

PROPERTY/CASUALTY INSURANCE

MANAGING OVERCONFIDENCE IN PRICING

Insurers **can** overcome mispricing by taking practical steps to implement a “control cycle.” The cycle improves decision making by enabling actuaries and underwriters to learn from the past.

By Robert F. Conger and Charles R. Wolstein

In an earlier *Emphasis* article (“Managing Overconfidence,” 2003/3), we argued that if insurers did a better job of managing “overconfidence” among their actuaries and underwriters when they make pricing and underwriting decisions, those insurers would achieve better results and even mitigate the adverse effects of the underwriting cycle.

The long-standing P/C underwriting cycle is stark evidence that mispricing is a continual problem. Accident year statistics typically show that the cycle is even more pronounced than reported financial results would indicate. *Exhibit 1* shows workers’ compensation economic profit margins for a large segment of the industry — accident year premiums earned minus the present value of losses and expenses, discounted using interest rates available at the time. Margins have fluctuated widely over the past 25 years, from highs of over 25% to a low of almost 15% — this from a line of insurance with a highly complex system of manual and experience rating. Individual insurer results show even greater fluctuation in margins than the composite.

In our view, systematic patterns of mispricing are caused not merely by external, macroeconomic and competitive factors inherent in the business. They are also caused by a failure in the decision processes to effectively use feedback to improve pricing performance. Without this feedback process, pricing decisions are subject to actuaries’ and underwriters’ overconfidence that comes from not knowing the limits of their knowledge.

That view is shared by others in the industry. Tad Montross, President of General Re Corporation, wrote in a recent article that underwriting cycles will likely continue “until underwriters make rational economic decisions on each and every risk they underwrite.” (“Underwriting: Cycles, Confidence & Consistency,” *General Re Topics*, June 2004.) To do so, he argued, underwriters must have confidence in their judgments, but must also “guard against overconfidence” in their decision making.

After a brief review of the key concepts of overconfidence, this article provides insurers with some practical ways to improve the quality of pricing decisions by addressing the problem of overconfidence among actuaries and underwriters. (For further evidence of overconfidence, see the sidebar, page 13, which summarizes the results of the “P/C Confidence Quiz” included in the first article.)

KEY CONCEPTS OF OVERCONFIDENCE AS CAUSE OF POOR PRICING

The argument that overconfidence contributes to poor pricing results is grounded in four key concepts:

■ **Metaknowledge.** J. Edward Russo and Paul Schoemaker in their pioneering work on decision making found that good decisions come not only from knowing important facts, concepts and relationships, but also from knowing what you *don’t* know. People who appreciate the limits of their knowledge make better estimates, projections and forecasts than people who don’t, in part because metaknowledge allows them to discern how likely they are to be wrong and by how much.

■ **Long Feedback Loop.** Feedback is the basic mechanism that enables us to learn by comparing what we *expected* to happen to what did happen. While some feedback is nearly immediate, in the world of insurance pricing most feedback is not immediate, because the period between the projection of the cost of a probable event and knowing the full cost of an event when it does occur is so long. Consequently, insurers often don’t systematically measure actual results against projections and provide feedback to their underwriters and actuaries. Even when they do so, little learning is likely to occur because several more rounds of pricing, and perhaps a change in the market environment, have occurred in the interim.

■ **No Skin in the Game.** While feedback is *how* we learn, “skin in the game” is *why* we learn. We have something at stake. Actuaries and underwriters are seldom held accountable for the business results from contracts based on their assumptions and projections. They have no skin in the game and therefore no compelling motivation to improve the quality of their estimates.

■ **Control Cycle.** Without a naturally occurring feedback loop, managers must create one. This is called the “control cycle.” It is a deliberate process to test assumptions and projections made by the actuaries and underwriters against actual outcomes and to share the results with them to drive continuous learning and improvement. At the organizational level, it includes the evaluation and improvement of data sources, systems and processes, and measurement and reporting. Consequently,



Robert F. Conger is a principal of Towers Perrin in Chicago. He specializes in a range of issues facing property/casualty insurers, with particular expertise in the area of workers' compensation. He is a Fellow and Past President of the Casualty Actuarial Society, a Member of the American Academy of Actuaries, a Fellow of the Canadian Institute of Actuaries and an Honorary Fellow of the Institute of Actuaries (U.K.).



Charles R. Wolstein is a consultant with Towers Perrin in Washington, D.C. He has expertise in both life and property/casualty insurance, and specializes in distribution strategy and economics as well as organizational performance improvement. Mr. Wolstein received an M.B.A. with honors from Columbia Business School with a dual concentration in finance and international business.

it is also necessary to understand the underlying drivers of the variances between reality and expectations.

STEPS TO IMPROVE PERFORMANCE

There are four practical steps that companies can take immediately to enhance pricing performance via a control cycle:

- conduct a diagnostic review
- refine/redesign the pricing process
- institutionalize the cycle
- implement case study training for actuaries and underwriters.

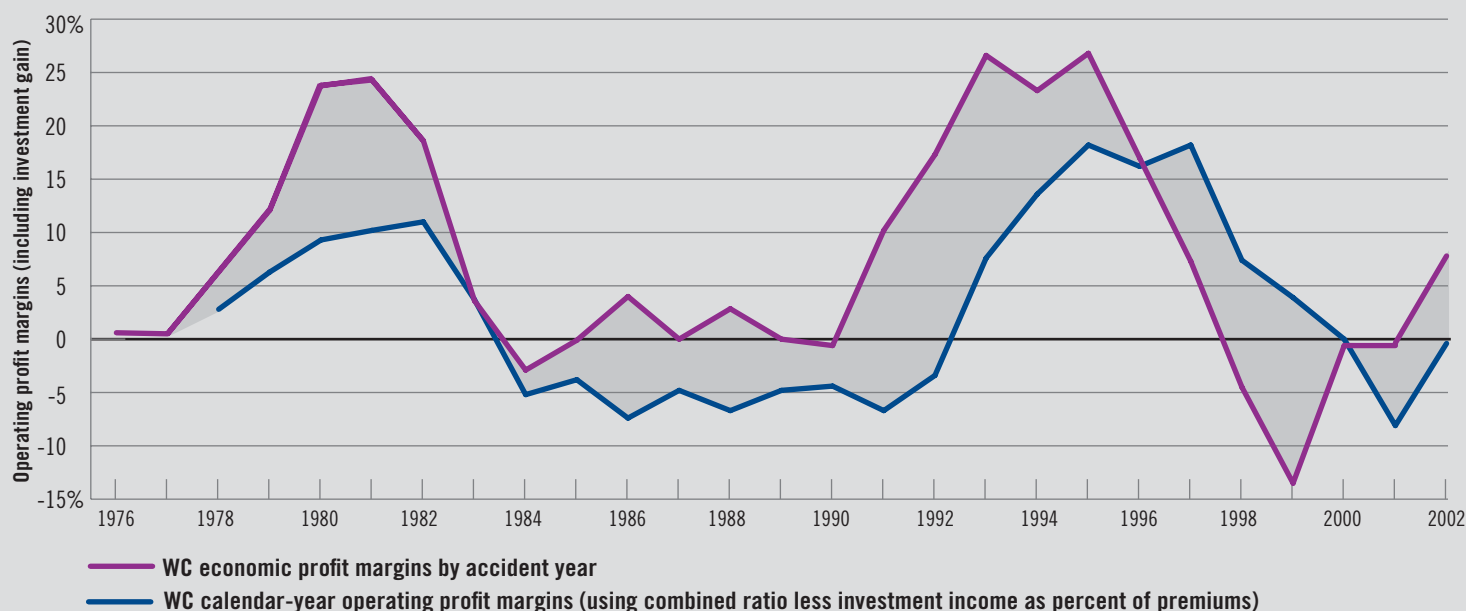
■ **Diagnostic Review.** The diagnostic review is a systematic, retrospective analysis of the company's or unit's performance. The review is driven by two questions. First, how well do actual underwriting outcomes match assumptions and expectations? Second, where results have not matched the expectations, what are the reasons — or root causes — for the variances?

To answer the first question, insurers need to segment the underwriting results in ways that reflect how the business is managed: by line of business, by office location, by market, and the like. An appropriate time frame for the projection-results comparison is also necessary. Analyses of long-tail lines

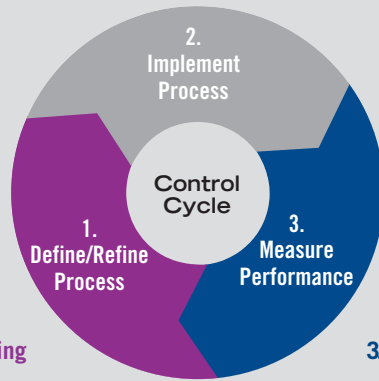
of businesses, like workers' compensation, should look at longer time frames for the comparison, as much as seven to eight years. Shorter-tail lines like auto can use a shorter time frame, usually three to four years. The review should also encompass the different parts of the market cycle because the results and the conclusions will likely differ depending on whether the viewpoint is from the hard or soft part of the cycle.

After comparing the actual versus expected underwriting results, the next step should identify the key reasons for the suboptimum results. Some of these can be found in

EXHIBIT 1
Underwriting Cycle Is Even More Pronounced When Measured by Accident Year



Source: Accident year margins — 20 large carriers writing majority of workers' compensation premium volume; *Casualty Actuarial Society Fair Value Task Force Report*.
Calendar-year margins — A.M. Best Aggregates and Averages — entire industry workers' compensation results.

EXHIBIT 2**The Control Cycle: Retrospective Test of Pricing/Underwriting****1. Pricing and Underwriting Elements**

- Data required
- Actuarial methods
- Underwriting policies and rules
- Decision authorities and reporting
- Quality assurance

3. Formal Retrospective Performance Testing

- Accurate and adequate?
- Sufficiently robust?
- Effective?
- Appropriate?
- Variances: projected vs. actual experience within tolerances?

the technical components of the pricing/underwriting process and some in the management and decision-making processes (see *Exhibit 2*).

Technical reasons for poor results include:

— **Missed inflection points.** A failure to account for a turning point that materially affects the business. For example, significant changes in the medical cost inflation rate or in unemployment rates can have a profound effect on workers' compensation results. Experience data does not always alert insurers to turning points in claim cost trends. Sometimes claim managers sense something is happening, but that knowledge doesn't find its way to the pricing actuaries.

— **Inadequacy of manual rate levels.** Caused in significant part by the lag time between compilations of companies' experience data and publication of new rate manuals, creating too much reliance on the trend assumption.

— **Inadequate analysis of individual accounts.** A likely problem area especially for midsize and specialty program businesses. Sometimes on new accounts, actuaries and underwriters rely too heavily

on the data provided by the prior carrier or they may simply assume that the historical trends implicit in the data will continue. Insurers sometimes give too much credibility to actual historical experience, so that experience adjustments actually move in the wrong direction.

— **Built-in optimism.** Occurs when actuaries and underwriters assume that the future will be better than the past or do not take into account significant events because they assume those events are "anomalies."

— **Difference between "actuarial price" and "market price."** Can occur when actuarial and account pricing decisions become disconnected. For instance, in sales negotiations an underwriter may conclude that the actuarially determined price is too high to win the business, and adjusts the deal price accordingly. If the pricing difference is not systematically recorded, and included in ongoing account planning, the discrepancy not only affects the current year's results, but also creates a built-in "error," making it difficult, if not impossible, to deliver the financial returns required in subsequent years as well.

— **Terms and conditions.** Become a problem area when the contract reflects an appropriate price based on actuarial analysis, but without recognizing subsequent changes in terms of coverage that occur during negotiations. In effect, the contract gives away coverage. It may remove an exclusion or add an endorsement that the pricing analysis did not anticipate. At least one insurer found that changes in terms and conditions, which the underwriters did not feel were material to pricing, turned out to be a major factor in ultimate claims costs.

Inadequate management processes include:

— **Decision making.** Who has the authority to make what kinds of decisions? How much authority is delegated? Who can approve what levels of exposure? What review steps are in place for each level?

— **Accountability.** Are those with decision-making authority also accountable for the decisions? Do they have skin in the game? What incentives are in place to reinforce accountability? Are standards of accountability clear for underwriters and actuaries? Are lines of accountability and authority clear and well understood?

— **Monitoring.** Are formal monitoring and feedback loops in place and well defined? Are monitoring processes adequately articulated to support sound decision making at every level? Are outcomes of the monitoring processes systematically communicated to those who may need to adjust their future behavior?

■ **Refining the Pricing Process.** The next step is to use the diagnostic review to define and prioritize refinements in the pricing processes and tools. The refinements

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should address the root causes of the specific problems that the diagnostic review uncovered. Depending on the problems uncovered, the refinements might encompass:

- the way actuaries and underwriters blend data specific to the individual account with broader benchmarks
- the methods used to validate exposure and the ways that data from expiring policies are used
- the processes that the company uses for manual pricing, which frequently must be accelerated to reduce pricing error
- the communication and feedback loops between actuaries and underwriters that should be in place to ensure that each understands the consequences of the decisions they make independently.

■ Institutionalizing the Control Cycle.

Once the diagnostic and refinement phases have been completed the first time, they then need to be regularly and systematically

repeated. To improve the organization’s pricing and underwriting capabilities and results, those steps must be integrated into the way the company does business, not treated as a temporary intrusion into “business as usual.”

■ Implementing Case-Study Training.

The control cycle improves results by creating a feedback loop to strengthen the organization’s capabilities and enables actuaries and underwriters to hone their competencies and knowledge, including their metaknowledge. But in the insurance business, the feedback loop can entail a *very* long time.

Fortunately, using feedback about results on real deals is not the only way that organizations can improve the competencies of their underwriters and actuaries. As organizations in other industries have found, case-study training can accelerate learning. It’s the equivalent of a flight

simulator. Learning goes faster. Trainees make mistakes crucial to improving their skills, and everyone walks away from the crashes unharmed.

Cases provide training in the principles underlying “best practices” — and the errors embedded in actual practices — drawn from the experience of companies across the industry.

The best case studies, however, are based on the underwriting files from the particular company whose staff is being trained. These cases enable staff to “go to school” on themselves. The cases come from actual accounts, use real data available to support pricing decisions, can reflect the company’s tools and processes, and show actual results. By comparing classroom decisions with actual outcomes, students can better prepare for the real-world decisions they are expected to make.

CAN THE CYCLES BE ENDED OR AT LEAST CURTAILED?

The industry is approaching another turning point in the underwriting cycle. Insurers, in theory, understand the need to maintain pricing discipline in order to avoid the mistakes of past cycles. If underwriters and actuaries make better decisions — by addressing root causes of pricing error, improving pricing processes, institutionalizing a control cycle and implementing a case-study training approach — they may go a long way toward eliminating the underwriting cycle roller-coaster ride, one of the industry’s most vexing problems.

Comments or questions may be e-mailed to bob.conger@towersperrin.com or charles.wolstein@towersperrin.com.

The Reality of Overconfidence in the Insurance Industry

Actuaries and underwriters *do* exhibit overconfidence about their knowledge. The results of the “P/C Confidence Quiz” that we invited readers to take online in our earlier article make that clear.

The quiz tested respondents’ understanding of their metaknowledge — their awareness of the limits of their knowledge — by asking them to answer 10 questions related to their general knowledge of the property/casualty industry. For each question, respondents were asked to provide a range for their answer that would, with 90% confidence, include the correct answer. The less the respondent knew about the question, the wider the range should be.

Ideally, if respondents had a clear idea of what they didn’t know, they should have, on average, correctly answered nine out of 10 questions (the definition of a 90% confidence interval). However, the actual average score was only 3.3 out of 10. In fact, only five out of more than 300 respondents got nine out of 10 right.

Overconfidence among decision makers is a problem. And the insurance industry has it.