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Leveraging Risk Focused Examinations Companies with a strong ERM framework will find it easier to satisfy Risk Focused Examination requirements and enjoy a competitive advantage.

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Rudolph. It can be found on the SOA Web site at http://www.soa.org/library/newsletters/the-actuarymagazine/2007/april/erm2007april.aspx.

Leveraging Risk Focused Examinations Companies with a strong ERM framework will find it easier to satisfy Risk Focused Examination requirements and enjoy a competitive advantage.

Technology evolves. We now have iPads and cloud computing. Projection models have become increasingly sophisticated. These improved tools have allowed principles-based approaches (PBA) to setting reserves and capital to arrive. PBA is not the future. It is here–now. Companies are developing economic capital models and using them to manage their risks. Enterprise Risk Management (ERM) is a hot topic, and getting hotter. Risk focused examinations are now a regulatory requirement. It is no coincidence these are all happening concurrently. All are branches of the same tree.

Risk focused exams are a great opportunity for regulators to impact the number of insurer insolvencies. At the same time, risk focused exams are a risk for insurance departments because they have partial ownership and accountability for failed insurers. By utilizing the mosaic theory, often used by investors, a regulator can coordinate knowledge from various risk silos. This will help them better understand the enterprise risks taken by the firm and what current and emerging risks might impact the firm materially.

Regulatory trends in financial institutions, both domestically and internationally, are evolving toward principles-based approaches. PBA moves away from setting these requirements based on formulas locked in when a policy is issued and toward using an insurance company's unique strategies and portfolios of assets and liabilities. These models utilize a combination of stochastic and deterministic tools to provide transparency using actuarial judgment. This improves previous rules that seem to always be at least one product generation behind, leaving regulators and other stakeholders unclear of the risks taken. Transparency is a key part of a functioning risk focused exam. Prioritizing existing risks and anticipating future risks serves the policy holders best by identifying risks before they lead to insolvency. Best practice companies convert this knowledge into a competitive advantage. A definition of Enterprise Risk Management, created nearly a decade ago by forward thinking members of the Casualty Actuarial Society (CAS), recognized that risks can be both mitigated and exploited. By understanding which risks a company is adequately paid to take, certain risks can be avoided or hedged, while others are sought out. This can be done by leveraging the work performed in order to satisfy the needs of various stakeholders to understand the impact of what might be thought of as a normal range of results, as well as an extreme event, on a firm's income statement and balance sheet. Although the tools are available, some in the industry seem to be waiting for regulators and rating agencies to require their use. Those who treat risk focused exams and PBA as a checklist exercise will be left behind.

Companies build financial models for pricing, valuation and strategic planning needs. Understanding why the models are different, or the pros and cons of using the same models for all purposes, allows value added analysis. Think of them as building blocks, forming the foundation for the projects that provide a competitive advantage. Since regulatory models provide the base that everything else builds from, they need to reflect reality for the company being modeled. No one methodology or set of assumptions will be appropriate for all companies. Too much prescription will make it easier for regulators to complete their normal audits but won't reduce the risk of insolvency. Transparency and peer review are the primary building blocks of a strong process.

Leveraging the Opportunity

Modelers build assumptions using historical data extracts. This is a problem if the distribution of future results will vary from that recorded in the past. Similarly, current market conditions may be driven by something that the market may only recognize in hindsight (e.g., equity bubble of 2000 or RMBS in 2006). Models created to manage the risks of the enterprise provide an opportunity by making risks transparent to someone using common sense and a critical eye. Companies taking financial models beyond PBA in this way will add value to their firm. Those who treat principles-based models as simply higher cost versions of formula based models will struggle to understand their firm's actual results and wonder why their firm's financial experts did not anticipate extreme events. Shortcuts designed to reduce costs, whether time, money or added complexity, must be documented and tested so that successors are aware of potential model limitations. Models will never be perfect, but iteratively they can

help the practitioner understand a firm's potential results and make better decisions. In the banking regulatory environment, through Basel II, regulators have already moved to a principles-based approach. Initially there were few rules, and the timing was bad as markets imploded early in the learning process before best practices had been established. Companies must defend their work with logic and common sense. This requires a wide range of professions to participate in the process. At times external experts will need to be included. While not perfect, this process is much more flexible than prior models. A partnership of sorts has been developed in Canada between insurers and regulators. Regulators in the United States should monitor and learn from these and other experiments, incorporating what works and improving the rest. This type of world will require examiners and other peer reviewers to stand up and be heard. Contrarian thoughts should be encouraged as the risk focused exam process is implemented. We have seen that the outlier is often correct and deserves to be heard. A scenario or risk should be considered consciously and addressed. Regulators as well as internal participants in the reporting process will need to be diligent in their comments. With freedom comes accountability.

The actuarial control cycle, an example of a learning environment, allows the modeler to iteratively improve assumptions and models. Risk focused regulatory requirements that formalize current best practices as required standards will create a self defeating platform. Methodologies will continue to evolve. If regulators don't allow improvements, they risk having companies maintain one set of models for statutory reporting and another to run the business with regulators not seeing the more useful set of numbers. This would be a huge mistake, with the redundant systems themselves increasing the firm's risk. Interestingly, it would create an opportunity for bigger firms to create this second set of models and use them for a competitive advantage. Smaller companies that can't afford multiple models would be forced to work with just the ones that would be approved by the regulators.

Good risk management practice requires interaction between the Board of Directors and individuals who understand the nuances of the risks taken. A strong examiner who adds context to their comments from the state insurer's office will be welcome at companies with a strong risk culture. A background including knowledge of liabilities, assets and operational risk prepares the examiner for the risk focused exam. Regulators will interact with a broader group of senior managers than previously during a risk focused exam. The successful regulator must demonstrate the ability to communicate risks and what they mean to decision makers.

The first step is to understand how a company's current business works. The individual who works on various product lines during his or her career, including stops that give expertise in areas such as valuation, pricing, investments, underwriting, marketing, customer service and strategic planning, will have a more comprehensive understanding of the company and better understand the real drivers of its value.

Moving Beyond the Shortcomings of Existing Methods

A perfect storm symbolizes a series of low probability events happening concurrently, resulting in a strong storm that causes havoc not seen in a lifetime or more. It is a true tail event. Recently, every scenario that was unexpected has been dubbed by the financial press (along with the individuals who could have predicted it with a basic scenario planning exercise) "The Perfect Storm." Some have said that stress scenarios should look at the most extreme historical event and double it to reflect potential future events. We can no longer use the excuse that it has never happened before to ignore a risk. Just because you have not died does not make you immortal. You still need to buy life insurance.

It is important that methodologies used by modelers be both transparent and tied to market forces. Asset managers experienced challenges with regard to residential mortgage backed securities. One could argue that the problems could have been anticipated given the combination of leverage and poor incentives. The examiner must consider what could happen, not just what has happened.

Modeling techniques are built on historically derived distributions which may not properly reflect the future. Mortality assumptions use only recent experience, yet modelers are asked to include tail risk. New techniques need to be employed to include events such as higher mortality due to a pandemic or lower mortality due to cures for heart disease or cancer. In the 1980s, portfolio insurance created a new dynamic for equity investments. This tool provided protection for investors when markets dropped. This worked as long as only a few used it. When too much money used the same tool, it moved the market rather than providing protection. Every few years, central bank chairmen turn over and countries change political direction. Modelers need to be aware that it is far too easy to lean toward the tendencies of current leaders, when they too mean revert to some unknown and changing average. What can we learn from the past? What are the unintended consequences of today's policies? Examiners need to anticipate emerging risks and how they might impact an insurer through sales practices and existing blocks of business.

All distributions vacillate around the true distribution, and it will change over time. That is, volatility itself is volatile. Financial markets are no different. Consumers and businesses are continuing to act in more sophisticated ways. Behavioral finance attempts to describe how people will react in certain situations, but it is a moving target. When the current environment is the only reality considered, decision makers and regulators must realize that a bet has been placed. Recognizing these deficiencies, and making them transparent, allows for improvements.

Models will never be perfect. While it is important to understand their limitations, they provide the quantitative information necessary to optimize an objective function given specific constraints. For example, asset-liability management projects allow the practitioner to test various investment strategies and product designs to optimize the risk-return relationship. The underlying assumptions in each of these applications are the best available, but understanding where they come up short often creates an opportunity for the practitioner to make low risk bets. For example, if the yield curve is currently low you might argue that regression toward the mean will make rates more likely to rise than fall. It could be a low risk bet to market products like payout annuities and participating life insurance in this scenario. If interest rates are high, mean reversion leads to a low risk bet that deferred annuities and term life policies are likely to perform relatively better than other products. The modeler might suggest overriding a constraint like a minimum hurdle rate for pricing, accepting the risk that rates could move against the low risk bet. This will be readily apparent when viewing the resulting distribution using the chosen financial metric and time horizon.

Regulators need to be aware of this mean reverting tendency as well. Some assumptions that appear to mean revert (eventually) include stock market volatility, high leverage and narrow credit spreads.

But it is not that easy. Assumptions interact, often in ways that surprise even the experts. For example, the rise of hedge funds and private equity pools, with their highly leveraged balance sheets, created a new and unknown dynamic. A spike in interest rates could create havoc in these pools as their cost of funds increases. How this will impact various asset classes is untested. The ERM practitioner will test assumptions in advance and provide his firm with options. The examiner should do the same.

Risk management is about asking questions and developing potential solutions for discussion and potential implementation. Each situation is unique. No one has the right answers. What other combinations of events have been ignored? Common sense, forward thinking and transparency are crucial when evaluating the results of models.

Making Better Decisions through Alignment with ERM

Risk management addresses both risks and returns. An alternative investment strategy that maintains returns while reducing risk by tightening the potential distribution of results will improve a firm's risk profile. There may be instances where adding a unique risk not currently in the insurer's portfolio can increase returns while reducing risk in total. In this case PBA aligns perfectly with ERM. A lower risk strategy results in lower capital and reserves. Transparency requires that each product be priced to stand on its own. Many firms have fallen into the trap of giving away potential diversification benefits. Adding a risk when an insurer has limited expertise or understanding has increased, not reduced, the true risk of the enterprise. A company might combine a block of term life policies with a block of deferred annuities. Better yet, products can be combined that provide an internal hedge against a specific risk, like combining life insurance with payout annuities. In this example, it doesn't matter which way mortality moves, better or worse, because one product line does better and one does worse than expected. The corporate area (or Investment Department) can act as a profit center/risk reducer by reinsuring risks not under a business unit's control (like credit risk). These are all examples where a risk focused exam could concentrate its efforts to better understand the risks taken by a company. The regulator and company can partner to better enable a firm to weather tough times.

Every company has a unique set of skills and knowledge. Expertise might be focused on distribution, product design, customer service or investments. If a company's expertise is its marketing, should it pass through all financial risks? Banks do this when they put an insurance agency inside a retail branch, collecting commissions but retaining none of the financial risk. If its product design area exhibits an entrepreneurial spirit, then the firm might adjust its strategy for that. Each company is different, and the solution unique. In the risk focused exam world, this is recognized. In the ERM world, it is exploited by sophisticated firms. There is alignment.

Ways to Exploit Knowledge

ERM allows a company to manage its risks holistically. Economic capital can measure risk levels across all product line and asset class combinations when done correctly. By using a combination of assumed correlations between each risk, a firm can better understand and manage its unique combination of risks.

Models often come up short, especially when dealing with tail events not included in the historical data extracts. Sensitivity testing across a risk silo, or scenario planning across the enterprise, can provide complementary information. Assumptions can be adjusted to see how much the distribution of results has changed. Graphing partner scenarios to see the changes in results is as useful as sorting each distribution and generating mean and standard deviation statistics. As they say, a picture is worth a thousand words. Other sensitivities require only a single scenario. You can get a pretty good idea of the impact of an expense reduction or increase by comparing firm-wide results against the base scenario. Results of other scenarios will be similar. Other assumptions will turn out to be consistent across scenarios, but you need to test it to find out. Other times you will be surprised the other way. With each iteration, the observant modeler will learn something new and the model will become both more transparent and useful. PBA modelers will develop tools to include these tail events and they will become recognized standards. These might include generators of economic scenarios or other assumptions that move randomly between distributions (e.g., regime switching models), or something better might be developed. Regulators should strongly encourage this seemingly random path and not force specific solutions. Risk focused exams should leverage these internal tools.

Strategic planning must be timely and flexible. Even if a CEO is not presented an interactive spreadsheet to test their own scenarios, turnaround time must be quick for recurring risk metrics. Slow risk management is little different than no risk management. Plans should be developed and tested in advance.

A firm can consciously take a bet. For example, some companies have used their Asset-Liability Management expertise as a competitive advantage by using a strategy that invests assets longer than the liability constraint (increasing the interest rate risk as measured by duration). While the risk theoretically increased, the expected return also increased. As rates came down it was a great strategy. When rates increased for a short period in 1994, mismatched bet takers like Orange County were identified. A similar situation today might occur if interest rates were to spike for those heavily invested in adjustable rate mortgages.

When modeling interest rates, the starting yield curve is often used, along with historical volatility and a long-term mean reversion rate. If you think one or more of these assumptions might not reflect the future, change them. See how sensitive the assumption is. The same can be done with equity generators. While some feel the markets are always correct, perhaps you think this is not always the case and are willing to use strategies that overload certain sectors or underweight domestic versus international issues. You might be wrong, and should limit exposure to a level you can live with. Risk taking should always be done with intelligence and common sense.

Developing Leaders

Some of the smartest and most marketable employees are modelers. Sophisticated firms and regulators will be able to retain them. By giving them exposure to decision makers and allowing them to try ideas even if they fail, a firm will develop creative and intelligent risk takers that form the pool for the next generation of leaders. Models are simply a tool to make risks more transparent so a firm can better understand where its competitive advantages lie. Staying well connected, both internally and externally, will help the risk management professional understand operational risks outside normal day-to-day activities when a crisis hits. They will learn how to communicate with senior management and external stakeholders in advance, and will anticipate questions. They become key players in the strategic planning process, and love their job so much they would do it for free. OK, maybe not free, but it's clearly a good environment for everyone. Entities that hide these talented individuals, using them only for regulatory reporting, will lose their unique skills as they seek better opportunities elsewhere. These individuals

are ideal for positions implementing risk focused exams as well. Their ability to dive into the details allows them to see both the forest and the trees.

Companies will be required to utilize principles-based approaches to satisfy regulatory requirements. Those that leverage these models, combining unique risks and strategies, to both measure and manage risk to the enterprise will create a competitive advantage for their firm along with the culture to sustain it. It is certainly true–Risk is Opportunity.