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Adding value with Risk Management tools

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Investing the time and effort to develop a risk management culture and the financial tools to implement it can be the most important initiative a company takes. While rating agencies and regulatory entities pat you on the back and tell you what a good job you have done (hopefully), generating firm value is the underlying basis for these efforts. They work by building an understanding of the firm's unique risks. This allows iterative strategic and tactical adjustments and creates a competitive advantage.

Models built to meet regulatory requirements are the building blocks, leveraging work done previously and analyzing results in new ways. After generating stochastic scenarios, sort the results and look at the tails, both the worst and best results. What caused these scenarios to be outliers? Are the results surprising? What actions could improve these results? The firm might choose to seek out and exploit or avoid and mitigate specific risks. While an insider understands the mix of risks better than someone outside the organization, sometimes a new set of eyes can bring a unique perspective to the process. Skepticism and common sense leads to better understanding of a company's risks and better models.

Tools

There are many tools to accomplish this. In scenario planning, for each deterministic scenario management develops a plan. A pioneering example occurred over 30 years ago, when Shell Oil anticipated the possibility of an oil embargo and the resulting high oil prices. As the scenario played out, pre-determined tactical plans were implemented for a competitive advantage. In the insurance industry, actuaries can participate in the brainstorming phase of this what-if analysis and lead the financial modeling efforts. It is important to utilize historical stress points as well. The 1918 influenza pandemic provides one example. In addition to testing symmetric increases and decreases in mortality, a scenario testing a spike from a severe pandemic will help companies understand the risk of their specific product mix and age distribution, including counterparty risk from reinsurers. For example, payout annuities will earn high profits if mortality is higher than expected while term life insurance does worse. Each company has a unique mix of risks.

In order to utilize these tool sets, a base scenario must be created for comparison. Generally this will have level interest rates, with best estimate assumptions for other variables. For some risks it is nearly the best case scenario. This is true for products with convexity risk, where cash flows predictably adjust as interest rates change. This base scenario is often utilized for incentive compensation payouts and should be created for all product lines and surplus.

Stochastic scenarios, in addition to providing a multitude of statistics such as mean, standard deviation, VaR and CTE, can create information that helps a curious practitioner better understand a product line and the interactions between assets and liabilities. This tool is a great way to test various strategies such as investment purchases and crediting rates. By running all product lines across the same scenarios with an integrated model, a better understanding of enterprise risk and opportunities will emerge. Experience shows that the many surprises will help managers view the business holistically. Sometimes the product line that was thought to provide a hedge in certain situations does not. A long tail liability with expected reinvestment risk can do poorly in a rising environment if the line is duration matched but there are holes in the cash flow match during the early durations.

These models can also be used to look at business added organically or through acquisition. Many companies are leveraging the regulatory based tools used to measure risk to build complex models designed to measure how much capital they should hold. These financial models can greatly increase a firm's understanding of the risks inherent in the business, and how they interact, but modelers should be careful not to attribute too much precision. As is always the case, a model is only as good as the assumptions that go into it.

Assumptions

A new business model will not always be included in financial projections, but might exist by itself (e.g., pricing model). Sometimes an in-force only model is appropriate, such as when testing the adequacy of existing assets. Scenarios, both deterministic and stochastic, should be developed for assumptions such as claims, interest rates, equity returns and expenses. With offsetting products like

payout annuities and term life insurance, an assumption like mortality should have scenarios where mortality is both higher and lower. Thinking through the scenario in advance, with potential strategies and tactics, often provides the greatest value.

Metrics

A firm's culture is partly based on the metrics preferred by senior management. The actuary's job includes showing them how to interpret various alternatives. A simple spreadsheet created for the CEO will help them understand the dynamics behind a return on equity (ROE) calculation. This analysis starts with a baseline scenario, including the current level of growth, surplus and expenses. The senior manager can build their own scenarios, estimating internal growth rates, acquisitions, expenses and turnarounds. This analysis is dependent on a realistic baseline scenario and should use best estimate assumptions. Once a few options are developed by the management team, detailed analysis can be performed. This process allows the CEO to develop scenarios without having to worry about putting together what might be perceived by others as an unrealistic or controversial scenario. For example, what CEO wants his employees to know that he is interested in the ROE improvement if expenses are reduced by 25%? While bad for morale, this could be a vital piece of information for the CEO to know.

Exposures

Understanding the interaction of risk exposures is important but rarely implemented. For example, a company might own the commercial mortgage for a building and write the group life benefit for employees. In an area susceptible to risks such as cyclones, earthquakes or terrorism it is important to understand this type of combined exposure.

Summary

Existing financial models can be leveraged to provide a competitive advantage. The key is incorporating healthy skepticism and common sense to extend risk management tools and better understand a firm's unique risk profile, exploiting those where your firm has a competitive advantage and an appetite for the specific risk. This will increase the firm's risk-reward ratio and improve firm value.

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