

How an Insurance Company Can Better Measure and Understand Its “Own Risks”

by *Russell Sears*

Fundamental to preventing a model of risk from expanding the risk instead of managing the risk is that the “error” terms in the model are preventing them from being highly auto-correlated. If the risk model’s “error” is internally believed to be less correlated than it actually is, then there will be a disconnection between management and the true risk. A company’s “own risks” can grow by repeating the same mistakes over and over by assuming a standard model of risk is the actual risk that particular company is taking.

Often the market will recognize the opportunity from the mispriced risk before management discovers the error. Internally there will appear to be a risk arbitrage. Sales and future expected profit growth may internally be recognized as good management, while externally business and sales are being driven by mispriced risks and created incentives to offload those aggregated correlated risks.

However, the insurance industry exists to aggregate risks and reduces risks and variability by the law of large numbers. Further, its long-term objectives differ from many shorter-term market participants. Therefore insurance companies can absorb and accept short-term risk that many market participants are not willing to take. Finally, the insurance company internally does have expertise and specialization within specific markets and certain risks. Specialization can increase competitiveness and ability to manage risk.

Therefore, metrics to accurately assess a company’s “own risks” will entail recognition of its true competitive advantage and risk management abilities while they also will give early warnings to highly correlated risks not necessarily contained in a simple risk model.

This suggests that rather than a pure risk model metric of a company’s “own risk,” a company’s “own risk” is better measured by actual-to-modeled risk expectation and direct recognition of extraordinary risks pools. Industry-wide models can be used by the industry to compare risks between companies, but good management will be aware of these models’ blind spots. A company’s “own risk” occurs from the difference in managing the model’s blind spots and managing by the models.

Actuaries have a long history of using experience studies to prevent repetition of the same mistakes in underwriting or pricing risk. Insurance agents seem to be able to find when risks are mispriced. Actuaries have watched for this. Likewise, anywhere models have been used to mitigate risk, experience studies can help. For example, in asset-liability management models, such as cash flow testing, actual cash flows to modeled can be broken down by actual asset cash received versus model and asset prepayment speeds, to realized versus cash surrenders, to experience and dynamic lapses versus actual lapses. Simply looking at monthly cash invested versus new money investment rates generally will show significant opportunity cost losses during periods of interest rate volatility. Often more cash will be available to invest in periods when new money rates are moving lower, and lower cash when rates are moving higher. There is often a considerable difference between what models imply would happen and what actually is experienced. Understanding where this is coming from can help prevent this gap from growing.

Further close measuring of surrenders, lapses and regression studies to the market environment can be an early warning sign to runs-on-the-bank potential, while measur-

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ing expected-to-actual performance or embedded options (both on a cost and payoff basis) can show when second-order hedging risk has built up beyond a company's risk tolerance before a fat tail event happens.

Risk models can increase risk by enabling correlated risks to be concentrated and pooled. This creates a market for that risk that never existed before. Expanding the market to speculation will essential change that market. Over-allocation of risk that never existed before can have a profound impact on the risk auto-correlation (bubbles and panics will occur). Executive Life and AIG Financial Products Division suggest that any measure of a company's "own risks"

should consider the risks that their revolutionary products may deeply impact the market for those risks. Likewise, for smaller companies, high growth in areas of inexperience should be a measure of its "own risk." Because of the need for global understanding of the market risk and the internal nature of these potential blind spots, the insurance industry regulators and rating agencies should share responsibility for the recognition of these risk areas as they develop.

The ideas expressed here are solely those of Russell Sears and not necessarily those of his employer, American Fidelity Assurance Company.

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