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Dynamic Financial Analysis – An Introduction

(Note: This article was originally published in the electronic newsletter of NAMIC Insurance Company)

Financial forecasting has long played an important role in the insurance industry. Companies must plan the near future so that today's decisions can most benefit tomorrow's results. Sadly, most forecasts are static and one-dimensional. They fail to capture the full spectrum of possible outcomes, do not react to unforeseen events and too often rely on basic trending techniques.

Dynamic financial analysis (DFA) breathes life into the forecasting process. DFA models rely on computer simulation techniques. Input items such as inflation, exposure growth and claim severity and frequency are defined by statistical functions and allowed to fluctuate freely or with another variable. Each iteration of the computer creates another randomly simulated "future". When thousands of "futures" are compiled, a two-dimensional range of outcomes is generated and the forecast has gained an extra level of depth.

Ranges help companies manage the future with confidence. They allow companies to choose whether to be aggressive, conservative or neutral depending on management's strategy. To be conservative, a company would plan for a year at the low end of the modeled range. An aggressive company would do just the opposite. DFA gives a statistical backbone to many managerial decisions.

Scenario testing is made easy with DFA. For example, alternate reinsurance programs can be modeled to discover the right balance between risk and reward. In the current soft market and with most surpluses on the rise, companies have an appetite to buy less reinsurance. DFA models can take the guess-work out of the reinsurance process.

DFA also sheds light on the most sensitive assumptions. A company might learn that the annual number of catastrophes is the most meaningful item to the bottom line. It can then structure its reinsurance program accordingly. Another company might find that its investments are too safe and decides to shift some assets from bonds to stocks in the hopes of increasing its expected returns.

Rating agencies and regulators are increasingly looking for companies to demonstrate DFA-like awareness. They view DFA as one more indication that decisions are being made on solid statistical footing. Most models are run and managed by consulting actuarial firms and reinsurance brokers. There are also some software firms that have developed public models.

Fall Notes from Steve Streff

These are strange times for the industry. We should be happy about another profitable year driven by low national catastrophes (through September), declining frequency and good economic conditions, but the downward pressure on rates is leaving most of us with an uneasy feeling about the future. Many high-quality companies will post negative premium growth in 2007. With strong surplus levels and little concern about big-name insolvencies, the current soft market probably has several more years to go. Hang on and stay disciplined!

Al Hapke will soon attend an actuarial predictive modeling seminar in October in Las Vegas. Predictive modeling is gaining popularity as companies look to refine their rating systems to keep the best risks.

We welcome three new year-end reserving clients: The Concord Group, Little Black Mutual and Universal Surety Group. There's still room for more, as Ryan Beckman, our new hire last spring, will help make year-end 2007 the smoothest one yet. Give us a call for a proposal.

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The Second Annual Momentum Rankings – Admired Companies Rise to the Top

Well-respected companies are at the top of their game according to the findings of the second annual Momentum Rankings as developed by Streff Insurance Services. Record industry results in 2006 have left forty of the largest fifty companies with underwriting profits. Even companies with little momentum are in good shape. Except for sluggish premium growth, today's marketplace is very healthy.

The Second Annual Momentum Rankings are based on data from Best's 2007 Key Rating Guide. By measuring financial indicators over a five year span and weighting toward the current years, a company's momentum can be quantified. Reviewing hot and cold companies can teach us lessons about current business strategy.

In our model, surplus growth accounts for 40% of each company's score with a 55% weight assigned to the growth in 2006. Combined ratios and premium growth each account for 30% of the score. Insurers' are penalized for premium growth that is excessively fast or slow. The industry's 2006 revenue growth was modest, so companies were rewarded for responsible growth.

The nearby table ranks the largest 50 companies by momentum. The scores for the three components are measured with symbols similar to those found in Consumer Reports. Solid circles represent the top quintile and completely hollow circles represent the bottom quintile. A quick study of the rankings uncovers several trends:

- Firms with a "profit-center" mentality such as WR Berkley, Markel, AIG and ACE have flourished since 2001. They were well-positioned to take advantage of the short but powerful hard market. To continue their momentum, they'll need to find some new growth opportunities. We expect things to work out fine for this group of innovative companies.

- Widely-admired "good guys" Chubb, Auto-Owners and FM Global are on a roll. They have leveraged their brand names and conservative ways into strong momentum.
- Personal lines are cooling down. Notice how most of today's auto insurance commercials emphasize personal service and trust rather than the lowest price? Firms like Progressive have wisely put growth on the back burner. On the other hand, GEICO (Berkshire Hathaway) is still growing rapidly.
- Commercial lines will soften further. In particular, Workers' Compensation is prone to exaggerated cycles, owing in part to over-regulation. This line peaked in 2003/04 and should continue to worsen in the coming years. Look for companies with heavy WC exposure to face a headwind.

Ohio Casualty will leave our list as it integrates into Liberty Mutual. Last year we lost Employers Re as it folded into Swiss Re. Both Ohio Casualty and Employers Re had low momentum when they sold out, but had staged small comebacks at the end. Future sellers will probably come from the lower tiers of the momentum rankings.

What companies can be expected to be buyers? Travelers, ACE and AIG have been quiet lately, but have the platform to acquire almost any stock company. Liberty Mutual could absorb a mutual company. Warren Buffet of Berkshire Hathaway has expressed his interest in making a very large purchase. While rates stay soft and loss and expense ratios creep up, keep an eye out for a blockbuster merger or two in the next year.

Where would your company rank here? Drop us a line and we'll run your five-year numbers through our model.

Momentum Rank	Company	Surplus Growth	Combined Ratio	Premium Growth	Premium Rank
hot	1 W.R. Berkley	●	●	●	18
	2 Markel	●	●	●	45
	3 USAA	●	●	●	12
	4 Chubb	●	●	○	11
	5 AIG	●	○	●	2
	6 Auto-Owners	●	●	●	20
	7 ACE INA	●	●	○	19
	8 FM Global	●	●	○	28
	9 Commerce	○	●	●	43
	10 Travelers	●	○	●	5
warm	11 Nationwide	●	○	●	6
	12 Selective	●	○	●	46
	13 Cincinnati	○	○	●	24
	14 Westfield	○	●	●	47
	15 Allstate	●	○	○	3
	16 Erie	●	○	○	21
	17 Auto Club Enterprises	○	○	●	33
	18 Old Republic	○	●	○	37
	19 Hanover	●	○	○	36
	20 Assurant	●	○	○	40
neutral	21 CA State Auto	○	○	○	34
	22 Liberty Mutual	●	○	○	7
	23 Farmers	○	○	○	9
	24 State Farm	○	○	○	1
	25 Hartford	●	○	○	10
	26 Progressive	○	●	○	8
	27 Great American	○	○	○	31
	28 State Ins. Fund of NY	○	○	●	44
	29 Mercury General	○	○	○	26
	30 State Comp. Fund of CA	●	○	○	22
cool	30 Allianz	○	○	○	17
	32 Munich Re	○	○	○	32
	33 American Family	○	○	○	14
	34 Berkshire Hathaway	○	○	○	4
	35 Fairfax	○	○	○	25
	36 Everest Re	●	○	○	35
	37 Safeco	○	○	○	15
	38 NJM	○	○	○	48
	39 Country	○	○	○	38
	40 MetLife Auto & Home	○	○	○	27
cold	41 QBE Regional	○	○	○	49
	42 Ohio Casualty	○	○	○	50
	43 GMAC	○	○	○	29
	44 CNA	○	○	○	13
	45 Sentry	○	○	○	39
	46 Southern Farm Bureau	○	○	○	41
	47 Zurich U.S.	○	○	○	16
	48 White Mountains	○	○	○	30
	49 Unitrin	○	○	○	42
	50 Swiss Re	○	○	○	23

Key: Companies ranked by quintile
 ●=1-10, ●=11-20, ○=21-30, ○=31-40, ○=41-50

Current Trends in AM Best Ratings

Please visit the Downloads section of our website www.streffinsurance.com to review a summary of current AM Best ratings, BCARs and the 2006 median statistics.

Pricing for a Small Workers' Compensation Book of Business

For many companies Workers' Compensation is a critical line of business, but the volume and characteristics of the book do not provide the level of statistical credibility to allow standard ratemaking methods to work properly. The wide variety of exposures and the types of claims that one faces when writing different classes of business, combined with the wide range of WC jurisdictional issues, present unique problems to the company with a small book of business.

Companies in these situations are often completely reliant on bureau loss costs or competitors' rates, without really knowing if these are appropriate for their own operations. This article discusses our approach to handling these WC issues. We try to maximize the use of a company's own information in our ratemaking scheme. Let's look at two situations.

Few Classes, Multiple States

First consider the situation where a company writes relatively few class codes in multiple states (for example, 10 to 20 classes in 10 or more states). The experience of a single class of business in each state is not likely to be credible. There might be significant credibility, however, if we could combine all of the experience for that class across all states of operation. While this may be a reasonable approach for auto liability or general liability, it is improper for WC because of the significant differences between state statute and benefit levels.

As experienced underwriters in these relatively few classes of business, you have carved out a special niche which utilizes expertise in claims handling, marketing, risk selection and loss control which are not reflected in bureau loss costs or rates for that class of business. How do we reflect this underwriting knowledge and the uniqueness of your operations in our ratemaking methodology?

If we simply add your loss experience from different states, divide by the earned exposures, to calculate a loss cost for that class, we would simply be mixing "apples and oranges" because of the differences in the state benefit levels and legal environments.

We can, however, compare indicated loss costs for each cell (defined as a single class in a single state) to the loss costs that we would expect to obtain based on industry experience. The comparison of these actual loss costs with bureau loss costs in a given cell creates an "indicated deviation" for that cell.

By itself, this indicated deviation may look meaningless, particularly if the volume of business in the cell is small or is subjected to a large loss. With no losses or a large loss in a small cell, the indicated deviation can be a huge positive or negative percentage departure from the bureau indicated loss cost. This large deviation, however, will be used only to the extent of the size of the cell relative to the combined volume in that class throughout the country.

We are going to take these indicated deviations for this particular class and weigh them for each state together so that we have a collective deviation indicated for that class over all of the states in which you write business. This aggregate deviation is based on the assumption that strategies that uniquely define the way your company attracts risk, manages claims and controls losses are consistently applied across the different states and have a similar impact relative to industry experience in that class of business for each state. In the example below, the overall deviation of -12.1% has greater credibility than any of the individual smaller cells.

Class 3632						
	Earned Exposure	Adjusted Losses	Actual Loss Cost	Bureau Loss Cost	Bureau Expected Losses	Deviation
State 01	2,586,057	267,140	10.33	2.64	68,272	291.3%
State 02	72,872,309	1,457,446	2.00	2.47	1,799,946	-19.0%
State 03	96,392,638	2,178,474	2.26	3.00	2,891,779	-24.7%
State 04	75,924,154	2,619,383	3.45	3.84	2,915,488	-10.2%
State 05	15,071,569	617,934	4.10	3.01	453,654	36.2%
Total	262,846,727	7,140,377			8,129,139	-12.1%

The indicated aggregate deviation now has significantly greater credibility in predicting the appropriate deviation for that class to be used in all states. This deviation can then be applied to each state bureau's published loss cost, which reflects that particular state's benefit level and jurisdictional nuances to obtain a statistically credible loss cost which has been created by incorporating your company's own experience.

Multiple Classes, One State

The second situation occurs when a company writes a small amount of business in many different class codes, all within one state. The typical actuarial approach of calculating an indicated overall rate change by looking at historical loss ratios and bringing them to current level is acceptable, but does not effectively consider any changes or trends in the distribution of business by class within your company's book. To more effectively deal with this issue, we again refer to the bureau's published loss costs in your particular state.

First, calculate the expected loss costs based on the bureau loss costs state for each class, and sum these expected loss costs to obtain an overall expected loss cost for the state. Then calculate the indicated loss costs based on your own experience in that state, for each class, and sum those loss costs to obtain the estimated loss costs for the state based on actual experience.

By comparing the sum of the indicated loss costs to the expected bureau loss costs, we obtain an indicated loss cost deviation to be used with all classes within the state. The indicated deviation reflects your differences from the industry in the overall WC book and incorporates any changes to the distribution of your book of business by class.

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Streff Insurance Services provides a wide range of actuarial consulting support to property and casualty insurance companies. We trace our roots back to 1983 and have been located in picturesque Red Wing, Minnesota since 1995. Since then, our client base has steadily grown and our relationships with our other insurance vendors have strengthened.

We are known for our informative reports, independent views and practical advice. Open communication and a sharp focus on the end product are the keys to meeting project deadlines and keeping clients satisfied. Our areas of specialty

include loss reserves, pricing, reinsurance analysis, start-up feasibility studies, strategic management and industry research.



Five Wise Reserve Moves Before Year-end

With the summer storm season behind us, the fourth quarter is the time to freshen up the reserves for optimal presentation at year-end. These five moves require little effort and will keep your reserves in top shape heading into the crucial season year-end when you want the reserves to look and be their best.

Rotate the IBNR reserves forward one year. If you haven't already been doing this during the year, now is the time to rotate. Don't forget to account for growth: if premium has grown 5%, make sure that the total IBNR also increases about 5%. Rotating will give you a good picture of the upcoming Part 2 reserve development results, which might have been masked up to this point.

Settle simple storm claims. Cat losses always distort actuarial projection methods. Most actuaries pull out cats, project the ordinary losses, and then add back in the cats at current value. Any uncertainty surrounding the outcome of storms will only complicate matters. It's best to get as many cat claims off the books as possible.

Freshen up large claims. With reinsurance renewal season at hand, this may seem like the worst time to tinker with the current reserves. However, accurate case reserve adjusting on large claims will pay off down the road, if not now. You will gain the trust

of reinsurers who will, in turn, tend to offer more stable rates and terms. Besides, oftentimes a review of large claims merits a lowering of the reserves rather than an increase.

Make strategic offers on stubborn old claims. This item applies only to companies having profitable years. The legal stars tend to align more often in the final quarter, as plaintiff attorneys look to top off their year and claimants grow tired of waiting for a settlement (Christmas money?). Pick a handful of claims where there is obvious liability and make fair offers. Even if these claims were under-reserved, they shouldn't ruin a good year. You'll then start the new year without these troublesome claims.

Play it safe with the current accident year. There is one habit that distinguishes great companies from the pack: they don't take chances with the current accident year. Resist the temptation to make the current accident year a record-setter right now. Instead, enjoy it in a year or two. Putting in a margin of safety on the 2006 experience will help set up future reserve releases. If this can be done every year, then a permanent conservative reserve posture has been established.

