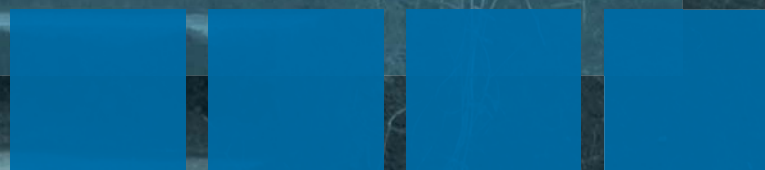


# Rating Agency Update

Stepping Up To New Criteria

November 2006



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## Introduction

The purpose of this report, which was prepared by Guy Carpenter's Financial Services Group (FSG) and Financial Integration Team (FIT), is to summarize the developments in the major rating agencies' views on catastrophic risk, economic capital models, enterprise risk management, insurance linked securities and sidecars since the storm season of 2005. This report encompasses the information included in the five Rating Agency Updates published in the past year.

In the aftermath of Hurricane Katrina and its significant impact on certain companies, several of the major rating agencies announced changes to their approaches for evaluating companies' capital adequacy and risk management processes and controls. The rating agency methodology changes, coupled with catastrophe model changes, have had a significant impact on the amount of capital and/or reinsurance protection needed to achieve a given rating. Given this pressure on capital, some companies have reduced exposures, some bought more reinsurance and others accessed nontraditional capital sources such as catastrophe bonds or sidecars.

Guy Carpenter continues to be concerned that rating agency capital model changes, combined with the updates to the catastrophe models for certain perils (such as U.S. wind), will lead to an overweighting of catastrophe risk in the required capital calculated by the rating agencies. Guy Carpenter is committed to ensuring a good exchange of quality information among the rating agencies, catastrophe modeling firms and our clients. We have met with the four major rating agencies to keep a pulse on all the latest developments, including discussion of common issues and concerns, and impart our expertise in working with catastrophe models. During the summer, Guy Carpenter hosted halfday meetings with A.M. Best and Standard & Poor's (S&P) at its New York headquarters. Topics included in-depth discussions about the agencies' use of capital models and the incorporation of catastrophic risk and Enterprise Risk Management (ERM) in the rating process.

We provided the agencies with important points to consider on such issues as using aggregate vs. occurrence PMLs as well as near/medium-term vs. long-term wind frequency event sets. We also demonstrated i-aXs™, Guy Carpenter's new web-enabled data management platform, to show that Guy Carpenter's U.S. property catastrophe clients who utilize i-aXs will be able to clearly articulate their risk positions and demonstrate enhanced control of their catastrophe management process.

A summary of the latest views and methodology changes from the rating agencies on catastrophe risk, capital models, companies' own economic capital models, ERM, insurance linked securities and sidecars follows.

## Catastrophe Risk - Natural and Manmade (Terrorism)

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Some of the key changes in the way each rating agency incorporates both natural and manmade catastrophic risk follows. In addition, see Appendix A for a comparative table on treatment of natural catastrophe risk by agency.

Both A.M. Best and Standard & Poor's (S&P) have stated that while they will not specify which third party catastrophe model a rated entity should use, they expect companies to submit wind loss estimates using the five-year horizon frequency assumptions (near- or medium-term event set, depending on the respective catastrophe model). Moody's will use a short term frequency event set in the industry exceedance curves used in its MRAC model. Fitch has not yet stated which event set it will use.

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### A.M. Best

A.M. Best believes that natural and manmade catastrophes are the number one threat to a company's financial strength. It has announced that it is increasing surveillance and refining its methodology for evaluating the impact of such catastrophes.

#### Natural Catastrophe

The published Best's Capital Adequacy Ratio (BCAR) for insurers and reinsurers will continue to have statutory capital adjusted to include the after-tax impact of one net catastrophe PML based on the larger of a one-in-100 windstorm or one-in-250 earthquake event. The adjustment includes the impact of reinstatement premiums and layer co-participations.

A.M. Best also addressed the issue of catastrophe model selection and noted that a company should choose the catastrophe model that it believes best reflects its catastrophic risk exposure. For a single state writer, A.M. Best notes that a much better way to evaluate acceptable catastrophic risk is a scenario-based stress test or aggregate loss exposure rather than using a PML. We are concerned that this approach will create a higher threshold for single state writers than for national insurers. A probabilistic approach equalizes the level of risk for all insurers, whereas the choice of scenarios may require single state writers to carry capital to cover much lower probability events.

The loss estimates presented to A.M. Best must be based on the shorter-term frequency event sets and must include:

- > Demand surge (loss amplification, using the new RMS terminology)
- > Storm surge
- > Fire-following earthquake
- > Secondary uncertainty
- > Loss adjustment expenses

The estimates should also include the following coverages:

- > Property structure and contents
- > Additional living expenses
- > Business interruption
- > Flood
- > Auto/motor physical damage
- > Workers compensation
- > Energy
- > Ocean marine
- > Inland marine
- > Crop

A.M. Best recognized that the availability and quality of the information being requested varies greatly from company to company. In some cases, companies had to have discussions with their analysts about these issues.

In addition, A.M. Best expects loss adjustment expenses to be included in catastrophe loss estimates. Since the probabilistic estimates generated by the catastrophe models do not include loss adjustment expenses, a specific adjustment will be required to incorporate them.

A.M. Best changed the stress test for natural catastrophes for insurers and reinsurers. For some time, A.M. Best has utilized a stress test to evaluate the impact to BCAR of a second catastrophe event at the greater of a one-in-50 level wind event or a one-in-100 earthquake event. A.M. Best now utilizes a stress test based on a second event which will be the greater of the one-in-100 level for a wind or earthquake event.

The stress test includes making adjustments for the impact of the first catastrophic event on reinsurance recoverables and net loss reserves (to which capital charges are applied), each of which will be increased by 80 percent of the ceded and net PMLs, respectively. The capital charges for reinsurance recoverables will also be increased.

**Terrorism**

For companies with terrorism exposure, a similar stress test will be performed. The terrorism loss will be either the modeled loss (the estimated loss from a five-ton bomb) or 50 percent of the largest aggregate exposure. The percentage applied to the loss will be evaluated individually based on the characteristics of the largest exposures. In other words, 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 percent level, whereas an exposure in a high-rise building could be considered higher risk. The risk characteristics of any exposure could greatly change the stressed charge it creates.

The loss amount will include recoveries from commercial reinsurance but exclude related TRIA recoveries, and be net of tax. If the territory that generates the largest gross and net of commercial reinsurance loss differs, then A.M. Best will perform two stress tests – one for each event to see which has a greater impact on capitalization. The event with the greater impact on capitalization will be applied to the economic surplus in BCAR. The BCAR score needed to pass this stress test will vary based on the number of areas with loss exposure greater than 20 percent of surplus and the location of those areas of concentration.

As noted above, the terror stress test measures the impact on capital of a terror event without consideration for the U.S. Terrorism Risk Insurance Act (TRIA) recoveries. A. M. Best will be focusing over the next year on management's plans for dealing with terrorism risk and the eventual absence of TRIA. These plans will have an impact on the application and consideration of the terror stress test on a company's rating.

**BCAR and Stress Tests**

BCAR and stressed BCAR will be examined using the greater of two natural catastrophe PMLs, or the PMLs from a terror event plus a natural catastrophe.

A.M. Best will allow the stressed BCAR score (under either of the second event or terrorism event) to be as many as 30 points below the BCAR score specifically required to support a company's rating. (This "required BCAR score" refers to the score determined by its analyst as the company's threshold, not to the minimum BCAR score for a rating level.) A 15-point drop will apply for some companies that A.M. Best believes have significant catastrophe exposure with weaker risk management capabilities and/or less financial flexibility. The higher threshold (30-point BCAR reduction) applies only when A.M. Best is comfortable that: 1) capital can and will be replaced quickly in the aftermath of an event, and 2) catastrophe risk management by the company is "robust." A.M. Best issued a report which details what is expected of a "robust" catastrophe risk management process, which is discussed in a later section of this report.

Upon request, A. M. Best will disclose to companies their specific required BCAR scores to support their current ratings and their stress-tested BCAR results.

A.M. Best is not changing its published minimum BCAR levels for a given rating. It clearly states that no one BCAR level equates to a given rating for all companies. Also, for property concentrated writers, the stress-tested standard threshold is higher and in most cases will need to be several levels above the published rating (e.g., at least 175 BCAR for a "Class of 2005" start-up company to obtain an A- rating).

In addition to stress testing capitalization, A.M. Best will analyze the potential impact on the financial leverage by adjusting the total debt to total capital and coverage ratios assuming capital is solely replaced through the issuance of debt.

A.M. Best's view of the ability to replenish lost capital is expected to vary depending on:

- > The industry's catastrophe loss exposure and the capital markets' perceived willingness to provide the necessary capital.
- > The willingness of capital markets to provide an individual company with the necessary capital.

#### **View of Strong Catastrophe Risk Management**

A.M. Best released a methodology paper entitled "Catastrophe Risk Management Incorporated within the Rating Analysis" to clarify its position on strong catastrophe risk management. A.M. Best believes that the keys to strong catastrophe risk management program are as follows:

##### **Emphasizing and understanding data quality through:**

1. Senior management's resource commitment
2. Proper coding of loss exposure
3. Geo-coding of properties
4. Auditing of exposure coding, including site visits
5. Using the most current Insurance to Value information

##### **Monitoring exposure by:**

1. Using one or more catastrophe modeling tools
  - > Using the latest tools available
  - > Adjusting parameters to reflect the most current information
  - > Being able to explain why the output from the chosen model(s) best represents the company's catastrophe exposure
2. Reviewing aggregate loss exposure accumulations
3. Considering potential loss scenarios in addition to modeled output
4. Using a frequent and consistent process
5. Managing to realistic loss scenarios, not the lowest case loss estimates

**Implementing controls including:**

1. Establishing levels of acceptable exposure including specific zonal aggregate limits using a reasonable and defensible basis
2. Purchasing an appropriate reinsurance program based on an assessment of all available tools
3. Integrating catastrophe management into the underwriting process
4. Clearly articulating the company's catastrophe risk management program and how the company ensures that controls are effective

**Insurer Failures from Mega Cat**

In its special report *Shake Rattle and Roar, 2006 Annual Hurricane Study*, dated May 2006, A.M. Best concluded that a mega-hurricane (defined as an industry event of approximately \$100 billion) would cause rating downgrades and financial impairments. Approximately 20 to 40 primary insurers or 3 percent to 7 percent of all primary writers with catastrophe exposure would be vulnerable to failure. The companies at greatest risk of impairment are thinly capitalized companies with vulnerable A.M. Best ratings (B and below) or those not rated by A.M. Best.

A.M. Best's study shows that only one event, the 1906 San Francisco earthquake, was greater than 20 percent of the industry's surplus. This amount would be equivalent to an \$87 billion event today. Catastrophes with losses less than 5 percent of industry surplus cause little financial distress. Catastrophes with losses of 10 percent of industry surplus or greater result in financial failures. There were three years (The New England hurricane in 1938, Hurricanes Andrew and Iniki in 1992, and 2005 Hurricanes Katrina, Wilma and Rita) in which the storm damage was between 10 percent and 20 percent of industry surplus. These events resulted in financial failures of 10, 16 and four insurers, respectively.

**Standard & Poor's****Natural Catastrophe**

S&P has revised its criteria for measuring catastrophe risk for primary insurers. The revised criteria will be an exposure-based catastrophe capital charge for insurers similar to the capital charges previously introduced for reinsurers. The criterion for reinsurers did not change. This charge will be based on the net expected annual aggregate property losses for all perils at the one-in-250 level. In the past, S&P has included an implicit charge for catastrophe exposure in the underwriting capital charges applied to property lines.

S&P will apply a premium offset to the catastrophe PML to recognize the short-tail nature of property premiums in that premiums collected early in the year could be used to offset or reduce a catastrophe event later in that same year. According to S&P the premium offset within the PML will be based solely on the catastrophe-load premiums that are directly associated with the one-in-250 year PML, less a 30 percent expense ratio.

With the addition of the explicit catastrophe component, the risk factors applied to premium will be reduced by 5 percent. If a company can provide information on its catastrophe load and pricing methodology, then the factor offset could vary between 10 percent to 30 percent for nationally or globally diversified companies. For companies significantly concentrated in areas like Florida or Japan, the premium offset factor could be as high as 50 percent, while a company concentrated in one location with minimum catastrophic risk might have no premium factor reduction, although the corresponding PML would be expected to be low.

**STANDARD & POOR'S PREMIUM RISK REDUCTION FACTORS FOR PRIMARY CARRIERS**

Default	5%
Minimal Catastrophic Exposure	0%
Geographically Diverse	10% to 30%
Concentrated	Up to 50%

S&P's new criteria will be phased-in over the remainder of 2006 and into 2007. Some rating changes could occur in the short term, but these changes are expected to be the exception. The majority of rating changes resulting solely from this criteria change will occur in 2007 for companies that do not manage their risks to a level consistent with their current ratings.

**Terrorism**

S&P released a new terrorism questionnaire in June 2006. Each S&P analyst determines whether a survey is required from each reviewed company and the timing of the response. Although S&P will be collecting this terrorism information as part of the data used in its overall evaluation of a company, it does not plan to make any changes to its capital model to address terrorism. Terrorism is currently a component of the risks included in the premium and reserve factors applied in its capital model. Longer term, S&P expects to use the information to benchmark companies' terrorism exposure. S&P will review all companies for the level of terrorism risk accepted. It will look carefully at those companies that accept large concentrations of terrorism risk relative to their overall books of business and capital and don't have sufficient risk-management practices in place to mitigate those risks. Some key elements of the survey are as follows:

- > Global exposure information, for U.S. both certified and noncertified
- > Personal, commercial and assumed reinsurance
  - > Property, workers compensation, aviation, marine and other
  - > Nuclear and biological
- > Five largest locations for a two- to five-ton truck bomb, six- to ten-ton truck bomb, and 25-ton truck bomb (disclosing the radius inherent in the footprint).
- > Gross and net (net of deductibles and reinsurance). If a company includes TRIA recoveries in its net figures, then S&P would expect to see the impact of these TRIA recoveries.

In the United States, if TRIA is not renewed – or its renewal offers minimal protection to insurers and no private market alternatives are developed - S&P states there would likely be rating downgrades.

## Moody's

**Natural Catastrophe**

Moody's released new industry gross aggregate exceedance curves by catastrophe peril used in its US MRAC capital model. A summary of the percentage changes from prior published amounts at the one-in-100 and one-in-250 level follow:

**WIND**

RETURN PERIOD	S. ATLANTIC WIND	GULF WIND	MID-ATLANTIC WIND	N. ATLANTIC WIND
250	59%	307%	83%	24%
100	58%	305%	54%	-10%

**EARTHQUAKE**

RETURN PERIOD	NEW MADRID (1)*	NEW MADRID (2)*	CALIFORNIA EQ	PACIFIC NW EQ
250	65%	65%	15%	15%
100	90%	90%	0%	0%

\*New Madrid (2) is the outer concentric circle of the earthquake region for New Madrid (1)

When assessing a reinsurer's financial strength, Moody's reviews the output of catastrophe models along with responses to its in-depth catastrophe surveys completed by certain companies.

The surveys address both quantitative information, such as annual aggregate loss exceedance curves and exposure data, and qualitative issues, such as aggregation management, data quality and model usage. Moody's also uses stochastic models, where practical, to assess the effect of catastrophes on earnings and to estimate the probability of default and the expected loss to policyholders/bondholders over a given period. Moody's believes stochastic modeling is most useful for reinsurers that specialize in catastrophe business as well as structured vehicles such as reinsurance sidecars and catastrophe bonds.

**Terrorism**

Changes made to the TRIA program in December 2005 suggest that the U.S. government plans to exit the terrorism risk reinsurance business by the end of 2007. Private reinsurers are unlikely to fill the void, other than through their reinsurance of workers compensation and certain catastrophe programs subject to limits. Essentially, insurers have obtained some time to develop a more comprehensive solution to terrorism risk.

In general, Moody's views terrorism risk like any other catastrophe risk faced by insurance companies. Moody's believes while significant progress has been made in the past several years with respect to modeling terrorism risk, it remains inherently difficult to derive frequency assumptions. As a result of the difficulties faced in modeling terrorism risk and the general lack of substantive public disclosures related to terrorism exposures by insurance companies, Moody's takes a cautious approach to terrorism risks. Moody's typically compares gross terrorism exposure and net terrorism exposure after private market reinsurance and TRIA to a company's surplus and capital. TRIA deductibles are substantial, and it is not clear to what extent affected companies would be able to adequately recapitalize in the event of another major terrorist attack.

Terrorism events that results in losses of less than 10 percent of an insurer's equity capital are not likely to have a ratings impact, unless they cause a change in the industry's risk profile or result in further disruption to the financial markets more broadly.

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**Fitch****Natural Catastrophe**

In June, Fitch released an exposure draft on its new stochastic global economic capital model called PRISM. The model will be used for all risks of reinsurers and insurers, including catastrophic risk. Fitch will no longer simply focus on the one-in-100 catastrophe event. Instead, Fitch will be using AIR's CATRADER model to evaluate companies' catastrophe risk based on a tail value at risk (T-VaR) measurement. This measure will take the average of the aggregate modeled losses from 10,000 standard events running from a specific return period (i.e. one-in-100 year event) to the end of the distribution. The model will incorporate the annual aggregate exceedance probabilities. Fitch has not yet detailed the required levels of capital for each rating level under this model.

**Terrorism**

With respect to terrorism, if TRIA is not extended beyond 2007 and an alternative federal solution is not identified, Fitch believes that the demand for specified terrorism reinsurance protection will increase, thus creating both opportunities and threats for the reinsurance sector. Fitch is skeptical that reinsurers have sufficient underwriting information and modeling capabilities to underwrite terrorism exposures with the same level of technical expertise that is used to underwrite other cat exposures.

**Overall Capital Needs Up 10 Percent**

Fitch projected that overall capital requirements for insurers with catastrophe exposure will increase on average by 10 percent due to the changes in the catastrophe models as well as Fitch's change to TVaR methodology. Embedded in the 10 percent overall capital increase is an estimated 40 percent to 65 percent increase in capital specifically allocated/needed to support catastrophic risks.

As Fitch believes that companies are taking action now or will in the near future to increase current capital levels, it does not expect that ratings will be impacted in the near term due to this change in methodology. Essentially, Fitch believes that any additional required capital has been offset via capital increases, additional reinsurance and catastrophe bond purchases as well as exposure reductions.

## Rating Agency Capital Adequacy Models

In addition to catastrophic risk, S&P and Fitch have announced significant changes to their economic capital models. A.M. Best is in the process of updating its BCAR model factors to be utilized for BCAR calculations during 2007. For detailed discussions, see Appendix B (BCAR) and Appendix C (S&P CAR).

### Standard & Poor's

S&P announced some of the changes anticipated to its capital model (S&P CAR). Key elements are as follows:

- > S&P CAR will remain a static model, not stochastic.
- > Previously the calculation of the total adjusted capital component of S&P CAR began with statutory surplus. This practice will continue for companies evaluated on a U.S. statutory basis. For companies evaluated on a GAAP or IFRS basis, the calculation of total adjusted capital will begin with shareholders' equity.
- > Changes will be made to asset risk factors, reinsurance recoverable factors, pricing risk factors (also known as premium risk factors) and reserve volatility factors. A new 20 percent risk charge for potential failure to collect reinsurance recoverables on asbestos, environmental pollution and other similarly long-tailed liabilities was implemented in December 2006.
- > The catastrophe PML will be based on the assumption of higher frequency and severity, specifically the near/medium term catalogue of events.
- > There will be no quantitative credit for diversification, only qualitative.
- > S&P will now estimate an amount of capital required for a given rating rather than expressing a company's capital adequacy as a ratio compared to a benchmark.
- > These anticipated changes are being tested, and S&P will publish the proposed factors and solicit feedback over a three month period. The model changes will be finalized in the fourth quarter of 2006. Both versions of the model will be run in 2007.
- > Model changes are not expected to lead to rating changes immediately, but may perhaps in the intermediate term if a company's capital management strategies do not address any deficiencies identified.

### Fitch

Fitch has created a new in-house, simulation-based economic capital model called Prism. Some of the key elements follow:

- > The risk elements modeled include:
  - > Asset
  - > Credit
  - > Underwriting
  - > Loss reserve
- > Natural catastrophe modeling for both primary insurers and reinsurers will be property focused. The catastrophe PML will be based on TVaR measurement using the aggregate loss curve. The specific TVaR percentile has not been determined yet.

- > Operational risk will be included using a 5 percent to 15 percent load on required capital. The percentage will be determined judgmentally.
- > The impacts of diversification and correlation will be included.
- > The model output for required capital for a specific rating level will be compared to available capital. The proposed definition of available capital was released by Fitch in July 2006.
- > After beta testing, rated companies will receive, via their analyst, detailed model output and the critical assumptions and adjustments.
- > Results from Prism will be an important part of the rating process, but Fitch has not stated a specific weighting.

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Moody's

Moody's recently released a revised version of its capital model with the most significant change being the one related to catastrophe risk discussed above. Moody's has published a global property casualty insurer ratings scorecard, which is intended to be used to predict the likely rating into which an insurer's rating may fall (more information about Moody's new scorecard is included in Appendix D).

## Use of Companies' Own Economic Capital Models

Each of the four major rating agencies has now acknowledged the merits of incorporating, at some level, the results of companies' own economic capital models. To "give credit" for a company's own economic capital model, the rating agencies expect the models to pass the following tests:

### REQUIREMENTS FOR CREDIT FOR COMPANY'S OWN CAPITAL MODELS

QUALITY TEST	The model is disclosure-ready, transparent, and it and its results can be explained by management. The model must be sufficiently sophisticated and have all major risks incorporated. The data and model must be checked, validated and controlled. The model should have predicted actual results well.
ASSUMPTION TEST	Assumptions and related stress testing must be deemed appropriate by the rating agency. One important area is the comparison of model assumptions with the company's peers.
USE TEST	The model and its results must be well integrated into a company's day to day risk management process. Management must rely on the model results to make decisions. If the model indicates that a company is overexposed to certain risks, management should be able to show that it took action to mitigate those risks.

Given that the agencies are comfortable with the criteria described above, each agency will give credit in the rating process as follows:

- > A.M. Best will use a subjective weighting between the company's own model and BCAR when evaluating capital adequacy.
- > If a company's ERM process is rated strong or excellent, S&P's view of capital adequacy will be quantitatively influenced by giving some credit for diversification benefits implied by the company's own model. The precise methodology has not yet been determined. S&P will release additional information on the incorporation of a company's economic capital model into S&P's ratings in early 2007.
- > Moody's will use the output from a company's own model alongside its more established capital measures when forming a view of capital adequacy.
- > Fitch will subjectively weight capital generated from a) Prism (Fitch's new capital model), b) a company's own economic capital model, and c) regulatory capital requirements (the amount of capital in excess of the regulatory minimum).

None of the agencies will require companies to have economic capital models. However, to obtain a strong or excellent ERM rating, S&P will require an economic capital model.

## Enterprise Risk Management

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Each of the four major rating agencies has now acknowledged the need to consider a company's ERM in the rating process. S&P was the first agency to announce detailed criteria and review procedures in the latter part of 2005. A.M. Best followed with some comments in February 2006, Fitch in September 2006 and Moody's is expected to publish their views on insurance company ERM during 2006. See Appendix E for a comparison of the rating agencies' approaches to ERM.

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### Standard & Poor's

S&P has added an evaluation of a company's enterprise risk management capabilities to its existing evaluation categories:

1. Competitive Position
2. Management and Corporate Strategy
3. Operating Performance
4. Investments
5. Capitalization (capital adequacy)
6. Liquidity
7. Financial Flexibility
8. Enterprise Risk Management (economic capital)

#### **Components of ERM**

S&P will evaluate several aspects of the company's ERM program and form separate views on each part of the program. The major components of ERM are:

- > Risk management culture (philosophy toward risk and risk appetite)
  - > Part of the decision making processes
  - > Broadly understood and communicated internally and externally
  - > Not solely for regulatory reasons
  - > Risk management staff is independent and highly and appropriately qualified
  - > Risk management goals are aligned with the business goals and the compensation plan
- > Risk controls (management identifies, monitors, sets standards and limits, enforces risk limits and learns)
  - > Investment risk
  - > Insurance underwriting risk
  - > Catastrophe risk
  - > Reserve risk
  - > New product risk
  - > Operational risk

- > Emerging risks management
  - > Identifying emerging risks (risks that do not currently exist but that might emerge at some point due to changes in the environment)
  - > Assessing their significance
  - > Defining appropriate responses
- > Risk and economic capital models
  - > Indicative measures from corporate systems
  - > Predictive measures, timely, consistent with the complexity of risk, cannot look at one measure as risk is multidimensional
  - > Sensitivity measures
  - > Amount of capital needed to support retained risk
  - > Capital Adequacy Ratios (CAR) and Risk Based Capital (RBC) models are not full economic models and would be viewed as a weak practice by S&P
- > Strategic Risk Management (SRM)
- > Retained risk profile, strategic asset allocation, product risk/reward, optimizing risk adjusted results, dividend impact, rewarding performance
- > A company can have superior “risk management” focused on the prevention of losses outside its risk tolerance (avoidance of unpleasant surprises), but will receive only an Adequate ERM rating if it does not have an SRM process. SRM involves making strategic trade-offs between products with credit, interest rate, equity and insurance risks based on a long term view of risk-adjusted return for all of their choices. SRM practitioners recognize that they have choices between using their capacity to increase retention or to take investment risks.

**ERM Ratings**

Companies’ ERM will be rated as weak, adequate, strong or excellent as follows:

**ERM RATINGS**

<b>WEAK</b>	Weak insurer lacks or has incomplete control systems for one or more important risks
<b>ADEQUATE</b>	Adequate insurer has competent, traditional, silo type of risk management program for controlling most important risks and may not have a fully developed process to optimize risk adjusted returns
<b>STRONG</b>	Strong insurer has all characteristics of adequate risk management but also has risk control practices that exceed the adequate level for its major risks. Also, it has a well developed overall view of risks, with the view of making risk/reward tradeoffs among the risks, and it has a process for anticipating emerging risks.
<b>EXCELLENT</b>	Excellent insurer has all characteristics of strong risk management and is more advanced in the development of the processes, in implementation or in effectiveness of execution. Consistently optimizes risk adjusted returns throughout the organization.

Companies with excellent ERM have a robust risk management process that is used across the entire enterprise and forms the basis for the firm's fundamental decision making. S&P thinks that there may be 50 entities globally that currently have robust ERM. It believes that ERM will be a leading indicator of the types of future problems. S&P foresees insurers developing strong ERM programs during hard market cycles, while a weakening of their ERM standards might signal the turn in the cycle.

It is our understanding that, while S&P's evaluation of a company's ERM has not had an impact on ratings, in some cases the ERM rating has had an impact on the outlook for the rating. S&P will not develop its own ERM model, but anticipates asking companies to run certain scenarios or use certain assumptions in the company's own model.

The importance of ERM to the overall rating of an insurer will vary according to the insurer's situation. Two important factors in determining the importance of ERM are the ability to absorb risks—as demonstrated by the capital and access to capital of the insurer—as well as the complexity of the risks of the insurer.

#### ERM Evaluation Summary

A company's S&P analyst will review its ERM and prepare an evaluation summary, similar to the one below, and present it to the ratings committee. It will reflect the analyst's view of the overall ERM rating, rating for each of ERM component (and subcomponent for risk controls), importance of ERM to the company's financial strength rating and outlook for ERM.

#### STANDARD & POOR'S ERM EVALUATION SUMMARY

CATEGORY	OPINION	COMMENTS
Overall	Excellent, Strong, Adequate Weak	Key reason(s) for conclusion
Risks		Summary of the Risk Profile and major risks, now and in the future.
Earnings Volatility/ Loss Experience	High, Medium, Low Volatility	5 year history of earnings volatility and/or loss experience
Importance of ERM to Rating	Very High, High, Moderate, Low, Very Low	Will be high if company has complex risks and/or tight surplus position.
Risk Management Culture	Excellent, Strong, Adequate, Weak	
Risk Controls – Investment, Underwriting, Catastrophe, Reinsurance, Reserve, New Product, Operational	Excellent, Strong, Adequate, Weak	
Extreme Events & Emerging Risk Management	Excellent, Strong, Adequate, Weak	
Risk Models	Excellent, Strong, Adequate, Weak	
Strategic Risk Management	Excellent, Strong, Adequate, Weak	
Outlook	Positive, Negative, Neutral	Many companies will have positive outlook for ERM due to developing nature of ERM

### ERM Evaluation Results

As of August 2006 S&P had rated ERM for 160 insurance companies globally, including primary companies and reinsurers in the property casualty, life, and health sectors. A summary of the ratings results follow:

#### SUMMARY OF ERM RATINGS AS OF AUGUST 2006

ERM RATING	PERCENTAGE OF RATED COMPANIES
Weak	6%
Adequate	76%
Strong	14%
Excellent	4%

Not all the ERM ratings above have been published in the respective companies' full analysis ratings reports. Most of the excellent assessments are tentative and pending further analysis. S&P expects the proportion of strong and excellent assessments to decline as it analyzes the remaining insurers because its early analyses were biased toward the likely best exponents of ERM.

Within the underwriting/insurance risk control area, a company's procedures for cycle management are a key discussion point.

When a company uses a third party to provide key services within one of the key control areas, such as extreme events management, the rating for that control area may initially drop a notch. After discussions with the rated entity, if the third party is actively managed and is treated like another department of the entity then the rating would be reinstated.

Small companies are not exempt from needing risk management requirements. Size is not a factor; it is a matter of the complexity of the risks.

A component in the strategic risk management area is optimizing risk-adjusted results. A company must decide where on an efficient frontier it would like to be (risk vs. return trade off) and then manage to it. One example is a mutual company for which capital preservation and longevity are more important than high returns.

European insurers were evaluated favorably. S&P attributes this result to regulatory incentives in place in certain countries that favor ERM as well as Solvency II. Large national groups also tend to score well; given the diversity of their risks, these groups have the greater need and the greater capacity to invest in ERM.

In June 2006, S&P renewed its evaluation of ERM for the Asia-Pacific property & casualty insurance sector. Individual company reviews using the recently published criteria will be completed in early 2007. There is favorable evidence of formal ERM practices, capital modeling, judicious reinsurance purchases, disaster-recovery planning, and diversification from concentrations across the region. Countries with mature industries, strong regulation and stable economic fundamentals

have stronger ERM frameworks. Countries with higher economic and market risk and weaker regulation score poorly in ERM. The relative strength of ERM practices by country is as follows:

## ERM RATING BY COUNTRY

COUNTRY	ERM RATING
Australia	Strong
Singapore	Adequate to Strong
New Zealand	Adequate to Strong
Hong Kong	Adequate to Strong
Japan	Adequate to Strong
Korea	Adequate to Strong
Malaysia	Weak to Adequate
Taiwan	Weak to Adequate
Thailand	Weak to Adequate
China	Weak
India	Weak
Philippines	Weak

## A.M. Best

A. M. Best describes ERM as the further integration of risk management across an organization's operations – incorporating the assessment and monitoring of investment, underwriting, operational and reputation risks, along with greater sophistication in the modeling of the organization's risk. A. M. Best has reiterated that the ability of company to monitor and manage its capital position is important. A more detailed discussion between the analyst and company regarding a company's capital management tools will provide a better perspective of a company's risk tolerance and approach to managing capital.

A. M. Best is increasing its focus on ERM by:

- > Making ERM an integral part of the rating analysis and discussions with all secure rated companies. During 2006 ERM has been added as an agenda topic for company meetings.
- > Encouraging companies that use economic capital models to share the results.
- > Recognizing a company's output from economic capital models to assess their operations.

ERM will not be identified as separate rating category. Ratings will benefit qualitatively by a strong risk management program in A.M. Best's evaluation of capital strength, operating performance and business profile. Quantitatively, a strong risk management program and use of a company's own capital model is recognized in operating performance (through more stable historical earnings) and in the assessment of capital strength. While a strong risk management program is necessary to support higher ratings, a strong risk management program alone will not lead to a high rating. Adequate capitalization is still paramount in importance. A.M. Best will be publishing additional guidance on ERM later in 2006.

#### **ERM Questions**

A.M. Best is looking for management to answer the following questions:

- > To what extent does your company engage in risk management?
- > Are risks evaluated in an integrated framework?
- > What is your company's risk appetite?
- > What are your company's 5 largest risk scenarios? How are these risks monitored?
- > How does the company handle risk in its infrastructure and systems?
- > How does the company manage catastrophe risk? Are models used?
- > How good is the underlying data? Does the company perform scenario testing?
- > How are geographic, regulatory, legislative and judicial risks handled?
- > How does the company govern and control these risk exposures?
- > Are these risks correlated?

These questions are open-ended and may be interpreted and answered in different ways. A.M. Best intentionally avoids narrow questions to obtain an understanding of how each company views risk.

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#### **Fitch**

Fitch believes that ERM is not new and therefore no new component of its rating process is necessary. Fitch believes that some insurers implementing ERM may not become financially stronger due to a variety of pitfalls, including an over-reliance on internal models, excessive optimism and the everlasting challenge of not knowing the unknown. Fitch views the key elements of sound risk management to include:

- > Risk governance
- > Risk tolerance, monitoring and reporting
- > Risk assessment – economic capital modeling and catastrophe risk management
- > Operational risk analysis – including planning for the unknown
- > Risk optimism

In Appendix 1 to Fitch's *Ratings Special Report, Enterprise Risk Management for Insurers and Prism's Role*, it lists questions that analysts could ask related to the above categories.

Fitch believes the soft benefits of ERM include:

- > Common risk language within the organization
- > Early identification of problems or opportunities
- > Management process/tool aiding strategic and financial decisions
- > Crisis management
- > Greater organizational efficiencies

Although not completely new, ERM is nonetheless a significant step forward in industry risk management since its aim is to put together risk analysis previously done in silos and thus allow for better identification of overall risk levels and risk mitigation. Fitch believes that most instances of strong or weak risk controls are already reflected in its current rating opinions. Fitch currently views most insurers as having only fair ERM skills and does not expect to see much upward rating movement in the near future due to ERM practices alone.

## Insurance Linked Securities\*

### Standard & Poor's

S&P has clarified how it views catastrophe bonds in a company's risk management program, stating that, in moderation, catastrophe bonds can be effective tools for managing risk. It views catastrophe bonds as appropriate risk management tools but has several concerns about their use:

- > Catastrophe bonds usually provide coverage for a single occurrence with no reinstatement provision for a second event.
- > Parametric and industry loss bonds have basis risk between a company's own exposure and protection provided.

When assessing net catastrophe exposure, S&P assigns the same analytical weight as reinsurance to catastrophe bonds, but the ultimate treatment is driven by the demonstration of correlations between the protection from the catastrophe bond and the company's own catastrophe exposure. The company must conclusively demonstrate that the bonds will effectively mitigate its exposure to catastrophic risk.

Pros and cons considered by S&P are:

#### PROS AND CONS OF INSURANCE LINKED SECURITIES

PROS	CONS
Collateralization removes significant counterparty risk	Uncertainty of future capacity
Protection is usually locked in for several years	Tail risk – loss development after bond matures

S&P will use the most conservative version of the catastrophe models to evaluate catastrophe bonds. This is currently the versions of AIR, RMS and EQE that utilize the nearer-term hurricane frequency assumptions.

There will be a rating ceiling on natural peril catastrophe bonds from a single event, including those linked to multiple perils, of BB+ due to the risk exposure concentration and a ceiling on third event bonds of A+. However, if the number of natural peril catastrophe loss events is sufficiently large (minimum of five) and independent, then S&P may assign a maximum rating of AA. For a bond to be rated AA, S&P would expect there to be limited correlation among the modeled perils. In addition, the occurrence of any trigger event cannot result in a downgrade, based on the probability of attachment, of more than one rating category. S&P will have discussion with the modeling firm to verify the methodology and results. The presence of a fifth-event payout trigger is not a guarantee of an AA rating.

### A.M. Best

A.M. Best is looking increasingly more critically at how these transactions, in general, can affect the financial strength ratings of the insurance companies it evaluates. Within these analyses, A.M. Best takes into consideration the structural integrity of the transactions and the analytical rigor applied by various experts and advisors, such as actuaries, modelers and investment banks. These factors are critical components in determining whether the transactions' stated objectives will strengthen, weaken, or have no effect on the financial strength ratings of the (re)insurers. It is critical to understand specifically which risks are being transferred and what type of agreements are in place to shield investors from risks associated with catastrophes and terrorism.

\*Securities or investments, as applicable, are offered in the (i) United States through MMC Securities Corp., a US registered broker-dealer and member NASD/SIPC, and (ii) European Union through MMC Securities Ltd., regulated by the Financial Services Authority for the conduct of investment business in the United Kingdom. Reinsurance products are placed through qualified affiliates of Guy Carpenter. MMC Securities Corp. and MMC Securities Ltd. are affiliates of Guy Carpenter. \*Securities or investments, as applicable, are offered in the (i) United States through MMC Securities Corp., a US registered broker-dealer and member NASD/SIPC, and (ii) European Union through MMC Securities Ltd., regulated by the Financial Services Authority for the conduct of investment business in the United Kingdom. Reinsurance products are placed through qualified affiliates of Guy Carpenter. MMC Securities Corp. and MMC Securities Ltd. are affiliates of Guy Carpenter.



































