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Advanced Risk Management Seminar

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When I got the call from John Riley of the SOA a month before the Power Week seminars were to take place I fully expected to be hearing that the risk management seminars would be either cancelled or postponed. In fact seven of the ten Power Week seminars were axed due to low pre-registrations, but the two risk management seminars were still held.

The beginning risk management seminar featured sessions on Identifying and quantifying risks, control processes, capital allocation and risk limits, correlation and hedging, operational risk management, credit risk management, managing risk adjusted return, incentive compensation, as well as, a lively case study. The faculty were Dave Ingram, Bill Schnaer and Greg Henke.

The advanced risk management seminar consisted of ten sessions on a variety of topics from ten different presenters.

The first session was on operational risk assessment presented by Ken Tannenbaum. Ken focused on the importance of enterprise wide risk assessment, especially including operational risks. Enterprise risk assessment is defined as the process that identifies, analyzes and prioritizes the risks from all sources that threaten key enterprise objectives or present opportunities to exploit for competitive advantage. Ken presented a case study where the enterprise risk assessment process was used as a primary tool in a corporate restructuring.

In the second session, Greg Henke presented an investment banking perspective on insurance company risk management. Greg showed how the risk management approach used in banking could be applied to foreign exchange risk, variable product equity risk and credit risk. A case study was used to show the optimization process for hedging a company FX risk where the result was not a simple proportionate hedge, but a carefully constructed set of positions to produce the desired risk profile. Measuring the risk profile and determining the optimal position involves stochastic simulation modeling and the development of an efficient frontier for the decision making process. For credit risk management, Greg detailed the thinking in building a diversified portfolio of credit exposures by showing the distribution of loss graph for different portfolio choices. Lastly, the risk management decisions were all brought together by a measurement of the economic capital requirement for the resulting business profile. This economic capital level was then

compared to the RBC calculation. Places where the company risk capital was significantly different from the average risk profile assumed in the RBC model were identified, and strategies were developed for the company to make decisions about those differences.

The next session on risk management of guarantees on equity-oriented products by Hubert Mueller is possibly the hottest topic in life insurance risk management at this time. See the article on page 28.

George Christopher discussed how policyholder behavior can affect the risks associated with GMDB riders on a block of variable annuities. A simple stochastic model of one-year ratchet can be used to analyze the effects of policyholder behavior on the distribution of GMDB premiums, death benefits and net GMDB cash flow. Most, but not all, of the behaviors can be anticipated and mitigated through product design features. For example, some older designs decreased the death benefit dollar for dollar with partial withdrawals instead of prorata. After a market decline, an astute policyholder could take advantage of the dollar for dollar decrease by withdrawing a large percentage of the remaining account value. This action has the effect of converting a product designed as a variable annuity with a GMDB rider into an extremely low cost life insurance policy. This form of policyholder behavior risk has been eliminated from new policies. Other policyholder behavior risks are more difficult to avoid through product design. For example, consider the potential for investors to shift assets into less volatile, lower yielding funds after a market decline. This shift in asset allocation negatively affects the insurer in two ways. First, since premiums are collected as a percentage of account value, present value of future expected premiums is decreased by the shift to a lower yielding asset mix. Second, the account value will remain below the guaranteed death benefit for a longer period of time, generating larger claims.

Rick Jackson opened the next morning with a presentation of several credit risk management case studies from his work managing portfolios for several insurance companies. See article on this page.

The integration of risk management and product pricing was the topic of the next presentation. Ellen Eichenbaum Cooper provided an example using a deferred annuity product and an asset liability model. The model is used to develop strategies to manage profitability

and surplus variability; quantify the value of policyholder options; understand the impact of management decisions with respect to product design, investing and crediting strategies; and provide insight into external variables to which the insurer must react. Risk management is brought into the picture for viewing duration, convexity, price behavior curves, risk profile curves and earnings at risk.

A company that takes their risk management into the new paradigm will be "Optimizing Shareholder Value," according to Frank Sabatini. In this new paradigm, the company will use risk management to capture opportunities, and optimize the risk vs. reward of their business while viewing the whole enterprise. This new paradigm uses the new metrics of statutory earnings at risk, present value of divisible earnings, GAAP earnings at risk, RAROC and RORAC.

Standard & Poor's looks at the risks of a company through their capital adequacy model. Rodney Clark presented an overview of S&P's model as well as the differences from the NAIC's RBC formula. In addition, Rodney gave a quick overview of their earnings' adequacy model and liquidity profile process.

Many companies concentrate their risk management on earnings volatility. Dave Ingram presented a study of insurance company earnings volatility that showed the distribution of volatility of life insurance companies ROEs as well as their Sharpe Ratio. It became apparent that some companies were giving up return to moderate their volatility of returns.

Claude Accum presented the application of risk management to a multi-national multi-product, multi-risk analysis. With different definitions of GAAP in different countries, a multi-national company can focus their analysis on embedded value that is defined independent of the accounting system. In addition, there are a multitude of various operational risks that apply to a multi-national company. Different countries may need to be held to very different return on capital targets due to variations in local economic and interest rate volatility. In the end, for risk management to be effective throughout global operations it has to include both local and corporate redundancies.

The seminar was concluded by a discussion by Dave Ingram, Claude Accum and Frank Sabatini on risk management best practices. See article page 1 for a portion of that discussion.