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Economic Capital Review Process For Insurers: Criteria Update

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Criteria | Insurance | General:

Economic Capital Review Process For Insurers: Criteria Update

On Jan. 31, 2007, Standard & Poor's Ratings Services released a request for comments regarding the developing economic capital review process.

Standard & Poor's received detailed comments from a large number of parties and industry bodies. We have reviewed these responses, and this article updates the progress we've made, with a response to the most common comments about our review criteria.

Economic Capital Review Process

Economic capital reviews are expected to be voluntary services for which Standard & Poor's will define criteria as to which firms will be eligible. This will include minimum standards for model robustness, execution, and use. All firms will need to have at least a 'Strong' enterprise risk management assessment before we will consider undertaking an economic capital review. These insurers will have demonstrated to us that their economic capital model (ECM) is an integral part of the way in which they manage their businesses and thus will tend to have better defined and more robust models. It is important that management relies on the ECM as a key management tool and not just as a determinate of capital adequacy. This requirement is similar to the use test being proposed by some insurance regulators.

The review process is expected to follow a broadly qualitative approach, with the process including a detailed review of existing documentation and interviews with management. Where appropriate or deemed necessary, Standard & Poor's will delve deeper into the processes for major risks, and this may include an element of quantitative analysis of subcomponents of the model.

We expect to use both our capital model as modified by analyst adjustments and the insurer ECM results to determine capital adequacy. The emphasis given to each in our deliberations will be determined through the ECM review process.

Economic Capital Review Considerations

After reviewing the comments submitted by more than 60 parties, Standard & Poor's has reflected on this feedback and can report some broad conclusions about the expected review process:

- Standard & Poor's will not prescribe a specific quantum for economic capital. The arguments given to support several significantly different metrics that are commonly used for different proposes were compelling. It is our expectation that there is not one single metric that can adequately capture all of the important aspects of risk for all of the different risks and management practices of insurers. Standard & Poor's will therefore ask that each insurer explain how the metric that they use appropriately captures each of their risks. However, our initial research has led us to expect that we will focus on an economic capital level that is consistent with the broad experience of default rates for the rating on the insurer. For some risks, it may be important that the model

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investigate potential losses on a run-off basis. For other risks, a going concern risk measure could be most appropriate. It may be necessary to look at the entire tail of the loss distribution using a measure such as contingent tail expectation shortfall. For some risks, a one-year Value at Risk (VaR) might be sufficient.
- The ECM should reflect all major risks and allow directly for any risk mitigation approaches used by the insurer (with results shown in gross and net).
- Diversification benefits should be explicitly calculated and their source should be identifiable, e.g., risk type, geographic, legal entity, and line of business etc. The diversification allowance would be expected to reflect any regulatory, tax, legal, or accounting restrictions on capital mobility. In addition, Standard & Poor's expects that the determination of diversification benefit would take into account some degree of tail correlation that is in excess of observed average correlation. The reduction of economic capital through diversification is expected to be one of the largest differences between ECM calculations and the Standard & Poor's Capital model. This topic will receive significant scrutiny by Standard & Poor's. Further study of the methods and assumptions that are in use will continue throughout the remainder of the year by Standard & Poor's.
- Details about review criteria for model robustness and execution will not be specified in advance of the initial model reviews. Those detailed criteria will be developed during the first-year review process. High-level discussion of these standards will be made public by the end of 2007.
- The model use standard is embodied in the definition of Strong ERM. For an insurer to have Strong ERM, Standard & Poor's requires that a strong strategic risk management (SRM) process be in place. An ECM is the most common risk measure that is used by insurers to support their SRM process.
- The review process will include review of the tests and methods that insurers have used to validate the model for their own usage. Standard & Poor's may develop a set of standardized tests after the initial review process has shown the specific tests that are already in use by insurers.

Detailed Responses On Major Comments Received

The request for comments article was divided into nine sections. The remainder of this article will address comments that were raised under the first seven sections.

Economic capital models request for comments topics:

- Risk quantum;
- General level of risks;
- Insurer specific variations in level of risks;
- Insurer specific exposures and offsets;
- Diversification effects;
- Model robustness;
- Model execution and use;
- Stress tests; and
- Use by Standard & Poor's.

Broadly, to the extent that there was a conflict between what Standard & Poor's expects to do and what was suggested in the comments, those conflicts were often caused by Standard & Poor's focus on capital adequacy alone. Insurer modelers are often focused on creating the model that will be the most useful for supporting risk management decision making. Those two considerations may pull in opposite directions on occasion. Standard &

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Poor's expects that insurers will want to have the most useful model. For the purposes of determining capital adequacy, Standard & Poor's may need to look at some things differently from the internal model.

Risk Quantum

The RFC proposed that a one-year VaR would be our likely focus

Feedback received.

Tail value at risk (TVaR) is a good alternate metric.

Our response.

We recognize that for some risks (those with unusually steep loss distribution curves that may vary based on specifics of each insurers' exposures and risk treatment) expected shortfall or TVaR is a better indicator of risk. Where such risks are significant for an enterprise, TVaR, either applied comprehensively or calibrated equivalently to a VaR measure, will likely be accepted as an appropriate risk metric. TVaR is an indication of the average size of loss that would occur when a probability threshold is exceeded. That concept is consistent with the recovery analysis that Standard & Poor's has been recently incorporating into our ratings for speculative-grade securities. An unusually high TVaR would be similar to a low expectation for recovery.

The RFC proposed that our focus would be on a one-year risk metric

Feedback received.

A run-off approach is a better metric for some risks.

Our response.

We recognize that for some risks a run-off approach gives a better indicator of risk. Therefore this will be accepted as an appropriate risk metric. This is especially the case where the risk being considered is long term in nature (for example, longevity or embedded options at maturity) or can be mitigated by management actions (for example, discretionary bonuses). We would want to make sure that the time horizon adequately reflects the risk that is being considered. This is of particular concern for risks that cannot be hedged in the market as well as for risks that are not hedged by the insurer.

Capital available to be compared with economic capital

Feedback received.

Capital available should be measured on a market/economic value basis for both assets and liabilities

Our response.

Standard & Poor's agrees in principal. The key is that the assets and liabilities are valued in a consistent manner. However, Standard & Poor's will likely apply valuation rules in the way that it does in its capital adequacy model to certain assets and liabilities (especially hybrid equity).

General Level Of Risks

Level of risk

Feedback received.

Insurer experience should be used to form loss distribution assumptions.

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Our response.

Standard & Poor's has no categorical preference at this stage for whether insurer experience or market experience is used to drive the loss distribution assumptions. Where insurer experience is used, it must be appropriately adjusted to reflect limited credibility of the sample size. Where broad market or industry data are used, they should be appropriately adjusted when an insurer practice does not match the broad market, e.g., use of indices for managed equity accounts or reflection of insurer specific risk selection. Insurers are likely to use both concepts in practice depending partly on the longevity of their experience of the risk concerned.

Insurance cycle

Feedback received.

Insurance cycle should be reflected in assumptions.

Our response.

Given the typical 12-month policy term, insurers that are predominantly engaged in nonlife business normally use a 12-month time horizon for economic capital. Accordingly, for these insurers, we expect economic capital to increase as the cycle softens. For insurers using lengthier time horizons, Standard & Poor's agrees that the volatility imposed by the insurance cycle should be included. More difficult is the question of whether assumptions should reflect a starting point in the cycle that is not neutral. This point impacts on financial risks as well.

Insurer Specific Risks And Offsets

Insurer assumptions.

Feedback received.

ECM should reflect insurer specific risks and offsets

Our response.

Agreed in general. See preceding comments regarding general level of risks. Also, we would expect that the assumption for management reactions to risk experiences will be somewhat less than perfectly effective.

Treatment of risk offsets

Feedback received.

Risks should be modeled on a gross basis, and reinsurance, hedging, asset liability management, management actions, or other risk management techniques should be modeled as an additional step.

Our response.

Agreed. If any risks are presented as modeled on a basis net of risk management, Standard & Poor's may want to pay particular attention to that calculation to make sure that risks are not being assumed out of existence. Where these risk offsets are significant, the ERM process will focus on these as key controls.

Treatment of dividends, bonuses, and other indeterminate product elements

Feedback received.

The model should reflect that some risks can be transferred to policyholders (e.g., by changing dividends and bonus rates) as an offset to risks as well as policyholder reactions to such changes. Indeterminate product elements, such as interest rate resets that are determined by management discretion, should also be included.

Our response.

Management actions to adjust payments and values should be reflected. However, Standard & Poor's will look for historical evidence and documented processes to ensure that these risk mitigation processes are likely to be

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implemented in the future. Policyholder behavior should be reflected as well. Policyholder behavior should be tied to policyholder's reasonable expectations (PRE) and the extent to which the actions are consistent with PRE. In addition, though it is accepted that not all policyholder behavior is fully rational, e.g., exercise of "in-the-money" options, insurers will be expected to justify assumptions of unrealistically low exercise of high-value options. Insurers should be able to show that they appropriately reflect the dynamics of the potential effect of policyholder option exercise on volatility.

Diversification

Diversification benefits

Feedback received.

Standard & Poor's should recognize diversification benefits.

Our response.

Standard & Poor's will recognize diversification benefits. We have already moved in this direction by allowing for diversification with the new Standard & Poor's Risk Capital Model launched in May 2007. This is an area for further study to develop a fuller understanding of methods for calculating and calibrating diversification. Standard & Poor's will want to understand fully the degree to which credible assumptions can be formed for tail correlation as well as the potential effect of different choices for incorporating diversification.

Regulatory, legal, and accounting barriers to free flow of capital

Feedback received.

We received a variety of (sometimes conflicting) suggestions regarding treatment of legal restrictions on capital flows.

Our response.

Standard & Poor's believes that a model should recognize legal, tax, regulatory, and accounting restrictions to capital fungibility as a limit to diversification benefits.

Mechanics of incorporating diversification into ECM

Feedback received.

Diversification should be incorporated into assumptions not applied to results of models.

Our response.

Diversification among risk types, lines of business, legal entities, and geographies should be explicitly modeled.

Levels of diversification

Feedback received.

Diversification should be viewed at four levels: within risks, across entities, across borders, and between risk types.

Our response.

Agreed. Standard & Poor's would prefer that models make explicit assumptions regarding diversification at all four levels, rather than using historical experience that implicitly includes some diversification benefits that will not be likely in the future due to changes in the insurance or financial markets and/or changes in insurer practices.

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Model Robustness

Definition of model robustness

Feedback received.

The idea of model robustness is poorly defined by Standard & Poor's.

Our response.

Specific criteria for evaluating model robustness will be developed over the next year following the reviews of ECM of insurers that are willing to undergo the process in the first year. In general, the model robustness encompasses such factors as the degree of granularity of the model; the use of stochastic models, scenario models, or factor models; sensitivity analysis; validation of model assumptions; and outputs. A more robust model would be expected to use stochastic models in situations where it is extremely difficult to determine whether a stress test using the 95% (or 97.5%, 99%, etc.) least likely input scenario actually tracks to the same confidence of resulting economic capital. A more robust model would incorporate a systematic validation process that is comprehensive and repeatable. That way, any shift in model output can be appropriately tied to a realistic shift in model assumptions, and movements from one time period to another are clearly explained. A more robust model would have to be subjected to external verification/audit.

Operational risk

Feedback received.

Operational risk modeling is less developed and should not be required.

Our response.

Standard & Poor's does not at this time expect to find operational risk specifically modeled using stochastic methods. However, Standard & Poor's expects that the overall economic capital assessment will make provision for operational risk. Standard & Poor's will want to assess the validity of the operational risk allowance by reference to one or more scenario tests performed by the insurer.

Back testing of ECM

Feedback received.

Back testing is difficult/impossible for insurance risks.

Our response.

Insurers are expected to develop methods to assess whether emerging experience falls within the assumptions of the model or not. An insurer that cannot answer that question will be viewed less favorably by Standard & Poor's. Standard & Poor's recognizes that this process is different from the back testing done by banks for their seven-day VaR where assumptions might be formed based on an observation period of 250 days and back testing includes counting the breaches to 99% VaR limits.

External reviewers

Feedback received.

Standard & Poor's should not duplicate efforts of other external reviewers.

Our response.

Standard & Poor's will accept information from other external reviewers, provided we receive access to the full report of the reviewer and full access to the reviewer for questions. Ultimately, Standard & Poor's will be forming an independent opinion of the methodology to assess capital adequacy, so the potential reliance on other reviewers

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is limited, but the availability of a full review may enhance our confidence in the models. An insurer that has had part or all of its economic capital process reviewed by the same audit standards for public financial reporting will be given greater credibility.

Model completeness

Feedback received.

It is important that the model be a complete model reflecting all of the risks of the insurer.

Our response.

Agreed. Standard & Poor's will want to review the process that the insurer uses to assure itself that its model is complete. Standard & Poor's expects that there will sometimes be nonmaterial risks that are included using simplified techniques (e.g., operational risks and less material risks).

Model Execution And Usage

Data quality

Feedback received.

Data updating is a particularly important step in model execution. Standard & Poor's should review controls on data.

Our response.

Agreed. Standard & Poor's will review data reconciliations to ensure that the data included in the model are the same as that used elsewhere, such as in generating the annual report and accounts. Standard & Poor's will also look for evidence that any model point grouping does not reduce model accuracy by a significant amount.

Model execution

Feedback received.

Criteria should be developed to define model execution.

Our response.

Agreed. Specific criteria for evaluating model execution will be developed over time. Model execution refers to issues such as model control practices, model staff qualification, and systems support for the model.

Model use

Feedback received.

Use test is covered by ERM review and should not be repeated.

Our response.

Agreed. Standard & Poor's will consider the degree to which the insurer relies on its ECM results for important decisions to be a fundamentally important issue to support any reliance on the ECM results. If there are any uncertainties about the degree of insurer reliance on the ECM, the insurer will be given a chance to clarify its use of the ECM results during the ECM review process. Specific use might have an effect on the credibility of the model. For example, some insurers have mentioned that they are using their ECM to drive decisions at a very granular level in the firm, such as pricing at the underwriting class level or tactical investment decision making. Standard & Poor's may want to verify those uses so that we can make sure that we understand what we are reviewing. As those who have taken that step know, there is a vast difference in the models that are made to support decisions at the line of business level and models that support the very granular decisions.

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Stress Tests

Stress testing requirements from Standard & Poor's

Feedback received.

It would be very difficult (and possibly an excessive burden for insurers) for Standard & Poor's to develop tests that could be applied to all insurers.

Our response.

Standard & Poor's will study the stress tests and other validation tests performed by insurers as we review models. Over time, Standard & Poor's will consider whether it is necessary to define a set of standard tests to be run during the review. We are not expecting to complete that study in 2007.

Review Process

Standard & Poor's review process

Feedback received.

This needs to be better defined.

Our response.

The process will be spelled out in late 2007 or early 2008.

Intensity of review process

Feedback received.

Assessment process should not impose significant additional work for insurers.

Our response.

Standard & Poor's expects to make the process as efficient as possible, primarily by working from the materials that the insurer uses to validate its model internally. However, in the end, we do expect to provide opinions of capital adequacy that are comparable among insurers. Our review process must support that goal even if insurers' internal processes do not.

Adequate ERM insurers

Feedback received.

Insurers who meet the three requirements for Standard & Poor's review of ECM, but have Adequate ERM scores, should be able to qualify for review.

Our response.

The standard criteria for qualification for an economic capital review will be that the insurer will be either Strong or Excellent. However, Standard & Poor's will discuss individual situations that are felt to be exceptional with individual insurers.

Usage Of Results By Standard & Poor's

ECM versus Standard & Poor's capital adequacy model

Feedback received.

The ECM result should be the tool that Standard & Poor's uses to form its opinion of capital adequacy of an insurer.

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Our response.
Standard & Poor's expects to continue to use its risk-based capital model and ECM results in making its capital adequacy assessments. Over time, we expect to become more comfortable with economic capital models in general and with specific insurers' models. With increasing comfort, there will be a higher degree of reliance on the ECM results.

Adjustments to models

Feedback received.
Arbitrary haircuts should not be used.

Our response.
Standard & Poor's will make an honest effort to give appropriate weight to the results from the ECM in our assessment of capital adequacy. In the end, it must be recognized that a model that is calculating the severity of a one-in-1,000-year event (or more extreme) is going to have some elements that, though couched in sophisticated mathematical techniques, is fundamentally an opinion, rather than a fact. Opinions will differ. Where significant differences of opinions exist Standard & Poor's will tend to give more weight to our internal assessment and less to the insurers when assessing the overall capital adequacy. Where appropriate or possible, Standard & Poor's will estimate 'capital adjustments' to models where we do not agree with particular approaches. Where this is possible, more weight may be given to the results from the ECM.

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