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Criteria | Insurance | Life:
**Risk Return Analysis Using
Embedded Value**

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Risk Return Analysis Using Embedded Value

Embedded value (EV) has become Standard & Poor's Ratings Services' primary tool for assessing operating performance within the European life insurance sector. It reflects the risks to which a company is exposed by capturing the expected costs of these risks to the company. However, our ratings analysis includes not only how well a company allows for risks in its economic valuation, but also the extent to which its worth could be affected under adverse circumstances. Standard & Poor's is therefore introducing new metrics based on EV to assess companies' exposure to risk and the quality of their earnings.

In recent years, the CFO Forum (an industry body comprising the chief financial officers of Europe's leading insurers) has played a significant role in improving the disclosure of EV by introducing the European Embedded Value (EEV) principles. These principles establish a more uniform approach for calculating EV and set minimum reporting requirements. In June 2008, the CFO Forum published the market-consistent embedded value (MCEV) principles, which will replace the EEV principles. The CFO Forum intends that, from 2009, MCEV will become the only recognized method for its members to calculate EV.

The current EEV principles are flexible, and insurers have adopted a variety of methodologies, which has led to inconsistencies in its application. This has hindered the comparison of company performance within the sector. The new MCEV principles will considerably improve the consistency in the methodologies adopted. However, MCEV principles will tolerate some variations in the methodologies used, for example, allowance for nonfinancial risks. Furthermore, Standard & Poor's expects that some insurers will continue to use more traditional EV methodologies, despite the introduction of the MCEV principles. Therefore, Standard & Poor's will continue to seek to normalize the EV results so that we can address the inconsistency in the adopted EV methodologies in our analysis.

Distinct EV Methodologies Were Allowed Under EEV

The introduction of EEV improved both the quantity and quality of disclosures. One of the most valuable developments was that the cost of options and guarantees was recognized, enhancing the comparability of EV. However, there were some fundamental issues that needed to be addressed.

EEV principles effectively allowed two methods for calculating EV: top-down (currently adopted by Aviva, Aegon, and ING) and bottom-up (currently adopted by Axa, Allianz, and Zurich). These approaches have fundamentally different ways of allowing for the risks to which the business is exposed.

Top-down approach allows for risk in aggregate

The top-down approach is, in effect, an improved form of traditional EV. Risk is allowed for through the risk discount rate (RDR) and the cost of capital. Typically, companies set the RDR equal to their weighted-average cost of capital and use the same RDR for all lines of business. Risk for each product is allowed for at the average for the company and does not reflect individual product risk characteristics. As a result, even though the overall book may be valued appropriately, individual product line profitability may be misleading. For example, the profitability of product lines exposed to investment risks is typically overstated at the expense of pure mortality risk products.

Bottom-up approach focuses on market risk

MCEV is the most widely adopted form of the bottom-up approach. It applies financial economics theory to allow for financial risk. Each product is valued separately to reflect its exposure to market risk, which addresses the main problem with the top-down approach. However, the theoretical framework of MCEV does not provide a simple answer on how to allow for the exposure to nonfinancial risks (for example, insurance, operational, and business risk). Companies have been using different approaches, which has made comparison difficult.

MCEV Principles Are An Important Step Toward Improved Consistency

Standard & Poor's views positively the introduction of MCEV principles as these will considerably improve consistency in the allowance for financial risks. We expect that the majority of insurers reporting EV will adopt MCEV over the medium term. However, inconsistencies in the way nonfinancial risks are allowed for will remain because MCEV principles do not prescribe an approach. Despite this, the comparability of the cost of nonfinancial risk will improve, as irrespective of the method adopted, the residual cost of nonfinancial risks needs to be expressed as an average charge on capital.

Standard & Poor's Approach To Analyzing EEVs Across Methodologies

To perform our analysis, we need to normalize EV results based on different methodologies. We recognize that to achieve a reasonable level of comparability, we will need to apply both quantitative adjustments and qualitative judgment: neither can be adequately used to rebase the results in isolation. For example, when EV is based on a top-down approach and it is material and appropriate, we may use individual product sensitivities to estimate the EV had it been calculated using economic assumptions consistent with MCEV. (Effectively, we will assume that all investment assumptions and RDR are equal to the risk-free rate).

Absolute precision is not the goal. The adjustment will simply give us the opportunity to express EV earnings in a manner that reveals the underlying risks and allows for peer comparison. As with the output from our capital model, the results of our EV analysis will be discussed with the company's management.

Moreover, we are interested not only in how risks are allowed for in the valuation of a company, but also in its overall risk exposure. To deal with these issues within EEV, we have introduced the following metrics: proportion of EV exposed to risk, $E(EV)$; proportion of value of new business (VNB) exposed to risk, $E(VNB)$; scale of VNB, $S(VNB)$; $S(VNB)$ adjusted for risk, $R(VNB)$; and new business margin adjusted for risk, $M(VNB)$. The new metrics will provide additional insights into the earnings quality and volatility of life insurers.

What the new metrics indicate

$E(VNB)$ and $E(EV)$ are designed to indicate what proportion of VNB and EV will be lost under a 'BBB' stress test determined on a consistent basis with the equivalent risk charges in the Standard & Poor's capital model.

$SVNB$ indicates how the generated VNB compares to the value of the existing business (it was defined in the article titled "Embedded Value Is A Key Driver In Standard & Poor's Evaluation Of Life Insurers' Earnings," published on April 12, 2006). $R(VNB)$ is similar to $S(VNB)$, but $R(VNB)$ aims to assess the scale of the value of new business expected to endure a 'BBB' event.

$M(VNB)$ measures the "secure" new business margin, that is, the resultant new business margin after the impact of

the 'BBB' stress (assuming that the 'BBB' stress occurs at the time the policy is sold).

Calculating The Metrics	
E(VNB)	Reduction of VNB under the 'BBB' stress test/VNB
E(EV)	Reduction of EV under the 'BBB' stress test/EV (end of year)
S(VNB)	VNB/VIF (end of year)
R(VNB)	$[1 - E(VNB)] \times S(VNB)$
M(VNB)	$[1 - E(VNB)] \times \text{new business margin}$

We will estimate the reduced values for VNB and EV under the 'BBB' stress tests using the sensitivities included in the EV disclosures. These sensitivities provide an indication of the value of the business under alternative sets of assumptions and enable estimates to be made of the expected impact of adverse circumstances on the value of the business.

The following risks are allowed for in the 'BBB' stress test:

- Reduction in equity and property values;
- Parallel shift in interest rates;
- Higher lapses;
- Higher mortality;
- Increased longevity; and
- Increase in expenses.

We will adjust the reported sensitivities to the level of the relevant 'BBB' charge to estimate E(VNB) and E(EV). Most companies reporting under EEV disclose the sensitivities required to quantify the impact of the above risks. For companies not reporting under EEV, we will adjust the available sensitivities to estimate E(VNB) and E(EV).

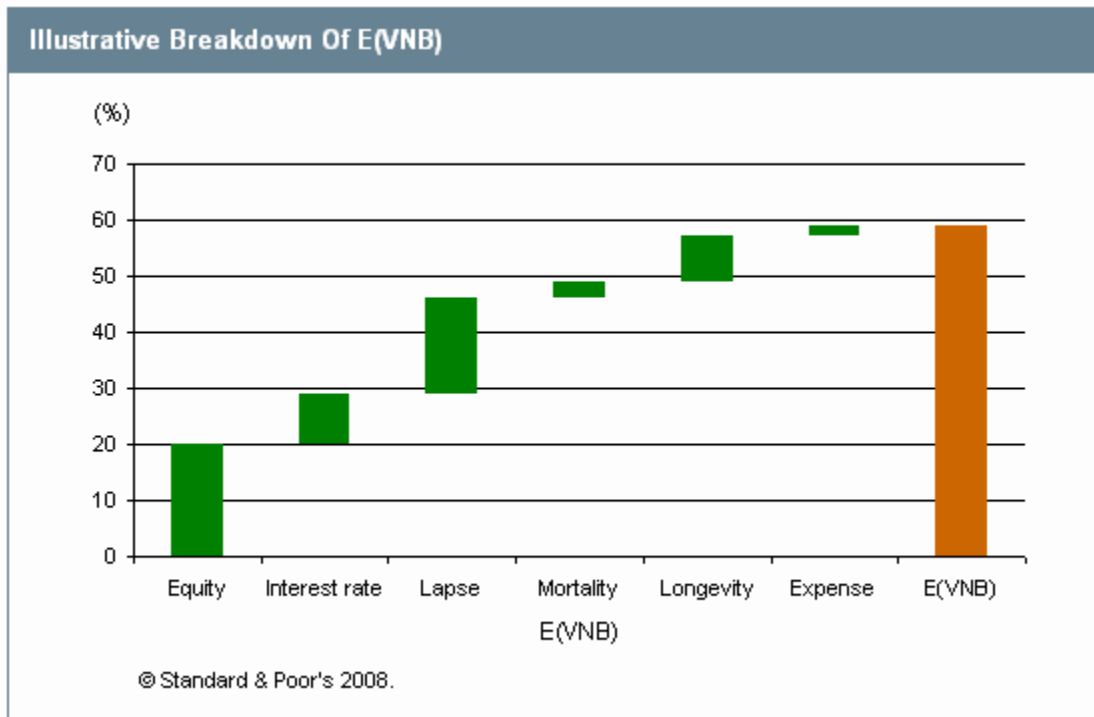
For the reduction in equity and property values and the shift in interest rates, we will apply the same factors as in our capital model. This is appropriate because the stresses underlying both our capital model charges and the EV sensitivities measure the impact of a sudden change in the financial markets.

For the other risks, we used an approximation to derive the factors needed to adjust the reported sensitivities. This is because the available EV sensitivities for these risks measure the impact of a level change in the expected experience over the life of the policies, while the capital model charges take into account the impact of a sudden change in the risk environment.

How Standard & Poor's Uses The Key Metrics

Analysing VNB

We will use E(VNB), R(VNB), and M(VNB) to assess the balance between profit and risk achieved in new business by different companies at the product and the aggregate level. The composition of E(VNB) by risk type (see chart) will improve our insight into the main risks to which the new business is exposed.



In our earnings analysis, Standard & Poor's compares the R(VNB) and M(VNB) achieved to help assess whether the profit achieved compensates the insurer for the risk it is taking on.

Analyzing Overall EV Performance And VIF Credit In Standard & Poor's Capital Model

The main use of E(EV) is to assess the potential volatility of companies' economic value. A high value indicates that future EV earnings and return on EV could be volatile because of the relatively high exposure to risk. As with E(VNB), analyzing the composition of E(EV) by risk type will improve our insight into the main risks to which the EV is exposed.

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