RISK MODELING

Risk analytic providers and advisory firms explain the latest developments in risk modeling and analytics.

Interviewed Inside:

Derek W. Freihaut
Pinnacle Actuarial Resources, Inc.
Commitment Beyond Numbers.
The operative word is ‘commitment.’

Pinnacle is committed to our employees, to our profession, to our community, and most importantly, to you.

A full-service actuarial firm, Pinnacle’s mission is simple: We’re here to provide professional expertise and superior customer service. Through data-driven research backed by clear communication, we work hard to ensure that our work is of substantial value to your business. You can trust Pinnacle’s commitment to work with you to look beyond today’s numbers in planning for tomorrow.
Risk Distribution

Derek W. Freihaut, FCAS, MAAA, Pinnacle Actuarial Resources, Inc., said risk distribution is aggregating risk exposures to reduce the potential volatility of loss results. “It is the law of large numbers applied to insurance contracts. The more exposures an insurance company covers, the more diversified the losses are, and their results will tend to be more predictable.” The following are excerpts of an interview.

What is risk distribution and why has there recently been increased focus on it?
Risk distribution is one of the key components to determining if a company is a bona fide insurance company. Risk distribution has received more attention over the last several years as the captive insurance market continues to grow and the questions of what qualifies as an insurance company are debated in tax court. For many years tax courts focused on the number of unrelated entities involved. There has been a shift in this thinking based on the results of the 2014 Rent-A-Center and Securitas cases. Both of these cases moved the risk distribution focus toward the number of statistically independent exposures, such as the number of employees or insured vehicles. More recently, in the 2017 Avrahami case, a lack of risk distribution in a terrorism risk pool was a critical finding.

How can an actuary assist in determining if risk distribution is present?
While there are many qualitative ways to think about aggregating risk exposures to diversify risk, risk distribution is, at its core, a statistical, and therefore, actuarial issue. As the courts have moved from focusing on existing safe harbors for risk distribution (such as brother/sister models or risk pools) to consideration of the number of independent exposures, actuaries are well suited to assist captive managers and owners. At Pinnacle we have developed an actuarial method to make an objective determination as to whether there are enough independent exposures to create risk distribution in a captive insurance company. We have recently submitted a paper for publication detailing the development of the Expected Adverse Deviation, or EAD, ratio. EAD is a measurement of how much adverse deviation an insurance company is exposed to based on the exposures they are covering.

What are some of the practical considerations in a risk distribution analysis?
In developing and testing the EAD ratio across a wide variety of insurance companies we found that certain types of coverage achieve the necessary amount of risk distribution with fewer exposures. Specifically, risk is distributed more easily for coverages that have more frequent claims, lower exposure to high-severity losses, and are not highly correlated. This is intuitive since risk distribution is the reduction in variability of an insurer’s results by aggregating independent risks. These types of risks are much more predictable. On the other hand, risks such as hurricane or terrorism exposure are low-frequency, high-severity, and can be highly correlated. It requires a significantly higher number of risks to achieve risk distribution for these types of exposures.