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Risk Management for Life Insurance Companies

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Insurance companies have been in the business of risk management for hundreds of years. The latest trend towards risk management in banks is both new to insurance companies and very old hat—new because it applies new techniques (at least new to the last half century) and old hat because many risk management techniques are so old hat to insurance companies that they are almost unconsciously performing them.

Risk management at insurance companies, since it is so old, is most likely to have evolved gradually rather than developed within a complete conceptual framework.

The Basle committee on Banking Supervision proposed a set of principles for the management of interest rate risks by banks in 1997. These principles can be easily generalized to apply to all risk management and to insurance companies. Here is a sampler of generalized principles:

1. Clear lines of responsibility for risk management.
2. Separation of risk takers and risk managers.
3. Quantitative risk limits.
4. System for promptly reacting to positions that exceed limits.
5. Risk management must apply to new products.

6. Focus on both earnings fluctuation & economic value fluctuations.
7. Need to assess *all* material Risks.
8. Risk measurement system should utilize generally accepted financial concepts and measurement techniques.
9. Well-documented assumptions and parameters.
10. Need to measure risks under wide ranges of underlying economic situations and regularly re-evaluate assumptions.
11. Stress testing to evaluate extreme fluctuations and develop contingency plans.
12. Regular internal and independent review of Risk Management system

From these or other basic principles, a company can begin the process of

forming a complete and modern risk management process.

Basic risk control processes already exist within almost all life insurance companies to deal with insurance underwriting and investment selection.

Companies should consider the consistency of the risk limits and control processes in these two functions and determine if there is any consistency. Can anyone say if the risk limits and control processes for dealing with interest rate risk or liquidity risk are more or less risk adverse or comprehensive?

Once a consistent set of limits and control processes are in place, the company needs to develop a process for reporting the risks positions of all of the various activities.

At many banks, it is customary for the CEO to get a daily report of the risk position of the entire enterprise, summarized onto a single sheet of paper. Daily may be too frequent for most risks encountered by a life insurance company. Annual is probably too infrequent, but is fairly common.



Ultimately, risk management can be tied directly into capital allocation. If products are required to hold capital in proportion to their risks, then consistent risk-adjusted returns can be measured.

Allocating capital based on risk-adjusted return optimizes return on capital, rather than orienting the company to maximize investment in the products with the highest returns that may also have the highest risks. True allocation of capital in proportion to risk

Excessive dependence in correlation calculations can, however, be dangerous. In 1998, many financial institutions found that there were higher correlations than expected in an extreme situation.

Hedging and reinsurance are two powerful risk management tools. At some companies, reinsurance is being used extensively to sell off large parts of the company's risk positions, while hedging is being shunned as a waste of money.

scenarios. A plot of the returns and risks of each strategy can generate the "efficient frontier" for each product. Final product design, investment strategy and pricing are then chosen to be near or on the efficient frontier.

The structure of a company's compensation plan is its most powerful tool for motivating employee performance. Compensation plans can focus employees on organizational objectives. These include maximizing stock value, Maximizing the net present value of *risk adjusted* earnings or maximizing *risk adjusted* return on capital. Stock and option based compensation plans focus employee performance on shareholder return. Incentive compensation related to risk-adjusted earnings or risk-adjusted return on capital is risk management for shareholders. Without those types of company goals and incentives, shareholders are left to try to manage their risks from insurance company stock ownership without the detailed knowledge needed to do so.

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may have practical measurement problems, and companies may fall back on using risk-based capital or rating agency formulas. The danger in this is that it creates the opportunity for product managers to arbitrage the actual risk against the simplified formula.

Another large hurdle to overcome to implement a modern risk management is proper reflection of the correlation of risks.

Perhaps the independently measured risks do not need to be added together. Low correlations among the various risks managed by life insurance companies have not been widely studied, and extreme events are of such low frequency that it may be another 100 years before enough data can be collected.

Just as risk limits and control processes should be consistent, the use of risk management tools should be used consistently to sculpt the risks of the company to the desired form. This should be looked at on a risk and cost adjusted basis.

Ultimately, risk management can be integrated into all operational, financial and strategic decision-making processes. risk-adjusted pricing is one of the tools that can be used to accomplish this. Stochastically generated scenarios are used to develop the projected profits of all products in risk-adjusted pricing.

Alternate strategies for investing, reinsuring, price setting and product design can be tested under multiple stochastic

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