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White Paper

Principles-Based Reserving: Practical Considerations

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Nearly everyone in the life insurance business knows about principles-based reserving (PBR)—the impending radical change in regulations governing the calculation of statutory reserves. While these regulations are still undergoing final development, their eventual impact on products, procedures, and balance sheets is likely to be significant. Companies can choose to wait and see, or they can begin to invest time and money to prepare for the changes.

Either way, they will have to deal with the impact of PBR. Almost every company that sells life insurance will be subject to the PBR regulations as soon as they are ratified by the National Association of Insurance Commissioners (NAIC) and state legislatures—which could begin as soon as 2007. Exceptions will be rare; nearly every domestic life insurance company will have to deal with PBR, and few are fully prepared for the changes.

Notwithstanding the challenges posed by PBR, it is important to keep in mind that the underlying intention is to reduce redundant reserves while maintaining statutory solvency and better planning for risk. Longer term, this will result in leaner, more competitive, more capital-rich companies—good news for consumers and insurers alike. PBR is strong medicine, but it will make for a more robust life insurance industry in the long run.

WHAT IS PBR?

For decades, life insurers have used formulaic techniques to determine reserve and capital requirements. But now there are new techniques emerging that allow for a more careful consideration of real risks. These techniques fall under the broad heading of principles-based approach (PBA), and there are presently several efforts underway that seek to define and install principles-based approaches to various facets of an insurer's book of business. The principles-based approach to life insurance statutory reserves is commonly referred to as principles-based reserving, or PBR.

PART I: GETTING READY

The growing importance of actuaries

Many insurance companies have cut costs in recent years by reducing actuarial staff. This strategy may backfire under PBR, as companies will likely find themselves without the expertise necessary to navigate the new regulations. Not only will more actuaries be needed, but they will need to have the mindset to handle more stress, a heavier workload, and the intense deadline pressure of PBR, particularly in the early going.

Actuaries able to manage these operational—rather than theoretical—aspects of PBR will find themselves in high demand. In any case, companies should remember that, in addition to dealing with more complex modeling and reporting requirements under PBR, they will also be required to maintain legacy systems enabling reserve calculations for in-force policies under the current regulations.

Practice makes perfect

Most actuaries have the basic skills necessary under PBR but lack the facility that comes with daily use. For example, while much of the discussion about PBR revolves around “new” modeling techniques, any actuary who is currently taking exams or has kept up with continuing education is familiar with stochastic modeling.

On the other hand, relatively few actuaries, excepting those at very large writers, use such an approach in their everyday activities. How many thoroughly understand their current modeling systems' stochastic functions? How many practice structuring data properly to produce accurate results using such models?

Companies should provide their employees with the time and resources to refresh these nascent skills and techniques.

Another critical skill will be setting assumptions. Most life insurance actuaries have set best estimate assumptions (BEA) before. But not many understand the intricacies of assumption-setting under the new regulations. Previously, actuaries were limited to the prescribed mortality table, interest rate, and method to use; under PBR, they are allowed the judgment to determine best estimate assumptions appropriate to the business. Such determination is expected to be properly documented.

PBR also requires that they set a valuation margin on top of their BEA to account for estimation error and adverse events. The fine print of the regulation stipulates that they run sensitivity tests and determine how the reserve changes under different margins. Again, actuaries should become familiar with these requirements now. In summary, more actuaries will be required, and all actuaries will have to brush up on the specific skills needed to succeed under PBR.

Do it right the first time

While PBR provides companies with more freedom in setting assumptions and using company experience in calculating reserves, with freedom comes responsibility. One tradeoff is increased regulatory scrutiny. The other is that PBR requires that companies run and test multiple scenarios to calculate the effect of various assumptions on the reserve. For example, margins must be tested both independently and in aggregate.

How thoroughly a company prepares for the first round of PBR will determine how much pain and expense it will have to bear going forward. The key is to establish and document a process at the outset that is complete and repeatable. Trying to meet the requirements in ad-hoc fashion will create difficulty. A poorly planned process will cause a company to make year-to-year changes in its assumptions, resulting in changes in reserve totals, which in turn must be explained to regulators and investors.

While each company will be slightly different, the basic steps in the final process will generally be:

- Reviewing assumptions and margins
- Establishing asset and liability records in the modeling system
- Running the system
- Thoroughly documenting everything so that a compliant actuarial report can be provided to regulators if they request it

Despite the potential competitive advantages awaiting the best-prepared companies, many are taking a “wait-and-see” approach to PBR. Most of us involved with the development of PBR regulations would say that this is a tactical and strategic liability. It will be well worth the up-front investment to have an auditable, clean, and efficient process going forward.

Actuaries, start your models

PBR’s technical hurdles have recently been cleared, as there are now modeling systems capable of meeting the new requirements. Most companies have systems capable of performing stochastic modeling already in place. (Whether or not they have the processing power to run the models is another question, addressed below).

The problem is that most companies use divergent systems for various modeling tasks. Actuarial departments have typically used a reserve valuation system for statutory reserve generation and a separate system for cash flow testing, business planning, and pricing. Under the new paradigm, these silos must come together, or at least be able to talk very well to one another.

Unifying a company’s models makes sense. PBR requires that calculations be performed seriatim—that is, policy-by-policy. The necessary data tables must be granular to the level of individual contracts. This turns the modeling paradigm on its ear. Instead of grouping policies into cohorts and using a different set of data for each function, companies should consider developing a system that can perform various functions on the seriatim policy table using different external assumption sets. This will reduce the need to maintain multiple models while meeting the seriatim requirements of PBR.

It follows that developing assumption sets will become a coveted new actuarial skill. For example, think of a multi-line company with fixed annuities, term life, whole life, and universal life—typical of a domestic small-to-medium insurer. Such a company probably has a decent modeling system. Chances are also good that they have many different models around the company for different purposes—one for business planning, one for cash flow testing, and another for pricing. Each model will have policies grouped into cells in different ways, depending on the function of the model.

To succeed under PBR, the company should organize its system so that all of these functions can exist as different assumption sets applied to the same modeling platform. In

running an internal business planning model to obtain financial projections, the actuary would load the model with best estimate assumptions. To calculate PBR reserves, he would load the assumptions along with the appropriate margin. The systems currently in place can do this, but they require a change in how actuaries approach the problem.

Increased computational rigor

One of the most-discussed implications of PBR is the need for better and faster computers. There's no getting around the fact that policy-by-policy seriatim projections take longer to run than a model in which cells represent a mini-cohort of the business. Typically, only very large companies currently have all the computing power they will need to run PBR models.

The good news is that, as PBR will only apply to one year's worth of new business at the outset, companies do have some time to increase their IT resources to the appropriate levels. And every year brings forth machinery with a lower price/performance ratio. As with most aspects of PBR, the big mistake would be to step blindly into the future and just hope that it will all work out. Planning for the change—even before buying new gear—will be a good investment. That means setting aside internal IT team hours or hiring outside consultants to identify and plan the necessary changes. That way, budget allocation and deployment can take place in orderly rather than chaotic fashion. Guess which one is cheaper in the long run.

Dueling systems

One of the most commonly overlooked aspects of the new regulation is that while PBR will only apply to new business, the systems for reserving under the old rules must be maintained until the products sold under those rules are no longer in force or until principles-based approaches are applicable retroactively to in-force contracts. Most companies face not only the prospect of implementing new mathematical and modeling techniques, computer systems, review procedures, and so on, but also the added burden of maintaining the current systems for the foreseeable future.

Valuation actuaries will have to know and understand both sets of rules. For example, for term insurance sold under the XXX regulation prior to the implementation of PBR, actuaries will still have to calculate and test X-factors and write actuarial opinions each year. The cost implications of the need for dual reserving systems are obvious, although they eventually will be offset by the less redundant reserves calculated under PBR.

Although the application of PBR to in-force business has been discussed, it is probably years away if it is ever implemented at all. A more likely scenario is that the proportion of business reserved for under the old systems will gradually decline in the coming decades.

PART II: WHAT DOES THE FUTURE HOLD?

Odds are that the effect of PBR on the life insurance industry as a whole will be positive, reducing reserve redundancy and helping to manage risk more effectively. More competitively priced insurance for consumers and a better financial picture for many companies will probably result, assuming the industry can get over the steep hurdle of ramping up resources and systems to accommodate the PBR process. The details of PBR's effects on the industry will not be known for many years, but some of the more likely scenarios are worthy of further discussion.

The effect of PBR on products

One near-certainty is that products with tail risk—especially secondary-guarantee universal life—will come under increased scrutiny. Many large writers have already started looking at what PBR will do to these products.

For one thing, complex shadow fund arrangements, designed to minimize reserves under the old AXXX regulation, may largely disappear. Under PBR, there is no workaround for tail risk, as the regulation is specifically designed to incorporate it into reserve calculations. In fact, one of the original inspirations for PBR was to more accurately reserve for secondary guarantee universal life.

Whole life and other investment-type products are less likely to be affected. Because of the account value accumulation, reserving for these product families has never been particularly redundant.

Finally, there is little doubt that, as always, whole new classes will arise in response to new regulations. What those products will look like, however, is anybody's guess.

PBR's effect on reserves

The effect of the new regime on industry reserves as a whole will be to make them less redundant. What PBR means for individual companies, however, is complex and difficult to calculate. Reserves for some products will go up, reserves for other products will go down, and the product mix will

determine the sum effect. Companies can prepare by doing preparatory modeling to determine how their reserves are likely to change.

It is also important to consider that reserves aren't the only thing that will change. Coming soon will be principles-based capital requirements for life insurers that dovetail with PBR, as a formulaic approach to capital is fundamentally incompatible with a principles-based approach to reserves. These changes will add to the complexity of predicting balance sheet effects, making it all the more crucial to begin preparing early.

Experience tables: new and improved

Under PBR, companies will be allowed to use their own experience in calculating reserves, but with a catch. They must quantify the credibility of that experience using specific statistical methods. The longer a company has been in business and the more policies it has written, the more weight it can give its internal data in calculating reserves.

This would seem to leave start-ups and small companies at a disadvantage, as they will have to use a greater percentage of standard industry tables in their models. If they had to use the relatively simple industry tables of past years, the resulting reserves might not reflect their portfolios as accurately as possible. Fortunately for them, PBR is the end point in an industry-wide movement toward more granular data tables.

The rewrite of the standard valuation law requires that experience tables be submitted to a central repository—including not just mortality data, but policyholder behavior like lapse rates, surrender rates, and premium payment tendencies as well. As time goes on, there will be more experience available to the practitioner. This collected experience will be polished and cleansed to the extent that a smaller or start-up company will be able to choose tables that quite accurately reflect the mortality or persistency of its customer base, using those tables to calculate reserves until it has its own credible experience.

The long and short of it is that most companies will have to use some weighting of relevant portions of standard industry data in their calculations, but this data will be much better aligned with their own expected experience than was the case when industry data was more broadly grouped. If anything, the future playing field will be more level than it has ever been.

More accurate underwriting

Because of the credibility blending process described above, underwriting guidelines are likely to come under the microscope. Actuaries will be required to map their company's experience to an NAIC-endorsed mortality table, answering questions such as: How many classes are there? What are the specific guidelines? What blood pressures correspond to which mortality class? Underwriting will drive which portion of industry mortality data a company can blend with its own experience.

This is the logical conclusion of the process that began with the split of the Commissioner's Standard Ordinary Table into super-preferred, preferred, and residual classes. The increased precision of industry underwriting data is good news for life insurers, who have been pushing for reserve relief in term insurance and secondary guarantee universal life products for some time.

A changing industry

Finally, many pundits have predicted that PBR is yet another inexorable step in the ongoing consolidation of the insurance industry. The argument goes: the increased knowledge and technology required to implement the new regulations will be such a burden to small and medium companies that many of them will simply sell out to larger organizations.

Some consolidation may result, but that will not be the only effect. Small companies found implementing actuarial opinion and memorandum regulations challenging, but most of them survived, and those regulations are now a part of their culture. Some of PBR's details actually help smaller companies compete. The availability of better industry tables and the possibility of more precise reserves, which increase available capital, are just two examples.

And large companies certainly don't have a monopoly on innovation. The opportunity to invent better products that take advantage of the new regulations is equally available to all. Rather than simply giving companies of one size or another a decisive advantage, PBR tips the balance in favor of the agile, the smart—and the well-prepared.

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