponds as closely with the industry. However, customized reference portfolios may improve the effectiveness of the hedge for specific companies. Whatever the recovery percentage, as long as a high efficiency percentage is maintained, the hedge will be a cost-effective solution even if a smaller portion of the loss reserve risk is hedged.

The benefits of the hedge are that it offers clients and markets a transparent, verifiable and statistically credible product which requires little underwriting to help companies address systemic risk associated with reserves. The index can be based upon gross or net reserves for the industry or a customized portfolio, thereby allowing companies options to protect against different sources of risk. Guy Carpenter believes the hedge product provides effective risk management for both insurers and reinsurers. It also provides clients with the ability to access alternative capital to help stabilize financial results.

As with any index based product, the purchaser will retain basis risk. Guy Carpenter can help minimize basis risk by helping clients select a reference portfolio for the index, and optimizing the selection of index attachment points and the amount of coverage for each accident year.

If a company desires a "no basis risk" solution to address reserve development that also addresses company specific underwriting, Guy Carpenter would recommend a more traditional reserve development solution such as a loss portfolio or adverse development cover. These covers help a company protect against adverse development associated with the open liabilities to claimants with loss dates prior to the inception of the loss portfolio transfer.

Guy Carpenter looks forward to sharing with the industry its new products and tools to help companies manage casualty reserve risk.

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