A.M. BEST

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Catastrophe Analysis in A.M. Best Ratings

A.M. Best Co. considers catastrophic loss, both natural and man-made, to be the No. 1 threat to the financial strength and credit quality of property and casualty insurers due to the significant, rapid and unexpected impact that can occur. While many other exposures can affect solvency, no single event can affect policyholder and debt-holder security more instantaneously than catastrophes. Moreover, immediately following a significant event, the company retains its exposure base and subsequent events can occur prior to the implementation of any risk mitigation strategies.

Of concern is the rapid escalation in insured exposures over the past decade. Demographic trends and rising property values are driving the property concentration risk in catastrophe-prone areas upward. At the same time, the evolution of the global economy to a service-based industry has created an unprecedented geographic concentration of workers, thus changing the composition of catastrophe losses to incorporate workers' compensation in earthquakes and terrorist attacks. Moreover, a tremendous amount of this exposure is passed on to the insurers that provide coverages to the homes and businesses in these areas. As a result, the worldwide property and casualty insurance industry's exposure to catastrophe losses continues to rise.

Combined with the increased frequency and severity of losses over the past five years, these trends are challenging insurers and reinsurers to further improve their catastrophe risk management systems and controls, and provide stronger capitalization to support the risk. Experts in the fields of climatology and meteorology have submitted that global warming is contributing to the unprecedented number of severe events occurring worldwide in recent years representing a fundamental shift in the expectation for the frequency of their occurrence. The worldwide political environment and the technology of warfare, also have experts prognosticating that man-made events will occur with increasing frequency.

Accordingly, A.M. Best has been increasing its surveillance of the catastrophe exposures of primary insurers and reinsurers alike and continues to refine the methodology for evaluating insurers' financial strength to reflect their ability to manage the potential losses. Regardless of the underlying reasons for changes in the climate or political environment, insurers knowingly accept risk with the intent of diversifying the loss, and in order to maintain their ratings, they must demonstrate their financial wherewithal to absorb the potential loss.

Today, most insurers utilize sophisticated catastrophe modeling tools, primarily those provided by specialized firms with extensive meteorological, seismological, statistical and technological resources, to provide loss estimates. The hurricane events of 2004 and 2005 have reminded us that while the models are extraordinarily useful in the analytical and underwriting process, they are only tools and cannot be relied upon solely for the management of maximum exposures. The models are dependent upon the veracity of the data input, subject to manipulation through the use of various options that can add to or reduce the net Probable Maximum Loss (PML) and cannot cover every possible situation. Accordingly, A.M. Best still believes that the catastrophe models are a valuable tool in monitoring the normal distribution of potential catastrophe losses, and will continue to utilize modeled output in its evaluation of capitalization through Best's Capital Adequacy Ratio (BCAR). However, A.M. Best also believes that careful monitoring of zonal aggregates is critical to understanding maximum potential loss.

The output from any credible model is acceptable, as requiring output from one particular model could limit the practice of utilizing multiple models to gain greater information, increase costs for insurers that do not utilize the chosen model, and limit competition among modeling

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Questions regarding A.M. Best's methodology for catastrophe analysis can be directed to Matt Mosher, group vice president of property/casualty ratings.

firms, ultimately discouraging continual improvement in the technology.A.M. Best expects that those companies with strong risk management have considered the quality of the model they are using, as well as other techniques to monitor exposure within their catastrophe management program. Given the latest information on the effects of global warming and the multidecadal cycle in the Atlantic Ocean, as well as the information derived from Katrina, the version of the model used and when it was developed is a very important consideration.

Another issue in the use of any model is the parameters utilized in running the model.Historically, analysts have gathered information through the Supplemental Rating Questionnaire (SRQ) or other similar requests for information regarding which items are included in the modeled output. Beginning with the 2006 data requests, including the SRQ or other questionnaires outside the United States for the business of 2005, A.M. Best will require the options for demand surge, storm surge, fire following earthquakes and secondary uncertainty to be selected for inclusion in the loss estimates. Material sources of catastrophe risk, such as property structure and contents, additional living expenses, business interruption, flood, auto/motor physical damage, workers' compensation, energy, ocean and inland marine, and crop will also be required to be included in the loss estimate. These requirements will enhance the standardization of the assumptions underlying the PMLs. If these items are not included in the PML estimate, the expected loss estimate will be increased by some margin for inclusion in the BCAR. A.M. Best analysts also will review aggregate-insured value data by territory and engage management in discussion of maximum exposure and risk appetite. Where modeled data are unavailable, the aggregate zonal information is necessary to develop an appropriate stress test.

For companies with natural catastrophe exposure from property or workers' compensation business, A.M. Best includes the probable maximum loss from a reasonably severe event (defined as a 1-in-100-year hurricane/windstorm or 250-year earthquake) in its calculation of a company's standard BCAR score, which is published in its company report. Best's Capital Adequacy Ratio (BCAR) is the main tool utilized in the evaluation of a company's operating capitalization. While A.M. Best focuses on the estimated exposure to a 1-in-100-year hurricane/windstorm and a 1-in-250-year earthquake, the level of reinsurance protection purchased by a company is also reviewed. Company management should focus on their own level of risk tolerance in establishing the amount of reinsurance protection they buy. The amount of protection bought beyond the exposure included in A.M. Best's capital model is considered in the overall assessment of a company's capital position. Further, PML is an expected amount, and analysts need to look beyond a specific number to consider the volatility in the output to determine the true risk in the capitalization. In theory, if an insurer prudently manages its risk accumulations and is conservative in its appetite for surplus or earnings exposure, it should be able to withstand a reasonably severe event without a change to its ratings.

In addition to requiring a company to maintain capitalization that can withstand the net, after-tax hit to surplus from this severe event, A.M. Best analysts perform a further stress test on the capitalization of an insurer by adjusting BCAR for a second event. In this stress test, the after-tax net PML of the first event, including retention, co-participation, reinstatement premiums on catastrophe reinsurance contracts, is subtracted from capital and surplus in BCAR. Reinsurance recoverables are

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increased by 80% of the difference between gross and pretax net PML (retention and co-participation) of first event, and reinsurance credit risk factors are changed to reflect the potential for a one level downgrade to reinsurers on the program. Eighty percent of loss reserves for pretax net PML (retention and co-participation) of the first event are added to existing reserves. Equalization, catastrophe or similar reserves (in particular in Europe) are taken into account when assessing the impact on available funds.

Finally, the after-tax net (retention, co-participation and reinstatements) PML in BCAR for second event are deducted from economic surplus. The PML used for the second event is the same as the first event in the case where hurricanes/windstorms are the major risk, as the occurrence of a major hurricane/windstorm has no influence on the potential severity of subsequent events. Where earthquakes are the major exposure, the second event is reduced to a 1-in-100-year event, reflecting the fact that a major event relieves pressure along the fault line, making an event of equal magnitude in the same region less likely in the near term. However, if a company has exposure to multiple quake areas or both earthquake and hurricane/windstorm, and the 1-in-100-year PML for the same region is less than the full event in another area or from another peril, the greater will be used.

For companies with exposure to losses arising from terrorism, a similar stress test is applied utilizing either modeled loss output or 50% of the largest aggregate exposure as disclosed in the SRQ or similar requests for the first event. Within the stress test, A.M. Best will evaluate the largest exposures individually, those exposures that are part of a campus layout could be considered to have much lower risk and be charged at a percentage well below the 50% level, where as an exposure in a high rise could be considered higher risk. The risk characteristics of any exposure could greatly change the stressed charge it creates. If the territory that generates the largest gross and net exposure (excluding TRIA in the United States) differ, A.M. Best analysts will perform two stress tests - one for each event to see which has a greater impact on capitalization. The stress test for terroism exposure is calculated in the same manner as that for natural catstrophe exposure and the after-tax net (retention, co-participation and reinstatements) PML for natural catastrophe is then applied to the economic surplus in BCAR for a second event. The effect of terrorism pools on the net loss is accounted for where available.

Because the stress test looks at only the worst case, A.M. Best then looks at how many areas of concentration a company has. The more areas of concentration a company has, the more the company is at risk. These types of severity losses render expected loss inclusion meaningless, because the frequency lowers expected loss significantly, and it will not provide a conservative view of capitalization if there was a loss, which is the focus of the stress test. Consequently, companies with a greater exposure to frequency will have less tolerance for the stressed BCAR to be below the current rating level.

This analysis provides a preview of a company's BCAR score as if the event actually occurred, and reflects the notion that the company's exposure remains the same after the event as it was on the day of the event. While insurers may revise their underwriting strategy or risk appetite following a severe event, it can take up to a year to change the exposure profile. The stressed BCAR may be up to a maximum of 30 points below the BCAR score required to support the stand-alone group/company rating (which may differ from the current published rating). The stressed capitalization could fall below the minimum requirement, if there is comfort that capital can and will be replaced quickly in the aftermath of the event and depending on the risk management of the company being evaluated. The analyst's knowledge of the availability of funds, the source of those funds and in what form funds would be available plays an important part in the determination of what BCAR is necessary after the event. For property concentrated writers, the stress-tested standard threshold is higher, and in most cases will need to be several levels higher than the published rating (e.g., at least 175 BCAR for Class of 2005 start-up company to obtain an A- rating). However, there is no one BCAR score that equates to a given rating level for all companies.

In the end the determination of the appropriate capital to support a company's catastrophe exposure will be based on the overall quality of the company's risk management, as well as the financial flexibility and anticipated willingness to replenish any lost capital. However, A.M. Best's view of the ability to replenish lost capital should be expected to vary depending on the industry's catastrophe loss exposure and the capital market's perceived willingness to provide necessary capital. Additionally, the willingness of capital markets to provide an individual company necessary capital could vary depending on that company's own historical track record.

In addition to stress testing the operating capitalization of the (re)insurer, A.M. Best also analyzes the potential impact on financial leverage by adjusting total debt to total capital and coverage ratios as if capital is replaced through debt issuance. Certainly, companies with access to capital may elect to replenish lost funds through the issuance of equity, but the stress test is designed to provide a picture of how leveraged a company could become under certain circumstances.

Specifically, in the calculation of the total debt to total capital ratio, equity is reduced by the after-tax net PML of the first event used in BCAR. For companies with access to various forms of capital, it is assumed that capital is replaced through debt issuance. While the most obvious way for companies to access capital is through the public capital markets, private companies and mutuals may have access to capital through sources such as private investors, or trust preferred securities or surplus notes issued through a pool.

Assumptions are then made as to the annual interest expense of capital raised, with consideration for prevailing market rates and credit ratings. Estimates of earnings coverage of interest and holding company sources and uses of cash, are then developed using the most recent information obtained from the company.

A.M. Best believes that individuals, businesses, local, state and federal authorities and the insurance community need to work together to increase preparedness for both natural and man-made disasters. Despite the tragic loss of life and severe displacement caused by hurricanes Katrina, Rita and Wilma in 2005, the worldwide property and casualty insurance industry had the balance sheet strength and claims handling resources to respond to events of this magnitude, as well as the resilience to continue to meet the needs of its clients in the aftermath. While the risk management capabilities or risk appetite of some individual insurers and reinsurers were called into question during the hurricane/windstorm seasons of 2004 and 2005, requiring recapitalization and/or a reevaluation of the business model, few downgrades were required and no insolvencies of rated entities occurred, indicating that A.M. Best's analysis of catastrophic loss is resulting in appropriate ratings. The enhancements to the catastrophe stress test described above are designed to provide even greater insight into the risk.

In the wake of record profits and shareholder's funds balances, the debate over excess capital has re-emerged with new zeal. From a financial strength and credit perspective, this debate only has merit if it includes an evaluation of risk — whether that risk is one of shock loss or slow emergence of loss – and the financial flexibility of an organization. For in the end, excess capital is only excess until you need it.

Notes: All information on the stress test and assumptions can be shared with management on request. Published BCAR scores do not include stress tests.

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