A Model for Estimating Loss Costs for Alternative Market Risks

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ABSTRACT

The process of estimating loss costs for risks in the alternative market is most often based on the loss experience of either the individual member, the group as a whole, or some combination of the two. This paper will outline a model used successfully over the past nine years for more than a dozen captive insurance companies. Due to the myriad of risks and information available, the model must be flexible enough to handle insufficient information but robust enough to produce reliable estimates of future loss costs for a variety of individual and group risk situations.

Most importantly, the loss cost estimation process must incorporate a large number of considerations unique to individual risks. These considerations include data availability and organization, credibility, loss development, trend, policy provisions, reinsurance, operational changes, legislative/regulatory/judicial influences and actuarial judgment.

The model is presented by outlining the general methodology, major assumptions, potential problem areas and potential resolutions, and a discussion of the model's advantages and disadvantages.

Biography

Joseph A. Herbers is an Associate of the Casualty Actuarial Society, a Member of the American Academy of Actuaries, and a Principal in the Bloomington, Illinois office of Miller, Rapp, Herbers, Brubaker, & Terry, Inc. Mr. Herbers holds a Bachelors degree in Mathematics from the University of Missouri. In Mr. Herbers eleven years as a consultant, he has advised dozens of clients in the alternative market, including captive insurance companies, municipal pools, risk retention groups and self-insured plans.

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Purpose

The objective of the model described in this paper is to provide a reliable method for measuring future loss potential for individual members of a group of risks to be insured outside the conventional commercial insurance marketplace. For the sake of this paper, we assume the individual risks are all prospective members of a captive insurance company.

Experience rating techniques are used to develop estimates of the future loss potential in a primary layer of coverage ($100,000 per occurrence) for individual risks, and a combination of experience and exposure rating techniques are used to develop estimates of future loss potential for the group as a whole in an excess layer up to the captive's retention ($200,000 excess of $100,000 in this example). We assume excess of loss reinsurance coverage is placed up to policy limits.

Scope

The scope of coverages to be examined throughout this paper will be general liability (including products but excluding professional liability and pollution exposures), auto liability (including garage and garagekeepers liability), auto physical damage and workers compensation. No consideration is given to property exposure (such as inland marine, crime, contractors equipment) nor to other specialty lines.

Approach

In the development of projected loss costs for some period in the future, several data elements are essential. First, a minimum of five years of historical premiums, losses (including allocated loss adjustment expenses), claim counts and exposure are required for each line of coverage and policy period.

Premiums preferably should be either written or earned premiums (including audits), but should exclude any retrospective adjustments. As a practical matter, it will be difficult to obtain premiums at a particular limit (for example, $300,000) so total limits premium is the most likely available information.

The loss data should be identified for each coverage segment separately (it may be difficult or impractical to separately identify products losses separate from general liability) for each policy period. The loss evaluation date should be noted. Individual claims with losses above a certain retention should be separately identified. Ideally, the retention used for identifying large claims should be lower than the primary retention ($100,000 in our example) used in the loss cost projections in order to account for the potential for exceeding the primary retention level after adjustment for trend.

The nature of the general liability exposure should be identified (premises versus manufacturing or contractor versus products). A suitable exposure base should be selected, be it sales, square footage or payroll, depending on the underlying nature of the risk. The auto exposure should

distinguish between that for liability versus physical damage (trailers are excluded from the former but generally included in the latter). Payroll data for workers compensation should be gathered with detail by class code and state, in order to assess the underlying nature of the risk exposure. Since statutory workers compensation benefit levels vary by state, as does the relative adequacy of advisory manual rates promulgated by the rate bureaus, detail by state is essential. All workers compensation data should exclude operations in the six State Fund states. These are Nevada, North Dakota, Ohio, Washington, West Virginia and Wyoming.

Most importantly, special circumstances unique to each risk should be investigated, such as:

- Unavailability of premium data due to prior self-insured periods;
- Underlying deductibles/retentions that may affect historical premiums and losses;
- Acquisitions or divestitures during the same time period as data is available;
- Claims administrator (and changes in such over time);
- Changes in management, or changes in management philosophy regarding insurance costs, safety programs, loss control programs, risk management priorities, etc.; and,
- Terms and conditions of prior coverage.

Methodology

Once the raw data has been collected, note the loss evaluation date and the length of time from the midpoint of the policy period to the evaluation date. This is important, especially when working with non-annual or partially expired policy periods. In our example (Exhibit 2), we have five years of data, with annual policy periods and varying loss evaluation dates. Calculate the losses excess of the primary retention limit. To do so, be conscious of the manner in which allocated loss adjustment expenses (ALAE) will be shared between layers:

- ***Limits inclusive*** - ALAE is added to the amount of indemnity losses in determining whether the limit has been met;

- ***Limits exclusive*** - ALAE is allocated in full to the primary layer, regardless of amount;

- ***Pro-rata***- ALAE is shared between participants based on the relative distribution of loss by layer;

For the purpose of the detailed example presented in this paper, we assume a limits inclusive treatment of ALAE. From the example, we note only one claim above the $100,000 retention, a workers compensation claim in the 93/94 policy period in the amount of $112,929.

Two estimates of ultimate losses for each line of coverage and policy period are calculated. First, compute estimated ultimate primary losses via benchmark industry loss reporting patterns and a

common loss development approach (Method 1). In the example, excess losses are subtracted from total limits losses prior to division by the benchmark loss reporting patterns at the level of maturity indicated by the loss evaluation date.

Next, compute another estimate of ultimate losses via a Bornhuetter-Ferguson (B-F) technique (Method 2), using an estimate of the expected loss ratio derived via industry sources. The expected loss ratio for general liability, auto liability and auto physical damage used in the example is assumed to apply equally well to all states. However, consideration should be given to variations in the expected loss ratio by state. More discussion of the expected loss ratios are presented in the **Major Assumptions** section of this paper.

Should there be no reported incurred losses, the estimated ultimate losses from Method 1 would be zero. In such cases, the selected ultimate losses should reflect the estimated ultimate losses from Method 2. In those cases where there are reported losses, select an estimate of ultimate losses somewhere between the two estimates, using judgment. In our example, the selected ultimate losses are a simple average of these two estimates.

Compute the indicated loss cost per unit of exposure, and adjust it for changes in statutory benefit levels for workers compensation. Since these benefit levels are unique to each state, a weighted average of the indicated factors for each state where the member has operations is needed. The weights used in our example is the distribution of payroll by state. A better weighting scheme would be the relative distribution of manual (or standard) premium by state, if available.

Trend the indicated loss cost at $100,000 limits to the midpoint of the prospective policy period. The particular trend factors used in the example will be discussed later in the paper. Assign weights to each policy period based on the length of the period expired as of the given loss evaluation date (using 12 months = weight of 1.0). For example, if an annual policy period has losses evaluated at the 6 month point in time, the indicated weight is .50. Similarly, for a 9 month policy period with losses evaluated past the expiration date of the policy, the indicated weight is .75.

The actuary has discretion to adjust the weights (both up and down) using judgment to reflect a variety of situations unique to the particular risk or to the underlying data itself. This could be due to operational changes at the company, a "shock" loss, or any number of other factors. In our example, the weight for the 91/92 policy period for the workers compensation line of coverage was reduced to .01 (Column 16 of Exhibit 2) to reflect the fact the company had implemented a significant loss control program in early 1992, such that losses prior to this time would significantly affect the otherwise indicated loss cost.

The average $100,000 limits trended loss cost is then multiplied by the projected exposures provided by the member (or its broker) to develop an estimate of the primary losses for the prospective policy period. In our example (Exhibit 1), the estimated primary losses of $154,010 reflect projected loss costs of $0.60 per $100 payroll for general liability, $227 per power unit for auto liability, $119 per unit for auto physical damage and $2.51 per $100 payroll for workers compensation.

The difference between the payroll for general liability and workers compensation in this example is due to the exclusion of payroll for sales and clerical personnel for the general liability exposure as this particular risk is assumed to be a mechanical contractor.

To assess the expected losses in the excess layer up to the captive's retention, project the actual excess losses for the group of prospective captive members as a whole, supplemented with indicated excess loss provisions using insurance industry sources. In our example, the losses for the group are presented in Exhibit 3.

Two methods (similar to the development of primary losses) are used to derive estimates of the ultimate losses in the excess layer. The first method uses a common loss development technique projecting reported incurred excess losses via benchmark loss reporting patterns for reinsurers. The second method uses a Bornhuetter-Ferguson technique, using the estimated ultimate primary losses for the group as a whole, the current excess loss provision and the benchmark reinsurer loss reporting patterns. An estimate of the ultimate excess losses by line of coverage and policy period is selected based on the results of these two projections.

The indicated excess provision must also reflect the fact that the trend in excess losses is greater than the trend in primary losses, so we assume a 3% annual differential in the trend rates. The excess loss provision indicated for the group is supplemented with indicated loss provisions indicated from insurance industry sources. More discussion of the industry excess loss provisions is presented in the **Major Assumptions** section of this paper. Based on the excess loss provisions indicated for the group as a whole, those indicated from industry sources and the current excess

loss provision, select a reasonable provision for the prospective policy period.

The projected excess losses for each member is then calculated simply as A x B x C, where:

A = Projected Exposure for prospective policy period

B = Projected $100,000 Loss Cost

C = Selected Excess Loss % for Group

In our example in Exhibit 1, the excess losses are $50,465 for all lines combined. When added to the projected primary losses determined earlier, the projected losses at the captive's $300,000 retention limit amount to $204,475.

Major Assumptions

The four major assumptions used in the loss cost projections involve the expected loss ratios, benchmark loss development patterns, trend factors and excess loss provisions:

1. Expected Loss Ratios

There are a number of sources available to develop profiles of expected loss ratios by line of coverage (and also by state). Accident year development data published in A. M. Best's *Aggregates and Averages* can be used to project ultimate countrywide loss ratios for each major line of coverage. To supplement loss development patterns for general liability, consider loss

development data published in advisory rate or loss cost filings from circulars of the Insurance Services Offices (ISO) for premises liability versus manufacturers and contractors separately.

For auto liability consider differences in development patterns for private passenger versus commercial auto liability separately, as well as differences that may exist between loss development patterns for no-fault versus tort states. Furthermore, garage type risks may have different loss development patterns from other commercial auto liability risks.

From our review of the loss development data published in Best's *Aggregates & Averages*, we project ultimate loss ratios (including ALAE) by accident year in Table 1. Note these are our estimates of the ultimate loss ratios and are not necessarily the same as those indicated by held ultimate losses for the industry as a whole:

TABLE 1

Projected Industrywide Ultimate Loss Ratios (including ALAE)

Accident Year	General Liability	Products Liability	Auto Liability		Work. Comp.
			Priv Pass	Comm.	
1988	65.8%	57.6%	83.5%	75.1%	93.4%
1989	73.9	66.1	84.8	79.2	94.6
1990	75.5	73.4	83.4	75.7	93.8
1991	77.4	79.9	77.3	72.6	86.5
1992	75.6	89.3	75.7	71.4	73.0
1993	84.7	89.5	76.3	76.5	63.7
1994	77.2	96.4	78.1	80.0	66.1

For the workers compensation line of coverage, variations in loss ratios by state may be difficult to identify on an accident year basis without access to filings of the National Council on

Compensation Insurance (NCCI). Another source of information is in the National Association of Insurance Commissioner's (NAIC) by line by state profitability reports published annually, and information commonly published annually by A.M. Best. The workers compensation loss ratio data from these two sources suffer from two problems. First, the loss ratios do not include loss adjustment expenses. To adjust for this problem, we note from Best's *Aggregates and Averages* that held ultimate ALAE is approximately 9% of held ultimate losses for the 1994 accident year. Hence, the pure loss ratios on a calendar year basis can be adjusted to reflect ALAE by a factor of 1.09. Secondly, the published loss ratios typically are on a calendar year basis, hence they are influenced by reserve changes attributable to prior accident years. A comparison of the countrywide loss ratios on a calendar year basis (excluding ALAE) with the estimated ultimate loss ratios (including ALAE) per Table 1 indicates different patterns:

TABLE 2

Workers Compensation Loss Ratios

Year	Cal. Year	Acc. Year
1990	85.2%	93.8%
1991	85.9	86.5
1992	83.1	73.0
1993	73.6	63.7
1994	62.2	66.1

The importance of the difference between calendar year and accident year figures is evident from Table 2. That is, the calendar year loss ratios indicate a continuing downward trend in 1994, while the ultimate loss ratios on an accident year basis indicate a low point in 1993, with a slight increase in accident year 1994. A review of calendar year data exclusively may lead one to project continued improving loss ratios in 1995 and 1996, while the accident year data indicates

an upturn in the loss ratios for 1995 and 1996. A summary of suggested expected loss ratios by state for workers compensation is presented in Exhibit 4.

The reason for the significantly lower loss ratio for 1994 on a calendar year basis relative to the accident year value (other than the ALAE issue) relates to the industry's $2.4 billion reduction in reserves for accident years 1993 and prior. This amounts to an 8.5 point reduction to the calendar year 1994 loss ratio.

2. Benchmark Loss Development Patterns

Benchmark loss development patterns can be derived from a multitude of sources, for a variety of different uses. The most common source of benchmark loss development patterns is from Best's *Aggregates & Averages*. Our review of the industry loss development patterns through year-end 1994 is summarized in Exhibit 4. Note that separate patterns are derived for the occurrence versus claims-made coverage forms for the medical malpractice, general liability and products liability lines of business.

It is very useful to review loss development patterns by state for the workers compensation line of business to account appropriately for differences in statutory benefit levels. While loss development data by state are published annually in the NCCI's Annual Statistical Bulletin, the case reserves reported by many companies include bulk reserves commonly associated with case reserve development. Since these bulk reserves are a component of IBNR reserves, the case incurred loss development patterns published in the NCCI's Annual Statistical Bulletin are biased.

Only recently has the NCCI begun to isolate these bulk reserves.

If using the patterns from the NCCI Bulletin, caution should be used. That is, if the indicated case incurred development patterns are applied to reported incurred losses for a particular company (or insured for that matter) that exclude bulk reserves, the indicated ultimate losses will be significantly understated. Another problem with the data from the NCCI Annual Statistical Bulletin is that data for several states are not available, including Delaware, New Jersey and Pennsylvania.

While loss development patterns for general liability may vary by state, consideration should be given to whether those differences are significant enough (and consistently so from one year to the next) to reflect in the cost model. Furthermore, differences in auto liability loss development patterns may be indicated between states with no-fault statutes and so-called tort states. Moreover, differences in loss development patterns are likely between different classes of commercial auto risks such as private passenger fleets versus long-haul trucking.

Schedule P loss development data for individual companies (or groups of peer companies) may be constructed using data available from a variety of sources, including A. M. Best.

3. Trend Factors

The change in average annual costs per unit of exposure over time (i.e., trend) can be measured from a variety of sources, however the most useful may come from filings of the NCCI, loss cost

circulars of the ISO, cost and frequency data for private passenger auto published quarterly as the ISO/NAII Fast Track data. When considering the appropriate trend factors to use, one must consider whether an inflation sensitive exposure base (such as sales or payroll) is being used. In such cases, the trend factors should be selected in accordance with expected changes in losses over and above the changes expected from inflation in the exposure base.

In our example, the 2% and 3% annual trend factors used for general liability and workers compensation, respectively, reflect the average annual change in losses over and above the average change in payroll. Furthermore, they reflect the moderation in trend evident in the past couple of years coincident with a slowing in the general rate of inflation.

4. Excess Loss Provisions

Derivation of the estimates of losses in the excess layer above $100,000 (to the captive's retention limit) will require the use of a benchmark increased limits factor to assess the expected percentage of losses in that excess layer. It is desirable to work with indicated increased limits factors prior to application of risk loads as the risk loads may mask the true underlying distribution of losses by layer. Since increased limits factors promulgated by the ISO include risk margins, it is necessary to be able to identify the risk load component so it can be removed. Furthermore, the ISO increased limits factors assume that all ALAE is paid in the basic limits layer. Hence, we desire indicated factors using our assumption regarding the treatment of ALAE (that is, limits inclusive).

The excess loss factors published by the NCCI can be useful in assessing the percentage of losses in a given layer of loss for the workers compensation line of coverage. As the excess loss factors vary by hazard group, it is important to gauge the exposure being evaluated relative to the hazard group assigned to the class codes relevant to the particular member. Caution is suggested at this step as well for the actuary to adjust the indicated excess loss factors for perceived inadequacies.

As increased limits factors change over time, it is useful to construct a model incorporating Pareto claim severity parameters (provided in filings and circulars) to adjust the ILF's for any projected policy period. Similarly, other statistical distributions can be used.

Problem Areas

When working with data for individual risks, special problems invariably arise. More often than not, the largest problems relate to the data itself.

1. Data not available

In those instances when prior years' premium or exposure data is not available, reasonable estimates of such must be made. When using sales or payroll as the exposure base, consider a 5% annual increase absent any information from the individual risk. Likewise, consider an average 5% increase in the average rate per unit of exposure to determine prior years' premiums. For auto, it may be prudent to assume no changes in historical fleet count, without information to the contrary. Should the general liability and auto liability premiums be imbedded in a "package"

premium (including property as well), reasonable assumptions regarding the relative distribution of the components must be made to allocate the package premium to each line of coverage.

2. Individual risks with significant excess losses

Should a particular member have a significantly greater history of losses above $100,000 compared with the rest of the group, consider using a higher excess loss percentage for that member. However, be careful to remove that risk's loss experience (both primary and excess) in the process of estimating the excess loss potential for the group as a whole.

3. Nonowned Autos

Certain risks may not have any auto liability or physical damage exposure other than that emanating from the use of nonowned autos. In such cases, consider the amount of rentals the company may make in any given year and translate that to a measure of car-years. Most times, using an exposure of one vehicle may be a reasonable estimate of the true underlying exposure.

4. No description of policy period effective/expiration date or loss evaluation date

This is an important element in the process of estimating ultimate losses, so every effort should be made to ascertain the true policy periods.

5. Non-recurring losses or losses in subrogation proceedings

When dealing with an individual risk, often times there will be statements regarding the nature of particular claims as being "non-recurring." While due consideration should be given to the circumstances of any one particular claim, the actuary should also consider the potential for other "non-recurring" losses that may reasonably occur in future policy periods. Similarly, if there is a claim in subrogation proceedings, due consideration should be given to the potential recovery and the impact that claim has on the trended average loss cost.

6. Safety/loss control programs

Often times, the management of a company seeking to opt out of the conventional marketplace has either implemented rigorous safety or loss control programs in the recent past or plans to do so coincident with joining a captive. To assess the impact of such programs, review the indicated loss costs subsequent to implementation of the programs. If there is sufficient evidence that the programs have had a significant and consistent impact on costs, it is probably prudent to reduce the weights associated with loss costs for policy periods prior to the program's implementation.

If, however, the implementation of the programs are too recent to be reflected in the risk's actual loss experience, the actuary must give consideration to the programs' perceived effectiveness. A review of relevant internal company documents is in order prior to making estimates of a program's effectiveness. Critical in this process is an assessment of management's commitment to the program. Furthermore, despite the thickness of a company's safety/loss control manual,

the most effective programs are those that are communicated down to the shop floor level and have the support and enthusiasm of workers. We have seen dramatic changes in loss experience due simply to employee award programs offering cash for claim free periods.

In those instances where a review of the company's committment to loss control and safety appear to warrant a subjective credit, the actuary should consider a discount no greater than 10%, consistent with many schedule rating plans.

7. New Acquisition/Divestiture

Individual risks buy and sell parts of their operations over time. When reviewing historical premium, loss and exposure data, it is important to know about such acquisitions and divestitures. In the case of a divestiture, the data should be segregated between the ongoing operations versus discontinued operations. The projected losses should recognize only the ongoing operations. On the other hand, in the case of new acquisitions, the loss experience for the entity being acquired should be reviewed separately to determine whether a blended average loss cost is appropriate for the prospective policy period.

8. Multiple Locations

Individual risks often times have operations in multiple locations, with varying policy periods. Trying to assemble projected loss costs on a consolidated basis can be problematic. In such cases, attempt to produce projected loss costs for each location where a sufficient volume of claims

history is available. In other cases, construct "average" policy periods and effective dates to project ultimate losses and loss costs.

Advantages/Disadvantages of Methodology

There are a number of advantages to the methodology outlined above for developing projected ultimate losses for individual risks. It is a relatively straightforward experience rating technique that is sensitive to changes in a risk's loss experience. A common method is used for all members, and judgment can be incorporated into the process. It is easily automated and handles non-annual policy periods without problems. The quick turnaround time made possible by the method can be very important to risks that are considering their options close to the time of renewal. The reasonableness of the projected losses for individual members can be checked by comparing the indicated losses for the group as a whole with the sum of the projected losses for individual members.

While touting the methods advantages, it is important to recognize the potential disadvantages. The experience rating technique may not work well for small risks, and the lack of statistical credibility may result in substantially different loss picks from one year to the next. This obstacle may be overcome by limiting the amount of change in the projected loss costs in any one year by some predetermined percentage. The use of benchmark industry data may not be appropriate in every instance. The method may be criticized because of a level of conservatism that results from using total limits premiums in the development of $100,000 per occurrence losses. The expected

loss ratios used may not be appropriate for each state in which the risk has operations.

Despite these shortcomings and areas of conservatism, it is important to note that there is inherently a broader range of reasonable projected loss costs using experience rating techniques for individual risks compared with exposure rating techniques. With the large number of forces that have a bearing on the losses for any given risk, actuarial judgment is essential in deriving projected losses for individual risks that correspond well with the expected losses for the group as a whole.

Alternative Approaches

If a captive is formed for a group of risks many of which have premiums too small for an experience rating technique to be valid, another approach may produce more reasonable estimates of losses for individual members. First, if the historical premium, loss and exposure data are aggregated for all members (presumably with homogeneous risk exposure), a projected loss cost can be computed for the group as a whole. Costs can then be allocated to individual members via a combination of exposure and experience rating techniques.

For example, consider a group of similar risks, with individual members located throughout the country. Exposure rating techniques using indicated manual rates or advisory loss costs for the class of business insured can be constructed. Using the exposure distribution for the captive members, the overall projected loss costs can be allocated to each exposure group to determine the first estimate of expected losses. Experience rating techniques can be used to factor in the loss

ratios for individual members using credibility. The combination of the exposure and experience rating techniques produces reliable estimates of expected losses for the group as a whole, with some measure of variance to reflect individual members' loss experience.

Projected Losses at Captive Retention
ABC Company

Line of Coverage	Projected Exposure	Primary Layer Loss Cost	Estimated Primary Losses	Excess Losses		Projected $300,000 Losses
				%	$	
(1)	(2)	(3)	(4)	(5a)	(5b)	(6)
GL	39,600	0.60	23,760	35%	8,316	
AL	50	227	11,350	22%	2,497	
APD	50	119	5,950	2%	119	
WC	45,000	2.51	112,950	35%	39,533	
Total			154,010		50,465	204,475

Column

(2) *Projected vehicle counts, & payroll provided by broker*
(3) From Exhibit II, Col (15)
(4) Col (2) x Col (3)
(5a) Based on analysis of excess limits data for all members combined from Exhibit III. Note these relate to 200 x 100 layer of coverage relative to $100,000 losses
(5b) Col (4) x Col (5a)
(6) Col (4) + Col (5b)

DEVELOPMENT OF PRIMARY LOSS PICKS

ABC COMPANY

Cov.	Policy Period	Evaluation Date	Premium	ELR	Incurred Losses: Total Limits	Incurred Losses: Excess of $100,000	Expected % of Ult. Reported	Estimated Ultimate Primary Losses: Method 1	Estimated Ultimate Primary Losses: Method 2	Selected Ultimate Losses	Current Level Benefit Factor	Exposure	Loss Cost	Trend Factor to 10/01/96	Trended Loss Cost	Weight
(1)	(2)	(3)	(4)	(5)	(6a)	(6b)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
GL	*04/01/95 - 04/01/96*	10/01/95	39,435	0.75	0	0	16.5%	0	24,693	24,693		34,214	0.72	1.020	0.74	0.5
	04/01/94 - 04/01/95	05/01/95	35,236	0.75	0	0	41.0%	0	15,599	15,599		41,399	0.38	1.040	0.39	1
	04/01/93 - 04/01/94	05/01/94	30,952	0.75	0	0	41.0%	0	13,702	13,702		44,925	0.31	1.061	0.32	1
	04/01/92 - 04/01/93	12/26/94	45,197	0.75	34,373	0	72.6%	47,326	43,651	45,488		37,138	1.22	1.082	1.33	1
	04/01/91 - 04/01/92	12/26/94	41,321	0.75	10,157	0	83.7%	12,132	15,202	13,667		52,302	0.26	1.104	0.29	1
			192,141		44,530	0		59,458	112,848	113,150		209,979	0.54		0.60	
AL	*04/01/95 - 04/01/96*	10/01/95	19,425 e	0.75	178	0	25.0%	713	11,110	5,912		41	144	1.050	151	0.5
	04/01/94 - 04/01/95	05/01/95	22,500 e	0.75	8,152	0	68.0%	11,987	13,551	12,769		38	336	1.103	371	1
	04/01/93 - 04/01/94	05/01/94	20,465 e	0.75	4,500	0	68.0%	6,617	9,411	8,014		62	129	1.158	150	1
	04/01/92 - 04/01/93	12/26/94	25,871 e	0.75	4,876	0	88.9%	5,485	7,032	6,259		50	125	1.216	152	1
	04/01/91 - 04/01/92	12/26/94	12,526 e	0.75	9,954	0	94.3%	10,551	10,486	10,518		49	215	1.276	274	1
			100,787		27,660	0		35,354	51,589	43,471		240	181		227	
APD	*04/01/95 - 04/01/96*	10/01/95	6,475 e	0.70	919	0	36.5%	2,518	3,797	3,157		41	77	1.040	80	0.5
	04/01/94 - 04/01/95	05/01/95	7,500 e	0.70	5,506	0	93.0%	5,920	5,874	5,897		38	155	1.082	168	1
	04/01/93 - 04/01/94	05/01/94	6,822 e	0.70	5,501	0	93.0%	5,915	5,835	5,875		62	95	1.125	107	1
	04/01/92 - 04/01/93	12/24/94	8,624 e	0.70	3,474	0	100.0%	3,474	3,474	3,474		50	69	1.170	81	1
	04/01/91 - 04/01/92	12/26/94	4,175 e	0.70	5,680	0	100.0%	5,680	5,680	5,680		49	116	1.217	141	1
			33,596		21,080	0		23,507	24,660	24,084		240	100		119	
WC	*04/01/95 - 04/01/96*	10/01/95	205,621	0.65	21,624	0	32.0%	67,492	112,456	89,974	1.0000	38,880	2.31	1.030	2.38	0.5
	04/01/94 - 04/01/95	05/01/95	185,417	0.65	57,365	0	75.8%	75,630	86,471	81,051	1.0012	47,044	1.72	1.061	1.83	1
	04/01/93 - 04/01/94	05/01/94	191,617	0.65	126,022	12,929	75.8%	149,102	143,173	146,137	1.0094	51,052	2.89	1.093	3.16	1
	04/01/92 - 04/01/93	09/30/95	200,828	0.65	91,783	0	98.8%	92,865	93,303	93,084	1.0269	42,202	2.27	1.126	2.55	1
	04/01/91 - 04/01/92	12/26/94	128,802	0.65	370,261	0	99.3%	373,054	370,888	371,971	1.0412	59,434	6.52	1.159	7.55	0.01 *
			912,285		667,055	12,929		758,142	806,291	782,217		238,612	3.36		2.51	

Column

(5) Expected Loss Ratio - WC Loss Ratio reflects industry experience in Illinois (50%) and Indiana (50%)

(7) The percentages of losses reported at various levels of maturity are based upon analysis of insurance industry data (Mfg. and contractors patterns for GL)

(8) [Col (6a) - Col (6b)] / Col (7)

(9) [Col (4) x Col (5)] x [1 - Col (7)] + Col (6a) - Col (6b)

(11) Weighted average of factors in Illinois and Indiana, using benefit level changes published in NCCI Annual Statistical Bulletin

(12) Exposure Base for GL is Payroll (excl. clerical and sales, in 00's), WC is Payroll (00's), # of Power Units for Auto Liability and Total # Units for Auto Physical Damage.

(13) Col (10) / Col (12)

(14) Assumed trend factors of 2% for GL, 5% for AL, 4% APD and 3% for WC are based upon analysis of insurance industry data.

(15) Col (13) x Col (14)

(16) Weights are based upon the length of the policy period (12 months = 1), except where a "*" is indicated.

Development of Excess Loss Provisions

Line of Coverage (1)	Policy Period (2)	Estimated Ultimate Primary Losses (3)	Reported Excess Losses (4)	Expected % of Excess Losses Reported (5)	Estimated Ultimate Excess Losses Method 1 (6a)	Method 2 (6b)	Selected (6c)	Trend Factor (7)	Excess Loss Provisions Indicated for Group (8)	Current (9)	Industry Indicated (10)	Selected (11)
General/ Products Liability	95/96	1,108,178	0	7.2%	0	308,517	300,000	1.030	27.9%			
	94/95	871,280	0	25.1%	0	195,777	175,000	1.061	21.3%			
	93/94	1,001,015	274,212	37.0%	741,114	463,404	600,000	1.093	65.5%			
	92/93	1,097,316	96,071	50.3%	190,996	259,681	200,000	1.126	20.5%			
	91/92	1,556,453	1,007,619	63.8%	1,579,340	1,176,650	1,250,000	1.159	93.1%			
	90/91	1,389,270	454,935	73.3%	620,648	566,216	600,000	1.194	51.6%			
	Total	7,023,512	1,832,837		3,132,098	2,970,243	3,125,000		50.4%	30.0%	44%	35%
Auto Liability	95/96	899,930	75,500	16.7%	452,096	262,911	275,000	1.030	31.5%			
	94/95	441,910	0	52.7%	0	52,256	50,000	1.061	12.0%			
	93/94	549,965	0	68.1%	0	43,860	40,000	1.093	7.9%			
	92/93	562,818	79,986	79.6%	100,485	108,690	105,000	1.126	21.0%			
	91/92	417,390	0	85.2%	0	15,443	15,000	1.159	4.2%			
	90/91	382,452	5,679	87.9%	6,461	17,248	15,000	1.194	4.7%			
	Total	3,254,464	161,165		559,041	500,407	500,000		16.4%	25.0%	24%	22%
Workers Compensation	95/96	6,615,134	7,900	12.2%	64,754	2,040,731	1,150,000	1.030	17.9%			
	94/95	6,984,105	792,988	38.7%	2,049,065	2,291,428	1,800,000	1.061	27.3%			
	93/94	5,157,738	1,483,413	51.8%	2,863,732	2,353,523	2,200,000	1.093	46.6%			
	92/93	5,970,673	1,684,222	62.6%	2,690,450	2,465,783	2,300,000	1.126	43.4%			
	91/92	5,130,539	2,067,392	68.8%	3,004,930	2,627,647	2,500,000	1.159	56.5%			
	90/91	4,320,805	1,552,524	73.1%	2,123,836	1,959,328	1,800,000	1.194	49.7%			
	Total	34,178,994	7,588,439		12,796,767	13,738,439	11,750,000		38.4%	35.0%	34%	35%

Column

(3) Sum of estimated ultimate primary losses (first $100,000 per occurrence) for all members combined

(4) Sum of reported excess losses for all members combined, with individual occurrences limited to $300,000 captive retention

(5) From benchmark loss reporting patterns for reinsurers, *derived from data from A. M. Best Company*

(6a) Col (4) / Col (5)

(6b) {Col (3) x Col (9) x [1 - Col (5)]} + Col (4)

(6) Judgmental selection based on Cols (6a), (6b)

(7) Based on assumed 3% differential in trend rate for excess versus primary losses

(8) [Col (6c) x Col (7)] / Col (3) [Total is a weighted average using estimated ultimate primary losses in Col (3) as weights]

(9) Excess provision used in current cost projections

(10) Based upon analysis of industry data by layer of loss (Pareto claim severity distribution for General Liability and Auto Liability, excess loss premium [hazard group III] factors for Workers Compensation)

(11) Judgmental selection based on Cols (8) - (10)

Exhibit 4

Analysis of Insurance Industry Data - Best's Aggregates & Averages
Ultimate Loss Ratios and Loss Payment/Reporting Patterns

Accident Year	General Liability Occ	General Liability CM	Products Liability Occ	Products Liability CM	Priv Pass Auto Liab	Comm Auto Liab	Work Comp
	Estimated Ultimate Loss Ratios (including ALAE)						
1984	159.3%	191.8%	151.2%	109.0%	87.1%	113.4%	104.9%
1985	120.3%	125.6%	114.3%	114.6%	89.2%	99.2%	103.5%
1986	64.6%	57.5%	64.6%	65.7%	85.3%	74.6%	94.8%
1987	58.4%	46.8%	51.7%	53.0%	83.9%	70.6%	91.3%
1988	65.8%	54.0%	57.6%	69.7%	83.5%	75.1%	93.4%
1989	73.9%	63.4%	66.1%	76.7%	84.8%	79.2%	94.6%
1990	75.5%	70.3%	73.4%	80.8%	83.4%	75.7%	93.8%
1991	77.4%	68.9%	79.9%	65.3%	77.3%	72.6%	86.5%
1992	75.6%	77.5%	89.3%	76.1%	75.7%	71.4%	73.0%
1993	84.7%	70.1%	89.5%	42.4%	76.3%	76.5%	63.7%
1994	77.2%	70.1%	96.4%	28.6%	78.1%	80.0%	66.1%
Months of Maturity	Reporting Patterns - Losses + ALAE						
12	29.5%	31.4%	19.2%	50.2%	76.7%	58.5%	56.0%
24	47.2%	51.9%	33.6%	80.2%	90.8%	79.5%	76.1%
36	60.9%	67.4%	50.3%	90.7%	95.2%	89.5%	83.0%
48	69.5%	76.2%	64.4%	96.1%	97.1%	94.6%	85.9%
60	75.0%	82.3%	71.5%	98.0%	97.9%	96.9%	88.0%
72	78.8%	85.2%	77.2%	98.0%	98.2%	98.0%	89.6%
84	81.1%	87.7%	82.3%	99.0%	98.4%	98.6%	90.7%
96	83.2%	89.9%	84.7%	98.5%	98.5%	98.9%	91.6%
108	84.8%	91.7%	87.1%	98.5%	99.1%	99.1%	92.5%
120	87.0%	92.2%	89.3%	98.5%	99.8%	99.2%	93.5%

EXHIBIT 5

	State	Workers Compensation Cal. Year Experience Industry Loss Ratios by State, excluding all LAE					Including ALAE	
		1990	1991	1992	1993	1994	Indicated*	Selected
	Alaska	61.4%	62.3%	58.4%	59.5%	56.3%	65.0%	60%
	Alabama	103.7%	99.9%	87.3%	90.6%	41.4%	65.0%	65%
	Arkansas	94.3%	96.4%	80.2%	54.7%	52.4%	60.0%	60%
	Arizona	86.2%	80.4%	82.9%	73.7%	68.9%	80.0%	70%
	California	69.6%	78.0%	79.1%	65.3%	60.7%	70.0%	65%
	Colorado	138.1%	91.0%	91.8%	77.7%	54.3%	70.0%	80%
	Connecticut	80.1%	82.7%	94.4%	76.1%	56.3%	70.0%	65%
	Country Wide	85.2%	85.9%	83.1%	73.6%	62.2%	75.0%	65%
	District of Columbia	47.8%	60.5%	73.0%	75.7%	47.9%	65.0%	60%
	Delaware	57.1%	79.9%	67.6%	89.6%	86.5%	95.0%	90%
	Florida	98.8%	106.3%	119.7%	107.3%	76.5%	100.0%	85%
	Georgia	84.0%	84.1%	81.2%	71.2%	53.3%	65.0%	65%
	Hawaii	76.2%	75.6%	96.0%	98.9%	68.1%	85.0%	75%
	Iowa	72.9%	77.7%	72.0%	58.2%	53.7%	60.0%	60%
	Idaho	70.9%	70.1%	76.6%	66.0%	51.9%	65.0%	60%
	Illinois	76.3%	72.9%	71.5%	68.5%	60.5%	70.0%	65%
	Indiana	73.3%	67.5%	71.1%	63.8%	63.2%	70.0%	65%
	Kansas	90.4%	95.1%	80.4%	63.3%	63.0%	70.0%	70%
	Kentucky	102.9%	110.2%	94.2%	95.9%	100.1%	105.0%	100%
	Louisiana	101.3%	93.0%	71.4%	64.2%	41.2%	55.0%	60%
	Massachusetts	109.0%	109.1%	69.9%	56.0%	51.3%	60.0%	60%
	Maryland	69.8%	85.7%	87.0%	79.4%	61.0%	75.0%	70%
	Maine	143.7%	186.4%	98.9%	74.7%	62.6%	75.0%	85%
	Michigan	88.6%	99.7%	85.3%	72.1%	60.3%	70.0%	65%
	Minnesota	82.0%	87.4%	95.2%	83.0%	57.3%	75.0%	65%
	Missouri	89.2%	91.9%	78.8%	66.2%	62.4%	70.0%	65%
	Mississippi	91.4%	86.2%	64.6%	56.8%	49.1%	60.0%	55%
	Montana	106.8%	49.4%	53.0%	66.7%	48.1%	60.0%	60%
	North Carolina	102.5%	98.4%	91.6%	78.2%	60.1%	75.0%	65%
X	North Dakota	8.5%	146.6%	-7.6%	11.3%		5.0%	50%
	Nebraska	90.5%	84.0%	72.8%	66.4%	54.5%	65.0%	65%
	New Hampshire	93.5%	111.2%	103.4%	86.3%	47.5%	70.0%	60%
	New Jersey	92.5%	96.9%	102.4%	95.7%	79.9%	95.0%	80%
	New Mexico	93.9%	101.4%	69.5%	38.1%	29.5%	40.0%	50%
X	Nevada	28.6%	79.1%	47.9%	118.2%		45.0%	55%
	New York	81.4%	85.2%	96.3%	76.0%	72.0%	80.0%	75%
X	Ohio	22.7%	102.6%	75.3%	92.5%		40.0%	75%
	Oklahoma	102.5%	100.3%	91.4%	77.5%	75.5%	85.0%	80%
	Oregon	66.2%	65.5%	41.5%	67.1%	75.5%	75.0%	75%
	Pennsylvania	92.0%	93.3%	97.2%	97.5%	71.1%	90.0%	75%
	Rhode Island	143.4%	127.7%	73.3%	30.3%	65.7%	60.0%	70%
	South Carolina	80.4%	72.6%	58.4%	64.5%	55.2%	65.0%	65%
	South Dakota	81.7%	83.9%	99.0%	88.5%	64.6%	80.0%	70%
	Tennessee	89.1%	85.7%	84.2%	75.3%	67.2%	80.0%	75%
	Texas	94.7%	79.5%	71.5%	64.6%	33.6%	50.0%	60%
	Utah	91.0%	82.5%	82.0%	63.3%	56.4%	65.0%	75%
	Virginia	87.1%	96.0%	89.6%	87.1%	72.3%	85.0%	80%
	Vermont	90.7%	87.1%	98.2%	93.7%	58.8%	80.0%	70%
X	Washington	53.1%	39.3%	41.2%	30.0%		15.0%	50%
	Wisconsin	62.9%	64.7%	69.2%	62.7%	62.7%	70.0%	65%
X	West Virginia	45.9%	100.0%	-10.9%	92.0%		30.0%	50%
X	Wyoming	-34.8%	96.4%	111.6%	21.6%		20.0%	65%

X - Indicates State Fund

* Indicated = Latest 3 years weighted 10/30/60 for 1992-94, respectively loaded by 9% to reflect ALAE, rounded to nearest 5%