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Casualty catastrophes and the next asbestos

The potential for tens of billions of dollars of liability losses stemming from unpriced risk in a casualty catastrophe feeds continuing concern and research into what might become "the next asbestos." Casualty catastrophes have been responsible for two of the ten largest historical U.S. catastrophe losses. Losses from A&E (asbestos and environmental) claims brought Lloyd's to its knees in the 1990s and almost caused the failure of some U.S. insurers. In comparison to Hurricane Katrina, the largest insured property catastrophe at $82 billion in current dollars, asbestos and environmental have cost property-casualty insurers an estimated $73 billion and $34 billion, respectively.

What are the prospects for the recurrence of a casualty catastrophe, and how are insurers addressing its potential?

What is a casualty catastrophe?

Casualty catastrophes are large losses caused by events or occurrences covered by casualty policies. A generally accepted threshold of $100 million or more "in direct insured losses from all causes to casualty policies, with one or more policies and insurers impacted" has been proposed by GIRO, a U.K. actuarial body.

Towers Watson estimated a few years ago that there have been approximately 300 casualty catastrophes in the past half century, responsible for $565 billion in losses.

Complications

Casualty catastrophes differ from property casualties in numerous ways. The differences make casualty catastrophes significantly more challenging to model than property catastrophes and are responsible for casualty catastrophe model development lagging property catastrophe modeling by at least a decade. Some of the key differences between property and casualty catastrophes include:

Diversity. In contrast to property catastrophes, which arise from a limited roster of well-defined events, such as earthquakes, hurricanes, tornadoes, and the like, casualty catastrophes arise from numerous sources of litigation. Courts can find coverage for an enormous range of events in the liability policy's broad wording, which covers bodily injury and property damage to third parties for which the insured is found to liable.

Scientific support. Property catastrophe modeling has benefited from developments in physical sciences, such as meteorology and seismology. By contrast, casualty catastrophe modeling refinement is boosted by advances in the more recent domain of data science.

Aggregation. Loss exposure aggregation from property catastrophes is relatively straightforward. It involves adding the limits exposed in a particular geographic area subject to damage/destruction from a property cat event. One can calculate a PML (probable maximum loss) as well as an MPL (maximum possible loss). By contrast, the aggregate exposure from a casualty catastrophe event from a pharmaceutical product, for example, may involve court awards from the manufacturer, distributors, retail pharmacies, as well as hospitals and physician groups providing the product. The PML and MPL for a casualty cat are therefore much more elusive.

Event identification. In contrast to property catastrophes, each of which is assigned a unique identifier (such as a PCS catastrophe code, or a hurricane's unique name) to which to attach claims, casualty catastrophes have no such identifiers. This makes it difficult to tally losses associated with a casualty catastrophe across insurers.

Latency and manifestation. In contrast to property catastrophe events such as earthquakes and hurricanes, whose strike location and time are known, losses from casualty catastrophes typically are triggered by events that happened or began in the past, but whose damage manifest after many years. In the case of asbestos, for example, the condition of mesothelioma was latent in the lungs of people exposed to asbestos fibers and remained so for many years before it manifested in conditions contributing to premature death.

Tort trends. Whether casualty losses become casualty claims, whether claims are paid, and how much is paid depend on shifting legal and societal factors that influence court outcomes, above and beyond defendants' responsibility for alleged injury to plaintiffs. These include the jurisdiction in which the cases are brought, the political ideology of judge and jury, and the ability of plaintiff attorneys and defense counsel to affirm/deny causation. These sociolegal factors change over time in accordance with political developments, new legal precedents, and changing attitudes toward responsibility. By contrast, the magnitude of property catastrophe losses is guided by the presence/absence of coverage and property valuations, which can be calculated with some accuracy on the basis of replacement or repair costs.

Disclosure. In contrast to property catastrophes, for which insurers regularly disclose the amount of their losses, the

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magnitude of loss payments for large casualty events is often not known because of nondisclosure agreements when suits are settled.

The unknown. Many food or pharmaceutical products are made with ingredients whose potential for harm may not be recognized by the makers. Substances that are thought to be safe today may be found in the future to have adverse consequences.

The mass tort nightmare

Casualty catastrophes, whether class actions (a single lawsuit filed by a large group of people who have suffered similar harm by the same defendant) or multidistrict litigation (which involves multiple lawsuits filed by different parties), are major concerns for casualty insurers. One plaintiff attorney with whom we spoke reported that his dream was to go after the "next ticking time bomb." The examples of litigation he indicated he would like to replicate included class actions that involved 100,000 potential class members or more.

The "diversity" characteristic is evident in the small sample of non-A&E casualty catastrophes that have led to large losses, some of which was insured. Although each of the casualty catastrophes is different, the risks arise from three broad sources: (1) latent science risk, involving products entering the market and subsequently found to be harmful; (2) embedded product failure, involving substances embedded in products; and (3) environmental losses mainly arising from energy extraction catastrophes.

Casualty cat models

"All models are wrong, but some models are useful" is received wisdom. Casualty catastrophe models cannot estimate the magnitude of losses with precision because of the large number of unknown factors, interdependencies between loss drivers, and unpredictability of court outcomes. However, the casualty catastrophe models are useful, because they shed light on risk that may not be discerned by underwriters. Without the input of models, insurers may not detect the existence of inherent risk potential in an account or a portfolio that can be revealed on the basis of the model pointing to known losses in similar risks or portfolios.

Since the development and introduction of property casualty models in the wake of Hurricane Andrew in 1992, they have been refined and recalibrated to incorporate knowledge gleaned from new catastrophe events. In much the same way, casualty catastrophe models benefit from growth in the inventory of casualty loss events and are expected to improve over time.

There are several casualty cat models in use. Many are proprietary, developed and used by reinsurance brokers to support modeling their cedant client portfolios for identification of casualty catastrophe risk.

Examples of casualty catastrophe models and datasets

Praedicat. Praedicat's casualty catastrophe model is delivered via its cloud-based Oortfolio® software platform. Users upload policy-level portfolio data and Oortfolio returns exposure-based, probabilistic insured loss information quantifying aggregations across a wide range of latent risks, from hydraulic fracturing to food additives to flame retardants. Account-level estimates are also provided for underwriting. Forward-looking events are derived from peer-reviewed science.

Guy Carpenter. Guy Carpenter's GC ForCas, released in 2015, models the exposure of client cedant portfolios to various types of events. Guy Carpenter partnered with Advisen to use Advisen's casualty loss database.

Arium. In 2018, RenaissanceRe announced a collaboration with Arium (part of AIR Worldwide, a Verisk Analytics business) to develop a probabilistic extension to Arium's scenario-based modeling platform for extreme liability events.

WillisTowersWatson. WillisTowersWatson's eNTAIL model quantifies loss distribution from major sources of casualty catastrophes and is based on proprietary research of historical catastrophe events. eNTAIL features a projected cat loss distribution to fit historical losses adjusted from inflation, population growth, and regulatory developments.

XL. XLRe's LossLink (formerly known as XL Industry Loss Report) was a database developed in 2005, but discontinued in 2008. It contained information on over 2,000 significant losses for use by GL, D&O, E&O, and EPLI underwriters.

Advisen. Advisen has assembled a database of more than 750,000 unique historical loss events, known as Advisen's Loss Insight (formerly known as MSCAd). The database is for events that may relate to casualty, EPL, cyber, public D&O, and private D&O events.

The usual suspects?

To get a sense of potential suspects for the next asbestos, we reached out to Praedicat, a casualty catastrophe modeler. According to David Loughran, Senior Vice President of Product and Chief Economist, there are hundreds of potential candidates for the "next asbestos." Among the many risks Praedicat is monitoring are already-litigated risks such as talc and glyphosate, where advances in science could still affect the course of future litigation, and truly emerging risks like phthalates, bisphenol A, triclosan, and other endocrine-disrupting chemicals that may be contributing to increasing rates of childhood obesity and autism. "Because exposure is so widespread, these and other latent risks could easily generate $100 billion asbestos-like losses for the insurance industry," says Loughran. "The evidence potential plaintiffs need to prevail is not there now, but scientists worldwide are hard at work conducting the studies that one day could prove their case."

When asked how insurers can make the best use of the casualty catastrophe models that are on the market today, Loughran indicated that latent casualty catastrophe risks, once identified and monitored, can be managed like any other risky portfolio. "You just need the map that today's casualty catastrophe models provide. Imagine trying to manage flood risk without a flood map. You can't do it." With a map in hand, insurers can monitor their aggregations of specific perils and make informed decisions about whether those aggregations are acceptable.

The road ahead

Widespread use of casualty models can lead to refinements in casualty insurance underwriting and casualty accumulation management. Praedicat's Dave Loughran suggests that models could enable named-peril coverage of casualty catastrophe risk that is excluded on the CGL form.

Another potential casualty catastrophe risk management tool may be the development of ILS (insurance-linked securities) for casualty risk. Reliability of property cat models contributed materially to the maturation of the property cat ILS sector. Sophistication of casualty cat models may therefore also support the viability of casualty catastrophe ILS, where remote but potentially large risks can be efficiently transferred to the capital markets.

The recurrence of a casualty catastrophe is generally held to be a matter of "when" rather than "if." Insights from casualty cat models may not predict the identity and size of the next casualty catastrophe, but they can point insurers in the right direction.

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