A Closure-Based Regression Method

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Abstract:

This paper outlines a simple regression methodology using closure ratio (see 2.0) as the independent variable and cumulative net paid loss & ALAE (paid loss) development factor (LDF) as the dependent variable.

The method, in addition to its simplicity, has three favorable characteristics. First, retrospectively, it has proven to be very accurate when accident year exposures are fully earned. Secondly, there is a pure analysis of the relationship between claim closure level and paid LDF. The standard Berquist-Sherman type of adjusted paid loss development method (Adjusted Paid Loss Development Method) uses interpolation at many points to transform an age-based triangle into a closure-based triangle. The chain ladder method is then used to develop losses to ultimate. The Closure-Based Regression Method by contrast directly evaluates the relationship between closure ratio and paid loss development. Finally, the method has the advantage of being visually compelling. The actuary often can see a dramatically improved fit in the paid loss development factor as the independent variable is changed from age to closure level. This improvement stems from the theory that a closure-based triangle is inherently superior to an age-based triangle (unless too much error is introduced in estimating closure based data points). Age is only a weak surrogate for closure. It is fortunate that this methodology has proven to work well for Bodily Injury with very low closure ratios. Bodily Injury is the most difficult coverage to predict in personal lines auto due to its long tail. A very accurate loss development curve for Bodily Injury can be modeled beginning at only about a 35% closure ratio if all exposures for the accident year are earned.

Motivation:
The authors are not aware of this method in the actuarial literature. The authors believe that this method is a significant advancement over aged-based triangle methods and has advantages over the traditional Berquist-Sherman Adjusted Paid Loss Method. It is believed that this knowledge should be shared with the actuarial community.

Method:
This is a paid loss method that adjusts for settlement rate using simple regression.

Results:
This paper demonstrates the power of the Closure-Based Regression Method and illustrates the method's visual support for using an adjusted paid loss methodology.

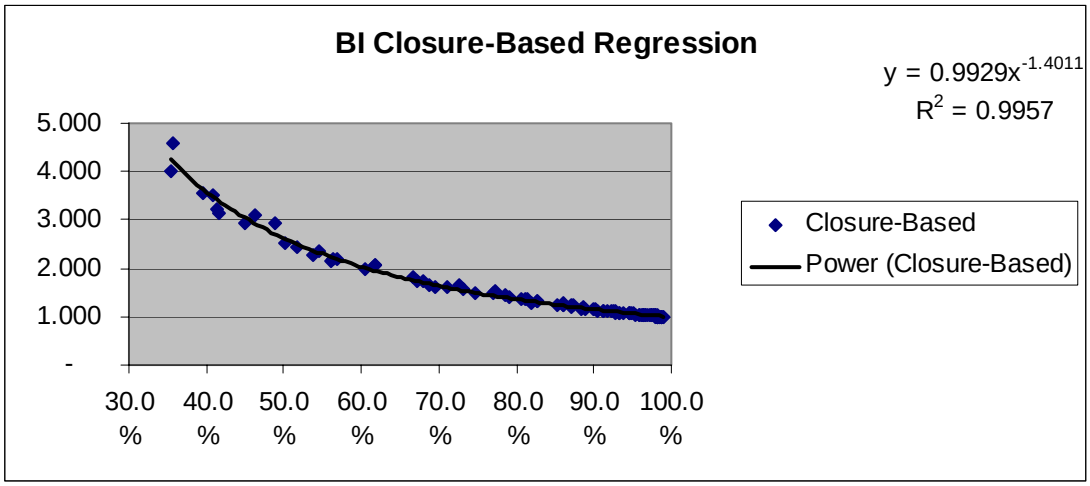
Conclusions:
This is a simple but powerful and visually compelling method that should be added to the actuary's tool box of estimation techniques. It is a significant improvement over age-based triangle based methods and allows the actuary to understand visually the nature of the loss development curve.

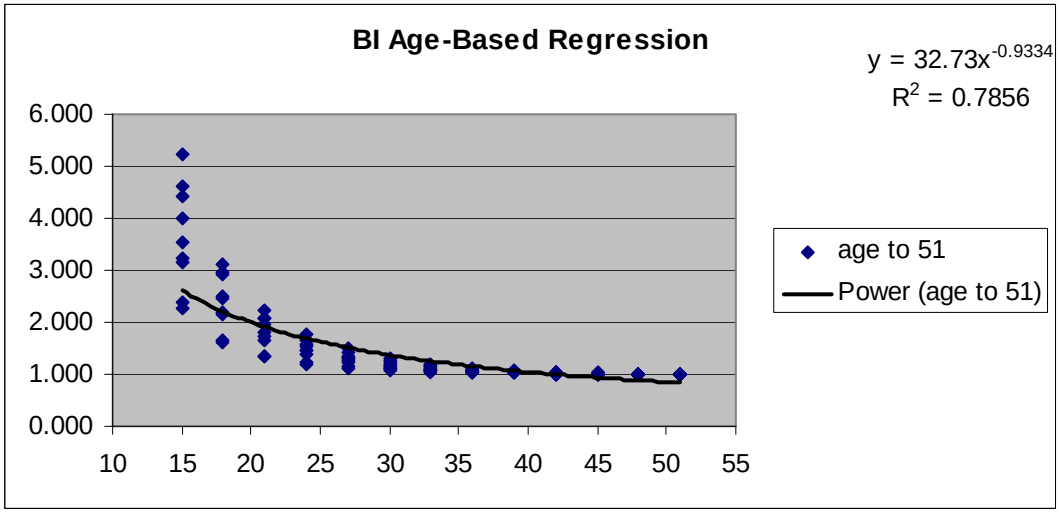
Keywords:
Simple regression modeling; reserving; closure ratio

1. INTRODUCTION

The traditional paid loss triangle tracks accident year losses by age of development. However, the development of paid losses is more closely related to the rate at which the claims department settles claims in that accident year than it is to the age of the accident year. Age is only a weak surrogate for settlement rate. If there is a change in settlement rate from one accident year to the next a paid loss development method which adjusts for closure rate is in order.

The graphs below represent the actual Bodily Injury data for a non-standard personal automobile insurer for a large book of business. They visually illustrate the greatly improved predictability that a closure-based analysis offers over a traditional age-based triangle for this business. The paid loss development factor is listed on the y-axis and the closure ratio (accident year age) is shown on the x-axis. The paid loss development factor is the dependent variable. The graphs illustrate the much improved fit of a closure-based relationship as opposed to an age-based relationship. The closure-based exhibit fits the closure ratio of all data points to their associated net paid loss & ALAE LDF. The net paid loss & ALAE LDF represents the development from the amount of cumulative net paid loss & ALAE at the closure ratio of the data point for that accident year to the amount of cumulative net paid loss & ALAE at a 99% closure ratio for that accident year. Development to 99% was made to maximize the amount of data to retrospectively evaluate. The age-based exhibit fits the age of all data points to their associated net paid loss & ALAE LDF. The net paid loss & ALAE LDF represents the development from the amount of cumulative net paid loss & ALAE at the age of the data point for that accident year to the amount of cumulative net paid loss & ALAE at age 51 for that accident year. The comparison of regressions begins at a closure ratio of 35% or at an age of 15. The range of age 15 to age 51 best represents the closure from 35% closed to 99% closed.


BI Closure-Based Regression
y = 0.9929x^-1.4011
R2 = 0.9957
5.000
4.000
3.000
2.000
1.000
-
30.0 %
40.0 %
50.0 %
60.0 %
70.0 %
80.0 %
90.0 %
100.0 %
Closure-Based
Power (Closure-Based)


BI Age-Based Regression
y = 32.73x^-0.9334
R2 = 0.7856
6.000
5.000
4.000
3.000
2.000
1.000
0.000
10
15
20
25
30
35
40
45
50
55
age to 51
Power (age to 51)

After an analysis of the visual evidence above it is apparent that an adjustment to the age-based triangle is in order. The advantages that the Closure-Based Regression Method offers can now be reviewed. The first benefit has already become apparent in that the visual evidence illustrated in the situation above would give the actuary the confidence to place weight on an adjusted method over a traditional age-based development method.

The next focus is on the error introduced when applying adjusted methodologies. In the case of the Adjusted Paid Loss Development Method error occurs in converting an aged-based triangle into a closure-based triangle. Transforming an age-based triangle into a closure-based triangle requires interpolation at many data points along the triangle which introduces error. Additional compounding error is introduced in selecting age-to-age factors during the chain ladder process.

The Closure-Based Regression Method by contrast directly evaluates the relationship between closure ratio and paid loss development. In the Closure-Based Regression Method error is introduced in the selection of the regression equation (equations if two or more fitted curves are used) and the tail assumption. There also is a slight amount of error in the Closure-Based Regression Method in interpolating to get the 80% and 99% closure (very little error) cumulative net paid loss & ALAE. While error is introduced, the simple regression equation above explains 99.57% of the relationship as indicated by the r^2 factor of .9957 for this particular evaluation date. This compares with the r^2 of .7856 on the traditional age-based triangle. A power curve may not be the optimal curve for the age-based triangle and may not be the best fit for the closure-based triangle either. However, the visual evidence of the superior fit is clear.

Of course, the definitive answer for the predictability of a methodology is in a retrospective evaluation of the success of the method. The Closure-Based Regression Method appears to be quite accurate for the company's non-standard automobile personal lines Bodily Injury coverage and offers another approach for adjusting paid loss for changes in settlement rate. The retrospective error of the method as it relates to the Paid Loss Development Method and the Adjusted Paid Loss Development Method is illustrated in Appendix A. Comparisons are made in regard to the Bodily Injury coverage since this is the most difficult coverage to accurately project.

2. CLOSURE-BASED REGRESSION METHODOLOGY OVERVIEW

A simple regression of closure ratio to LDF was investigated for the non-standard personal automobile business. Closure ratio is defined in Equation 2.0. The LDF is defined as cumulative net paid loss & ALAE development from the closure ratio of the given data point to a 99% closure ratio (later in the application of the method two curves rather than one are fit). Closure ratio is the independent variable while LDF is the dependent variable.

There were three pleasant surprises at the conclusion of our initial single curve analysis. The first surprise was that Bodily Injury was found to be the coverage where the relationship was strongest at a low level of closure. This was certainly exciting because Bodily Injury is the most difficult coverage to accurately predict ultimate loss in personal lines auto due to the long tail of this coverage. Appendix B, Exhibit 2 graphs the regressions by coverage from the most recent actuarial evaluation for closure ratios of 35% and greater. The tight fit appears to be unique to Bodily Injury. However, the reason the Bodily Injury fit is tight is the fact that at 35% all exposures are fully earned for Bodily Injury. Using accident year data prior to age 12, when exposures are fully earned, distorts the correct projection of LDF. Appendix B, Exhibit 3 graphs the regressions by coverage from the most recent actuarial evaluation for closure ratios with age 12 months and higher. (The Physical Damage coverages were not illustrated because they are nearly 100% closed at age 12.) This not only is a fairer comparison, but it is the only way to effectively employ the method. In other words, although the fit becomes tighter as the closure ratio advances, a rather tight fit is evidenced for all coverages once the accident period exposures are fully earned. The significance of the Appendix B, Exhibit 3 graphs is that if an accident period exposures are fully earned, a very accurate ultimate net loss & ALAE estimate can be made for Bodily Injury at a closure ratio of 35% or greater for the non-standard personal automobile business.

The second surprise was seeing that such a good fit was determined by using only one independent variable. It certainly is possible that an even closer fit may result when one introduces other explanatory variables such as claim staffing levels, etc. However, the improvement in fit (if found) would need to be weighed against the principle of parsimony as well as retrospectively tested for actual results.

Finally, we discovered that the method is very accurate when the accident period exposures are fully earned. As stated above, this means that the Bodily Injury coverage ultimate net paid loss &

ALAE estimate is fairly certain around an age of 12 months or so if there is a closure ratio of 35% or higher.

Closure Ratio = Closed Claims With Payment / (Closed Claims With Payment + Open Claims)	(2.0)

2.1 Application

A single fitted curve for the Bodily Injury business at the 3/31/05 evaluation date produces an r^2 of .9957. While this is exciting from an explanatory level, especially as it relates to an aged based r^2 of .7856 (using simple power curve fits), it is not necessarily the best solution available. Fitting splines across sections of the scattered data points, particularly around areas of inflection on the original fitted curve may produce more accurate LDF's even though the r^2's of the individual splines may not be as high. Too many splines, however, may cause one to lose information about the shape of the curve and may lead to over-fitting. Currently, the data is fit with two curves (splines). The first power curve fits data from % closed to 80% closed. The second power curve fits data from 80% closed to 99% closed. A tail factor is used to project from 99% closed to ultimate. Inaccurate outcomes exist when projecting LDF's for closure ratios that are of an age prior to when exposures are fully developed. However, very accurate projections are made once the accident year exposures are fully developed (for calendar accident years this is at 12 months of development). This is encouraging news for our pricing model since we use fiscal accident years in our pricing analysis with the youngest experience year at age 12 months.

2.2 Closure-Based Regression Method

Before the method is begun a review of the overall fit of closure ratio to LDF is compared to the overall fit of accident age to LDF. Graphs similar to the graphs on page 3 should be produced.

While actuarial triangles are used to organize data for the regression analysis there is nothing that requires that the data be organized in triangular format for the purpose of reviewing statistics to select age to age LDF's. In other words, this is not a typical triangle-based development method. Cumulative net paid loss & ALAE by accident year and cumulative closure ratios (as defined in equation 2.0) by accident year are required, however.

The method begins by constructing triangles of cumulative closure ratio and cumulative net

paid loss & ALAE to organize data for the regression analysis. Exhibit 1 is a simple calculation of equation 2.0 using the traditional age-based triangles of cumulative closed claims with payment (closed claims with amount) and open claims. Exhibit 2 is the traditional age-based cumulative net paid loss & ALAE triangle.

Exhibit 3 uses the net paid loss & ALAE and closure ratio information in Exhibit 1 and Exhibit 2 to perform linear interpolation to calculate the expected cumulative net paid loss & ALAE at an 80% closure ratio. To illustrate, the 2003 accident year expected cumulative net paid loss & ALAE at an 80% closure ratio of $23,354,111 is found in Exhibit 3. $23,335,756 cumulative net paid loss & ALAE aligns with the data point where there is 79.95% closure. Likewise, $25,477,508 cumulative net paid loss & ALAE aligns with the data point where there is 85.24% closure. Simple linear interpolation yields expected cumulative net paid loss & ALAE of $23,354,111 at a closure ratio of 80%. Exponential interpolation would improve the interpolated estimate somewhat. In fact, an iterative process using a fitted curve from the method to perform the interpolation would be the most exact way to interpolate to the 80% closure ratio expected net paid loss & ALAE.

Exhibit 4 calculates the expected cumulative net paid loss & ALAE at a 99% closure ratio along with the tail estimate for a 99% closure ratio. The 99% tail factor in Exhibit 4 is calculated iteratively once ultimate net paid loss & ALAE estimates are produced by the method. In Exhibit 4 a tail factor of 1.016 is eventually selected.

Exhibit 5 is the net paid loss & ALAE LDF from % closed to 80% closed. To illustrate, the first LDF listed for the 2003 accident year in Exhibit 5 is 277.754. This represents net paid loss & ALAE development from a 7.84% closure ratio to an 80.00% closure ratio. From Exhibit 1a for accident year 2003 at age 3 we see that the closure ratio is 7.84%. At this age and associated closure ratio for this accident year the cumulative net paid loss & ALAE is $84,082 from Exhibit 2a. The expected cumulative net paid loss & ALAE for accident year 2003 is $23,354,111. Therefore, the associated LDF for a closure ratio of 7.84% is 23,354,111 / 84,082 = 277.754. Likewise, Exhibit 6 is the net paid loss & ALAE LDF from % closed to 99% closed.

Exhibit 7 organizes each data point's closure ratio and associated LDF. The first regression utilizes closure ratios starting at the % closed for that data point and truncating at an 80% closure ratio. Here we are regressing % closed to the % closed to 80% closed LDF. The second regression utilizes closure ratios starting at 80% closed and ending at 99% closed. Here we are regressing % closed to the % closed to 99% closed LDF. Note that in both lists of data points in Exhibit 7 the earlier data set calculated (7.84%; 277.754) has been discarded because it is less than age 12 when exposures were fully earned. All data points less than age 12 are discarded. We chose a 99% closure

as a balance between maximizing data and reducing the amount of the tail.

Exhibit 8 shows the simple regression curve fits using a power curve in Excel. Exploration in regard to the number of splines to use as well as to different types of curve fits will again lead to incremental improvements in the fit. Certainly using special statistical software outside of Excel would lead to a more sophisticated analysis.

Exhibit 9 is the resulting Closure-Based Regression Method exhibit. This represents the actual analysis as of 6/30/05 for the Bodily Injury coverage.

Column (1) is the cumulative closure ratio for the accident year. These are taken directly from Exhibit 1.

Column (2) is the LDF from the cumulative closure ratio for the accident year to a closure ratio of 80%. For accident years 2003 and prior the LDF defaults to 1.000 since these years are greater than 80% closed. Accident year 2005 is not calculated because the exposures are not yet fully earned. Accident year 2004 has an LDF of 1.609. This is calculated as .7271x(.5669)^(-1.3997)=1.609 by inserting the closure ratio of 56.69% into the regression equation from Exhibit 8.

Column (3) is the LDF from the "advanced" closure ratio for the accident year to a closure ratio of 99%. For accident years 2003 and prior the "advanced" closure ratio is the original closure ratio from column (1). To illustrate, accident year 2003 has a closure ratio of 89.45%. The LDF from 89.45% to 99.00% is 1.165. This is calculated as .9825x(.8945)^(-1.5244)=1.165 by inserting the closure ratio of 89.45% into the regression equation from Exhibit 8. For accident year 2004 the "advanced" closure ratio is 80.00% since we have already "advanced" the 56.69% closure ratio to 80.00% closed when we apply the 1.609 LDF. To illustrate, accident year 2004 now has a closure ratio of 80.00%. The LDF from 80.00% to 99.00% is 1.381. This is calculated as .9825x(.8000)^(-1.5244)=1.381 by inserting the closure ratio of 80.00% into the regression equation from Exhibit 8. Accident years 2001 and prior have an LDF that defaults to 1.000 since the closure ratio is already greater than 99%.

Column (4) is the tail LDF that depends on how far "advanced" the closure ratio is. For accident years 2001 and prior the "advanced" closure ratio is the original closure ratio from column (1) since these years are greater than 99% closed. For accident years 2001 and prior the tail LDF is taken from the tail LDF used in the Adjusted Paid Loss Development Method since there has been nothing learned from regression analysis for these closure ratios greater than

99%. Accident years 2002 through 2004 have an "advanced" closure ratio of 99%. The tail LDF from 99% closed to ultimate is 1.016. This factor was iteratively derived. The final iteration is shown in Exhibit 4 with final ultimate net paid loss & ALAE figures. The ultimate net paid loss & ALAE divided by the expected cumulative net paid loss & ALAE at 99% closed provides each of the seven estimates for the 99% closed to ultimate tail. The selection was made judgmentally considering these past seven 99% closure to 100% closure tails. A separate regression of the 99% closure to 100% closure could be made as well to improve upon the tail estimate.

Column (5) is the cumulative LDF [column (2) x column (3) x column (4)]. The cumulative LDF represents the net paid loss & ALAE development from the closure ratio shown in column (1) to 100% closed.

Column (6) is the cumulative net paid loss & ALAE for the accident year taken directly from Exhibit 2.

Column (7) is the resulting ultimate net paid loss & ALAE for the accident year. [column (6) x column (5)].

Exhibit 10 is included to illustrate a projection on current year at age 12. This estimate has an error of $48,806 based on the 6/30/05 estimated ultimate net Paid Loss & ALAE (see Appendix A, Exhibit 1). Note that while the closure ratio is not 35% it is material near at 31.33%. This will still produce a very good estimate. In practice, we would use a Bornhuetter-Ferguson Method utilizing the Closure-Based Regression Method LDF's for the current accident year when the closure ratio is less than 35% closed but materially close to 35%.

3. RESULTS AND DISCUSSION

Appendix A shows the historical results for the Closure-Based Regression Method, the Paid Loss Development Method and for the Adjusted Paid Loss Development Method for the Bodily Injury business. As expected, the Closure-Based Regression Method shows the most predictive accuracy with the least variance. Also, as expected, both the Closure-Based Regression Method and the Adjusted Paid Loss Development Method show significant improvement over the traditional age-based Paid Loss Development Method. The Closure-Based Regression Method and the Adjusted Paid Loss Development Method generally move in the same direction with each new evaluation.

When closure ratios are fairly consistent in time a traditional paid loss development method that relies on statistics from this relatively consistent period in its age to age LDF analysis may produce reasonable results. Even in this case, however, a consistent closure ratio may only occur for a few years. Reliance on such thin data will certainly cause the actuary to be very reactive and lose

the credibility provided in larger sets of data. Even if closure ratios are consistent the result of a Paid Loss Development Method will be to average the effects rather than to more directly account for the exact closure ratio of each particular accident year. We have, however, experienced large shifts in closure ratio over time. The wild inconsistency exhibited by the Paid Loss Development Method results from these swings in closure ratio across time.

It is in comparing the Closure-Based Regression Method to a traditional Adjusted Paid Loss Development Method that the importance of this method can be illustrated. It appears from a theoretical review as well as from retrospective evidence that the Closure-Based Regression Method is superior to an Adjusted Paid Loss Development Method for the Bodily Injury coverage. This does not mean that the Closure-Based Regression Method is always superior to the Adjusted Paid Loss Development Method.

From a theoretical point of view it would seem that if the closure ratio completely explained LDF then the Adjusted Paid Loss Development Method would be less predictive than the Closure-Based Regression Method. Error introduced in the Adjusted Paid Loss Development Method in transforming an age-based triangle into a closure-based triangle and in performing the chain ladder calculations would render this method less predictive than the Closure-Based Regression Method if the closure ratio completely explained LDF. However, at some point as the closure ratio explains less and less of future loss development the Adjusted Paid Loss Development Method has advantages over the Closure-Based Regression Method. An analysis of historical triangle data can reveal information regarding the impact of various internal and external factors along with points in time where their influence was heavier or lighter. The actuary can then judgmentally select LDF's that reflect this knowledge.

This is not to say that the Closure-Based Regression Method does not implicitly bring in factors influencing frequency and severity. For example, let us suppose that the only change from one accident year to the next is a change in the claim department settlement amounts. Suppose that claims are settled 10% higher year over year. Both accident years settle at exactly the same rate. To the extent that this 10% trend is already reflected in the year to date (YTD) statistics the YTD paid loss & ALAE amount will be 10% higher than the prior year at the same closure ratio and so upon projection forward the ultimate will reflect an answer that is 10% higher. It is this implicit vertical adjustment for trend reflected in the YTD cumulative net paid loss & ALAE together with a horizontal adjustment for development that combines to produce the ultimate net loss & ALAE.

Analyzing the relationship of closure ratio and LDF as well as the relationship of age and LDF

may provide visual evidence for the expected improvement offered by a closure-based analysis. Further, as the r^2 on the simple regression involving closure ratio approaches 1.00 the actuary should consider placing more weight on a Closure-Based Regression Method.

4. CONCLUSIONS

The Closure-Based Regression Method is a simple but powerful and visually compelling method. Retrospectively, it has proven to be very accurate for accident years where exposures are fully earned. The fit of the development curves makes it clear as to why the method has proven to be so accurate in retrospective tests. The pure analysis of the relationship between claim closure level and LDF produces a very accurate loss development curve.

There were several areas mentioned where improvements can be made to the method. Incremental improvements in accuracy may result from many of these adjustments.

We have had better success with the method with paid data than we have had with incurred data. We have experienced a lot of changes in case reserve adequacy and this may be polluting the regression analysis of closure ratio and incurred LDF. Because of the inconsistent case reserving the Actuarial Department has created factor reserves for internal use that vary with the age of the accident year and are fitted vertically down age columns to account for inflation. Experimenting with these reserves in conjunction with the paid data may lead to an improved fit or may cause unnecessary pollution.

No attempt has been made to date to test the method more universally. The first review that should be undertaken is to test the method with nationwide data from the personal automobile line. Application to other lines of business may exist as well.

There are peculiarities to the non-standard personal automobile line that may be beneficial to the use of the Closure-Based Regression Method. The non-standard personal automobile business is of a high frequency and low severity nature. In addition, claim counts develop relatively quickly. These characteristics may make application to other lines of business less successful.

5. REFERENCES

Berquist, James R., and Sherman, Richard E., "Loss Reserve Adequacy Testing: A Comprehensive Systematic Approach," Proceedings of the Casualty Actuarial Society Casualty Actuarial Society - Arlington,Virginia1977:LXVII 123-184

Abbreviations and notations

LDF, net paid loss & ALAE development factor
YTD, year to date

Biographies of the Authors

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Exhibit
1a

CWA/(CWA+Open)

	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51
1993	4.01%	12.87%	21.80%	34.78%	54.43%	71.19%	82.61%	88.70%	92.80%	94.74%	96.35%	97.09%	97.76%	98.15%	98.50%	99.15%	99.44%
1994	9.25%	19.78%	29.38%	39.54%	53.67%	68.76%	81.04%	87.26%	89.96%	92.38%	94.69%	96.25%	97.02%	97.85%	98.12%	98.75%	99.16%
1995	7.45%	16.27%	26.07%	30.13%	41.74%	50.24%	60.50%	73.06%	81.30%	86.09%	90.49%	93.32%	95.82%	97.59%	97.86%	98.16%	99.02%
1996	3.47%	7.30%	13.13%	21.88%	35.33%	51.63%	66.61%	78.45%	86.11%	90.10%	92.85%	95.29%	96.41%	97.31%	98.16%	98.62%	99.17%
1997	5.99%	9.87%	17.96%	27.70%	41.43%	56.38%	67.95%	77.10%	82.63%	87.11%	91.31%	93.88%	95.88%	97.33%	98.10%	98.33%	98.62%
1998	6.74%	13.53%	17.86%	24.50%	35.65%	48.91%	61.68%	72.63%	79.11%	85.29%	89.01%	92.48%	95.11%	96.67%	97.98%	98.83%	99.37%
1999	4.47%	7.56%	14.45%	21.95%	32.50%	44.99%	56.79%	67.07%	74.56%	81.91%	88.25%	93.25%	96.58%	98.16%	99.03%	99.33%	99.59%
2000	5.91%	9.70%	14.88%	21.14%	32.33%	46.15%	61.84%	77.22%	86.10%	91.31%	94.51%	96.51%	97.84%	98.55%	99.06%	99.16%	99.51%
2001	5.17%	9.98%	16.92%	27.77%	40.94%	56.01%	69.56%	80.55%	87.07%	91.86%	94.45%	96.30%	97.48%	98.27%	98.76%	99.25%	99.33%
2002	5.64%	12.07%	18.41%	26.46%	39.10%	53.16%	65.78%	74.93%	82.28%	87.45%	91.37%	94.07%	95.71%	96.75%			
2003	7.84%	14.01%	21.53%	30.79%	45.57%	60.12%	71.03%	79.95%	85.24%	89.45%							
2004	6.68%	13.01%	21.34%	31.33%	43.26%	56.69%											
2005	6.41%	14.80%															

Exhibit
1b

CWA/(CWA+Open)

	54	57	60	63	66	69	72	75	78	81	84	87	90	93	96	99	102
1993	99.51%	99.64%	99.77%	99.84%	99.84%	99.87%	99.90%	99.93%	99.93%	99.97%	99.97%	99.97%	99.97%	100.00%	100.00%	100.00%	100.00%
1994	99.53%	99.59%	99.69%	99.76%	99.83%	99.86%	99.97%	99.93%	99.97%	99.97%	99.97%	99.97%	99.97%	99.97%	99.97%	99.97%	100.00%
1995	99.28%	99.58%	99.66%	99.81%	99.81%	99.81%	99.81%	99.81%	99.85%	99.92%	99.92%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
1996	99.20%	99.35%	99.45%	99.57%	99.66%	99.85%	99.97%	99.97%	99.97%	99.97%	99.97%	99.94%	99.97%	99.97%	100.00%	100.00%	100.00%
1997	99.15%	99.31%	99.57%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	99.98%	99.98%	100.00%	100.00%	100.00%	100.00%	100.00%
1998	99.62%	99.64%	99.70%	99.72%	99.76%	99.94%	99.91%	99.97%	99.97%	99.98%	99.98%	99.98%	99.98%				
1999	99.66%	99.70%	99.76%	99.80%	99.81%	99.86%	99.91%	99.93%	99.95%								
2000	99.58%	99.65%	99.82%	99.83%	99.86%												
2001	99.56%																

Exhibit
1c

CWA/(CWA+Open)

	105	108	111	114	117	120	123	126	129	132	135	138	141	144	147	150
1993	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
1994	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%				
1995	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%								
1996	100.00%	100.00%	100.00%	100.00%												

Exhibit 2a

NetPaid Loss & ALAE

	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51
1993	23850	440003	1751097	4116136	8007513	11831534	14278225	15964509	16972591	17611193	18145935	18412185	18599225	18741034	18834504	18915326	18967459
1994	91158	864423	2311886	5194806	8138/088	11220809	13671712	15040857	15717248	16392829	16952098	17564927	17867592	18114938	18249237	18346070	18405621
1995	50309	659033	2048652	3575265	5255877	6593127	8383804	10599555	12270046	13496678	14572453	15308523	15844818	16247001	16361430	16450178	16552265
1996	8759	166574	802108	2395691	4695914	7698792	10443855	13009514	15069204	16353709	17207743	17887704	18276301	18501618	18698400	18745079	18841748
1997	45212	523236	2174441	5399948	9905231	14650839	18434660	21862315	24265740	26549256	28654286	29809650	30568954	31196263	31625567	31833820	31975727
1998	72687	541156	1655582	4395460	8315417	13052565	18438977	23245442	26921907	30469043	33014258	34859098	36209913	37021153	37616331	38092555	38387968
1999	51284	620722	2788247	6315290	11032613	16376044	22027130	27600893	32175666	37193603	41381319	44479311	46746502	47740544	48220503	48539328	48748788
2000	49795	510115	1879673	4394381	8213158	13818971	20718279	28087482	33234257	37530775	39510184	40848765	41818055	42340356	42648087	42824268	42954016
2001	51761	428182	1943984	5249365	10140817	16544171	21805864	26100833	29055668	31570067	33007076	33981768	34549553	35104880	35384769	35607655	35716493
2002	71883	622682	2480476	5631654	10285303	15869288	21187513	25809388	29432258	32323392	34517041	36105569	36897480	37396259			
2003	84082	660018	2143074	6018885	10645835	15437555	19464779	23335756	25477508	27340774							
2004	104833	752085	2643954	5872516	9367849	13256219											
2005	56502	621000															

Exhibit 2b

Net Paid Loss & ALAE

	54	57	60	63	66	69	72	75	78	81	84	87	90	93	96	99	102
1993	18996352	19050533	19078453	19082369	19089861	19107056	19115565	19117441	19120137	19131581	19134472	19135588	19136313	19144923	19145048	19145048	19145048
1994	18422544	18425305	18456108	18463166	18465864	18469158	18499305	18498019	18501301	18501301	18501301	18501301	18501301	18501301	18501892	18511745	18516810
1995	16639047	16729845	16740362	16771895	16780070	16778792	16775710	16776170	16775406	16783796	16785812	16798273	16798490	16798495	16798495	16798495	16798495
1996	18897751	18940734	18987524	19004406	19045673	19066056	19089768	19092758	19093003	19091813	19092168	19093407	19101396	19102220	19119323	19119505	19119505
1997	32129382	32274646	32357515	32410993	32423724	32427203	32426483	32427056	32429432	32429494	32429758	32428019	32428319	32428319	32428319	32428319	32428319
1998	38524498	38566044	38597300	38612777	38640427	38683117	38690362	38698432	38699871	38699996	38703929	38704824	38704779				
1999	48833489	48954043	49024243	49069529	49087172	49110490	49135304	49159716	49192079								
2000	43054964	43102420	43193467	43209409	43227069												
2001	35783290																

Exhibit 2c

Net Paid Loss & ALAE

	105	108	111	114	117	120	123	126	129	132	135	138	141	144	147	150
1993	19127253	19127253	19127253	19127253	19127253	19127253	19127253	19127253	19127253	19127253	19127253	19127253	19099702	19099702	19099702	19099702
1994	18516810	18516810	18516810	18516810	18516810	18516810	18516810	18516810	18516810	18516810	18516810	18516810				
1995	16798495	16798495	16798495	16798495	16798495	16798495	16799150	16799150								
1996	19119505	19119505	19119505	19119479												

Exhibit 3

Estimated Net Paid Loss & ALAE

										80%
1993	71.19%	82.61%	11,831,534	14,278,225	80.00%	0.088	0.114	77.2%	22.8%	13,719,250
1994	68.76%	81.04%	11,220,809	13,671,712	80.00%	0.112	0.123	91.6%	8.4%	13,464,777
1995	73.06%	81.30%	10,599,555	12,270,046	80.00%	0.069	0.082	84.2%	15.8%	12,006,002
1996	78.45%	86.11%	13,009,514	15,069,204	80.00%	0.016	0.077	20.3%	79.7%	13,427,078
1997	77.10%	82.63%	21,862,315	24,265,740	80.00%	0.029	0.055	52.4%	47.6%	23,121,585
1998	79.11%	85.29%	26,921,907	30,469,043	80.00%	0.009	0.062	14.4%	85.6%	27,434,387
1999	74.56%	81.91%	32,175,666	37,193,603	80.00%	0.054	0.073	74.1%	25.9%	35,891,725
2000	77.22%	86.10%	28,087,482	33,234,257	80.00%	0.028	0.089	31.3%	68.7%	29,698,193
2001	69.56%	80.55%	21,805,864	26,100,833	80.00%	0.104	0.110	95.0%	5.0%	25,886,454
2002	74.93%	82.28%	25,809,388	29,432,258	80.00%	0.051	0.074	69.0%	31.0%	28,309,584
2003	79.95%	85.24%	23,335,756	25,477,508	80.00%	0.000	0.053	0.9%	99.1%	23,354,111

Exhibit 4

Estimated Net Paid Loss & ALAE

										99%	Ult	99% to ult tail
1993	98.50%	99.15%	18,834,504	18,915,326	99.00%	0.005	0.006	76.9%	23.1%	18,896,622	19,099,702	1.011
1994	98.75%	99.16%	18,346,070	18,405,621	99.00%	0.002	0.004	61.3%	38.7%	18,382,576	18,516,810	1.007
1995	98.16%	99.02%	16,450,178	16,552,265	99.00%	0.008	0.009	98.2%	1.8%	16,550,423	16,799,150	1.015
1996	98.62%	99.17%	18,745,079	18,841,748	99.00%	0.004	0.006	69.5%	30.5%	18,812,221	19,119,709	1.016
1997	98.62%	99.15%	31,975,727	32,129,382	99.00%	0.004	0.005	71.3%	28.7%	32,085,267	32,428,694	1.011
1998	98.83%	99.37%	38,092,555	38,387,968	99.00%	0.002	0.005	31.0%	69.0%	38,184,180	38,715,487	1.014
1999	98.16%	99.03%	47,740,544	48,220,503	99.00%	0.008	0.009	96.2%	3.8%	48,202,331	49,212,336	1.021
2000	98.55%	99.06%	42,340,356	42,648,087	99.00%	0.005	0.005	87.5%	12.5%	42,609,579		
2001	98.76%	99.25%	35,384,769	35,607,655	99.00%	0.002	0.005	49.8%	50.2%	35,495,854		
											selected tail	1.016

Exhibit 5

Net Paid Loss & ALAE Closure Point to 80% Closed LDF

1993	575.231	31.180	7.835	3.333	1.713	1.160	N/A	N/A	N/A	N/A
1994	147.708	15.577	5.824	2.592	1.655	1.200	N/A	N/A	N/A	N/A
1995	238.645	18.218	5.860	3.358	2.284	1.821	1.432	1.133	N/A	N/A
1996	1,532.946	80.607	16.740	5.605	2.859	1.744	1.286	1.032	N/A	N/A
1997	511.404	44.190	10.633	4.282	2.334	1.578	1.254	1.058	N/A	N/A
1998	377.432	50.696	16.571	6.242	3.299	2.102	1.488	1.180	1.019	N/A
1999	699.862	57.823	12.873	5.683	3.253	2.192	1.629	1.300	1.115	N/A
2000	596.409	58.219	15.800	6.758	3.616	2.149	1.433	1.057	N/A	N/A
2001	500.115	60.457	13.316	4.931	2.553	1.565	1.187	N/A	N/A	N/A
2002	393.829	45.464	11.413	5.027	2.752	1.784	1.336	1.097	N/A	N/A
2003	277.754	35.384	10.897	3.880	2.194	1.513	1.200	1.001	N/A	N/A

Exhibit 6

Net Paid Loss & ALAE Closure Point to 99% Closed LDF

1993	792.311	42.947	10.791	4.591	2.360	1.597	1.323	1.184	1.113	1.073	1.041	1.026	1.016	1.008	1.003	N/A	N/A	N/A
1994	201.656	21.266	7.951	3.539	2.259	1.638	1.345	1.222	1.170	1.121	1.084	1.047	1.029	1.015	1.007	1.002	N/A	N/A
1995	328.975	25.113	8.079	4.629	3.149	2.510	1.974	1.561	1.349	1.226	1.136	1.081	1.045	1.019	1.012	1.006	N/A	N/A
1996	2,147.759	112.936	23.453	7.853	4.006	2.444	1.801	1.446	1.248	1.150	1.093	1.052	1.029	1.017	1.006	1.004	N/A	N/A
1997	709.663	61.321	14.756	5.942	3.239	2.190	1.740	1.468	1.322	1.209	1.120	1.076	1.050	1.028	1.015	1.008	1.003	N/A
1998	525.323	70.560	23.064	8.687	4.592	2.925	2.071	1.643	1.418	1.253	1.157	1.095	1.055	1.031	1.015	1.002	N/A	N/A
1999	939.910	77.655	17.288	7.633	4.369	2.943	2.188	1.746	1.498	1.296	1.165	1.084	1.031	1.010	N/A	N/A	N/A	N/A
2000	855.700	83.529	22.669	9.696	5.188	3.083	2.057	1.517	1.282	1.135	1.078	1.043	1.019	1.006	N/A	N/A	N/A	N/A
2001	685.764	82.899	18.259	6.762	3.500	2.146	1.628	1.360	1.222	1.124	1.075	1.045	1.027	1.011	1.003	N/A	N/A	N/A

Exhibit 7

Regression Analysis

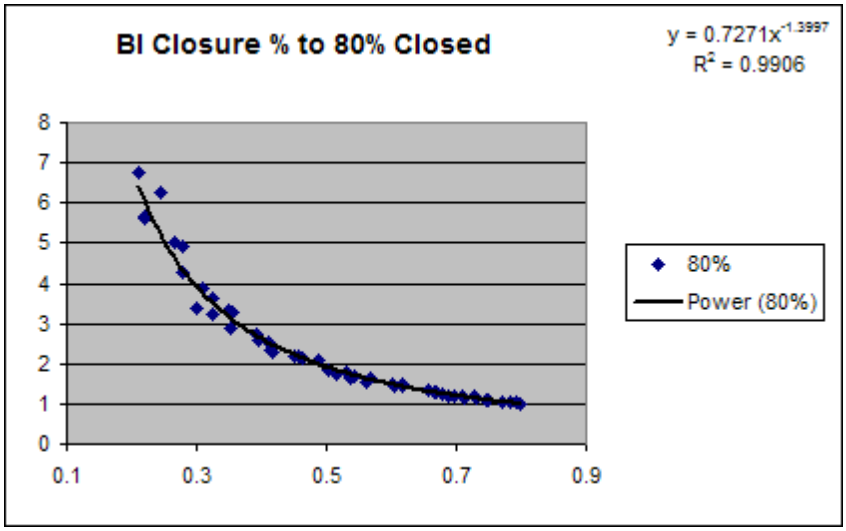
% Closed to 80% Regression		80% to 99% Regression	
closure ratio	LDF	closure ratio	LDF
21.14%	6.758	80.5%	1.360
21.88%	5.605	81.0%	1.345
21.95%	5.683	81.3%	1.349
24.50%	6.242	81.9%	1.296
26.46%	5.027	82.6%	1.323
27.70%	4.282	82.6%	1.322
27.77%	4.931	85.3%	1.253
30.13%	3.358	86.1%	1.226
30.79%	3.880	86.1%	1.282
32.33%	3.616	86.1%	1.248
32.50%	3.253	87.1%	1.222
34.78%	3.333	87.1%	1.209
35.33%	2.859	87.3%	1.222
35.65%	3.299	88.3%	1.165
39.10%	2.752	88.7%	1.184
39.54%	2.592	89.0%	1.157
40.94%	2.553	90.0%	1.170
41.43%	2.334	90.1%	1.150
41.74%	2.284	90.5%	1.136
44.99%	2.192	91.3%	1.135
45.57%	2.194	91.3%	1.120
46.15%	2.149	91.9%	1.124
48.91%	2.102	92.4%	1.121
50.24%	1.821	92.5%	1.095
51.63%	1.744	92.8%	1.113
53.16%	1.784	92.9%	1.093
53.67%	1.655	93.2%	1.084
54.43%	1.713	93.3%	1.081
56.01%	1.565	93.9%	1.076
56.38%	1.578	94.4%	1.075
56.79%	1.629	94.5%	1.078
60.12%	1.513	94.7%	1.084
60.50%	1.432	94.7%	1.073
61.68%	1.488	95.1%	1.055
61.84%	1.433	95.3%	1.052
65.78%	1.336	95.8%	1.045
66.61%	1.286	95.9%	1.050

67.07%	1.300
67.95%	1.254
68.76%	1.200
69.56%	1.187
71.03%	1.200
71.19%	1.160
72.63%	1.180
73.06%	1.133
74.56%	1.115
74.93%	1.097
77.10%	1.058
77.22%	1.057
78.45%	1.032
79.11%	1.019
79.95%	1.001

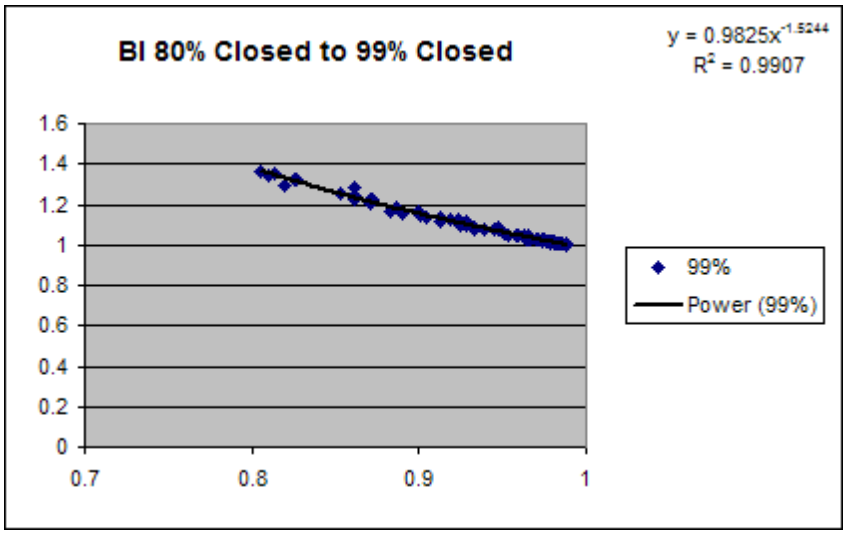
96.3%	1.047
96.3%	1.045
96.3%	1.041
96.4%	1.029
96.5%	1.043
96.6%	1.031
96.7%	1.031
97.0%	1.029
97.1%	1.026
97.3%	1.017
97.3%	1.028
97.5%	1.027
97.6%	1.019
97.8%	1.016
97.8%	1.019
97.9%	1.015
97.9%	1.012
98.0%	1.015
98.1%	1.015
98.1%	1.007
98.1%	1.008
98.2%	1.006
98.2%	1.010
98.2%	1.006
98.3%	1.011
98.3%	1.008
98.5%	1.003
98.5%	1.006
98.6%	1.004
98.8%	1.002
98.8%	1.003
98.8%	1.002

Exhibit 8

Regression Analysis



80% curve			r^2
	0.7271	-1.4	0.9906



99% curve			r^2
	0.9825	-1.524	0.9907

Exhibit 9

Bodily Injury
Closure-Based Regression Method
As Of 6/30/05

Calendar Accident ***Year***	*Closure* ***Ratio*** (1)	*Indicated LDF From Point To* ***80%*** *Closed* (2)	*Indicated LDF To* ***99%*** *Closed* (3)	***Tail*** (4)	***LDF*** (5)	*Cumulative Net Paid* ***Loss & ALAE*** (6)	*Ultimate Net Paid* ***Loss & ALAE*** (7)
1993	100.00%	1.000	1.000	1.000	1.000	19,099,702	19,099,702
1994	100.00%	1.000	1.000	1.000	1.000	18,516,810	18,516,810
1995	100.00%	1.000	1.000	1.000	1.000	16,799,150	16,799,150
1996	100.00%	1.000	1.000	1.000	1.000	19,119,479	19,119,709
1997	100.00%	1.000	1.000	1.000	1.000	32,428,319	32,428,694
1998	99.98%	1.000	1.000	1.000	1.000	38,704,779	38,715,487
1999	99.95%	1.000	1.000	1.000	1.000	49,192,079	49,212,336
2000	99.86%	1.000	1.000	1.002	1.002	43,227,069	43,325,885
2001	99.56%	1.000	1.000	1.007	1.007	35,783,290	36,031,280
2002	96.75%	1.000	1.033	1.016	1.050	37,396,259	39,260,406
2003	89.45%	1.000	1.165	1.016	1.183	27,340,774	32,350,451
2004	56.69%	1.609	1.381	1.016	2.257	13,256,219	29,920,994
2005	14.80%	N/A	N/A	N/A	N/A	N/A	N/A

Exhibit 10

Bodily Injury
Closure-Based Regression Method
As Of 12/31/04

Calendar Accident Year	*Closure Ratio* (1)	*Indicated LDF From Point To 80% Closed* (2)	*Indicated LDF To 99% Closed* (3)	*Tail* (4)	*LDF* (5)	*Cumulative Net Paid Loss & ALAE* (6)	*Ultimate Net Paid Loss & ALAE* (7)
1993	100.00%	1.000	1.000	1.000	1.000	19,099,702	19,099,702
1994	100.00%	1.000	1.000	1.000	1.000	18,516,810	18,516,810
1995	100.00%	1.000	1.000	1.000	1.000	16,798,495	16,798,495
1996	100.00%	1.000	1.000	1.000	1.000	19,119,505	19,119,505
1997	100.00%	1.000	1.000	1.000	1.000	32,428,319	32,437,317
1998	99.98%	1.000	1.000	1.001	1.001	38,703,929	38,736,432
1999	99.91%	1.000	1.000	1.001	1.001	49,135,304	49,187,057
2000	99.82%	1.000	1.000	1.003	1.003	43,193,467	43,337,380
2001	99.25%	1.000	1.000	1.014	1.014	35,607,655	36,101,300
2002	94.07%	1.000	1.078	1.014	1.094	36,105,569	39,482,369
2003	79.95%	1.000	1.381	1.014	1.400	23,335,756	32,667,960
2004	31.33%	3.686	1.381	1.014	5.159	5,872,516	30,298,806

Appendix A

Bodily Injury

Exhibit 1

Closure-Based Regression Method

Accident Year	Evaluation Date 6/30/2005	3/31/2005	12/31/2004	9/30/2004	6/30/2004	3/31/2004	12/31/2003	9/30/2003	6/30/2003
	Estimate								
1995	-	-	-	-	-	16,798,495	16,798,495	16,798,495	16,794,499
1996	-	19,119,735	19,119,505	19,119,505	19,113,258	19,115,035	19,118,313	19,101,462	19,105,359
1997	32,428,694	32,431,727	32,437,317	32,447,867	32,437,759	32,442,351	32,452,153	32,460,635	32,454,938
1998	38,715,487	38,723,974	38,736,432	38,736,892	38,728,347	38,728,979	38,726,026	38,758,983	38,698,227
1999	49,212,336	49,188,402	49,187,057	49,181,801	49,184,611	49,211,941	49,213,611	49,265,826	49,211,381
2000	43,325,885	43,303,710	43,337,380	43,318,533	43,380,146	43,433,405	43,538,866	43,570,687	43,132,792
2001	36,031,280	36,014,821	36,101,300	35,946,763	35,863,797	35,731,421	35,806,477	35,860,291	35,776,450
2002	39,260,406	39,298,205	39,482,369	39,486,214	39,466,208	39,442,372	39,203,378	38,629,592	38,862,763
2003	32,350,451	32,376,767	32,667,960	31,958,531	31,948,740	32,481,320	31,620,912	-	-
2004	29,920,994	30,812,740	30,298,806	-	-	-	-	-	-
	Quarterly Change In Estimate								
1995							-	-	3,996
1996		230	-	6,247	(1,778)	(3,277)	16,851	(3,897)	
1997	(3,033)	(5,590)	(10,550)	10,108	(4,592)	(9,802)	(8,482)	5,697	
1998	(8,487)	(12,458)	(460)	8,545	(632)	2,953	(32,957)	60,756	
1999	23,933	1,346	5,255	(2,809)	(27,331)	(1,669)	(52,215)	54,445	
2000	22,175	(33,669)	18,846	(61,613)	(53,259)	(105,460)	(31,821)	437,895	
2001	16,459	(86,480)	154,538	82,966	132,375	(75,056)	(53,814)	83,842	
2002	(37,798)	(184,164)	(3,845)	20,006	23,836	238,994	573,786	(233,171)	
2003	(26,316)	(291,192)	709,428	9,791	(532,580)	860,408			
2004	(891,746)	513,934							
Total	(904,813)	(98,043)	873,212	73,241	(463,960)	907,090	411,347	409,564	

Selected Ultimate at 6/30/05 Less Estimate

	6/30/2005	3/31/2005	12/31/2004	9/30/2004	6/30/2004	3/31/2004	12/31/2003	9/30/2003	6/30/2003
1995						1,505	1,505	1,505	5,501
1996		(9,735)	(9,505)	(9,505)	(3,258)	(5,035)	(8,313)	8,538	4,641
1997	(18,694)	(21,727)	(27,317)	(37,867)	(27,759)	(32,351)	(42,153)	(50,635)	(44,938)
1998	(5,487)	(13,974)	(26,432)	(26,892)	(18,347)	(18,979)	(16,026)	(48,983)	11,773
1999	(12,336)	11,598	12,943	18,199	15,389	(11,941)	(13,611)	(65,826)	(11,381)
2000	(885)	21,290	(12,380)	6,467	(55,146)	(108,405)	(213,866)	(245,687)	192,208
2001	(1,280)	15,179	(71,300)	83,237	166,203	298,579	223,523	169,709	253,550
2002	(260,406)	(298,205)	(482,369)	(486,214)	(466,208)	(442,372)	(203,378)	370,408	137,237
2003	(100,451)	(126,767)	(417,960)	291,469	301,260	(231,320)	629,088		
2004	329,006	(562,740)	(48,806)						
Total	(70,533)	(985,081)	(1,083,125)	(161,107)	(87,866)	(550,321)	356,769	139,029	548,593

Appendix A

Bodily Injury

Exhibit 2

Paid Loss Development Method

Accident Year	Evaluation Date 6/30/2005	3/31/2005	12/31/2004	9/30/2004	6/30/2004	3/31/2004	12/31/2003	9/30/2003	6/30/2003
	Estimate								
1995						16,798,495	16,798,500	16,798,495	16,794,499
1996		19,092,195	19,106,145	19,106,145	19,113,258	19,115,035	19,118,311	19,101,462	19,105,359
1997	32,428,897	32,385,012	32,414,650	32,425,193	32,437,759	32,442,351	32,452,153	32,443,179	32,454,938
1998	38,719,071	38,668,196	38,709,363	38,709,823	38,728,347	38,728,979	38,726,027	38,718,176	38,698,227
1999	49,212,869	49,117,551	49,152,686	49,136,203	49,184,611	49,211,941	49,213,609	49,213,957	49,211,381
2000	43,326,355	43,241,336	43,307,096	43,259,763	43,380,146	43,433,405	43,538,863	43,725,836	43,966,686
2001	36,031,670	35,962,945	36,076,074	35,978,192	36,291,376	36,423,636	37,212,266	38,172,631	39,610,353
2002	38,333,156	38,451,255	38,929,534	37,765,275	39,354,763	40,438,834	41,227,259	43,235,304	45,281,424
2003	31,801,357	32,786,303	34,891,711	33,447,674	41,233,852	46,845,415	50,345,248		
2004	29,385,211	32,576,719	39,095,219						
	Quarterly Change In Estimate								
1995						(5)	5	3,996	
1996		(13,950)	-	(7,113)	(1,778)	(3,275)	16,849	(3,897)	
1997	43,885	(29,638)	(10,543)	(12,566)	(4,592)	(9,802)	8,974	(11,759)	
1998	50,875	(41,168)	(460)	(18,524)	(632)	2,952	7,851	19,949	
1999	95,318	(35,135)	16,482	(48,407)	(27,331)	(1,667)	(348)	2,576	
2000	85,019	(65,761)	47,334	(120,384)	(53,259)	(105,458)	(186,973)	(240,850)	
2001	68,725	(113,129)	97,881	(313,184)	(132,260)	(788,630)	(960,365)	(1,437,722)	
2002	(118,099)	(478,279)	1,164,259	(1,589,488)	(1,084,071)	(788,425)	(2,008,045)	(2,046,120)	
2003	(984,946)	(2,105,409)	1,444,037	(7,786,178)	(5,611,564)	(3,499,832)			
2004	(3,191,508)	(6,518,500)							
Total	(3,950,729)	(9,400,968)	2,758,992	(9,895,843)	(6,915,487)	(5,194,144)	(3,122,052)	(3,713,827)	

Selected Ultimate at 6/30/05 Less Estimate

	6/30/2005	3/31/2005	12/31/2004	9/30/2004	6/30/2004	3/31/2004	12/31/2003	9/30/2003	6/30/2003
1995						1,505	1,500	1,505	5,501
1996		17,805	3,855	3,855	(3,258)	(5,035)	(8,311)	8,538	4,641
1997	(18,897)	24,988	(4,650)	(15,193)	(27,759)	(32,351)	(42,153)	(33,179)	(44,938)
1998	(9,071)	41,804	637	177	(18,347)	(18,979)	(16,027)	(8,176)	11,773
1999	(12,869)	82,449	47,314	63,797	15,389	(11,941)	(13,609)	(13,957)	(11,381)
2000	(1,355)	83,664	17,904	65,237	(55,146)	(108,405)	(213,863)	(400,836)	(641,686)
2001	(1,670)	67,055	(46,074)	51,808	(261,376)	(393,636)	(1,182,266)	(2,142,631)	(3,580,353)
2002	666,844	548,745	70,466	1,234,725	(354,763)	(1,438,834)	(2,227,259)	(4,235,304)	(6,281,424)
2003	448,643	(536,303)	(2,641,711)	(1,197,674)	(8,983,852)	(14,595,415)	(18,095,248)		
2004	864,789	(2,326,719)	(8,845,219)						
Total	1,936,413	(1,996,511)	(11,397,479)	206,732	(9,689,111)	(16,603,093)	(21,797,236)	(6,824,041)	(10,537,867)

Appendix A

Bodily Injury

Exhibit 3

Adjusted Paid Loss Development Method

Accident Year	Evaluation Date 6/30/2005	3/31/2005	12/31/2004	9/30/2004	6/30/2004	3/31/2004	12/31/2003	9/30/2003	6/30/2003
	Estimate								
1995						16,798,495	16,798,500	16,798,495	16,794,499
1996		19,119,735	19,119,505	19,119,505	19,113,258	19,115,035	19,118,311	19,101,462	19,105,359
1997	32,428,694	32,431,727	32,437,317	32,447,867	32,437,759	32,442,351	32,452,153	32,460,635	32,454,938
1998	38,715,487	38,723,974	38,736,432	38,736,892	38,728,347	38,728,979	38,726,027	38,758,983	38,698,227
1999	49,212,336	49,188,402	49,187,057	49,181,801	49,184,611	49,211,941	49,213,609	49,265,826	49,211,381
2000	43,325,885	43,303,710	43,337,380	43,318,533	43,380,146	43,433,405	43,538,863	43,570,687	43,335,991
2001	36,031,280	36,014,821	36,101,300	36,040,799	36,193,980	36,189,942	36,152,692	36,294,276	35,831,783
2002	38,432,254	39,057,677	39,409,122	39,541,109	39,834,072	40,568,391	39,438,096	40,625,468	39,557,030
2003	32,256,453	32,444,748	33,038,952	32,264,427	31,154,368	33,190,019	35,625,305		
2004	30,322,599	31,573,246	33,237,555						
	Quarterly Change In Estimate								
1995						(5)	5	3,996	
1996		230	-	6,247	(1,778)	(3,275)	16,849	(3,897)	
1997	(3,033)	(5,590)	(10,550)	10,108	(4,592)	(9,802)	(8,482)	5,697	
1998	(8,487)	(12,458)	(460)	8,545	(632)	2,952	(32,956)	60,756	
1999	23,933	1,346	5,255	(2,809)	(27,331)	(1,667)	(52,217)	54,445	
2000	22,175	(33,669)	18,846	(61,613)	(53,259)	(105,458)	(31,823)	234,696	
2001	16,459	(86,480)	60,501	(153,181)	4,038	37,250	(141,584)	462,493	
2002	(625,422)	(351,445)	(131,987)	(292,963)	(734,319)	1,130,295	(1,187,372)	1,068,438	
2003	(188,295)	(594,205)	774,525	1,110,059	(2,035,651)	(2,435,286)			
2004	(1,250,647)	(1,664,309)							
Total	(2,013,317)	(2,746,579)	716,132	624,393	(2,853,524)	(1,384,998)	(1,437,581)	1,886,626	

Selected Ultimate at 6/30/05 Less Estimate

	6/30/2005	3/31/2005	12/31/2004	9/30/2004	6/30/2004	3/31/2004	12/31/2003	9/30/2003	6/30/2003
1995						1,505	1,500	1,505	5,501
1996		(9,735)	(9,505)	(9,505)	(3,258)	(5,035)	(8,311)	8,538	4,641
1997	(18,694)	(21,727)	(27,317)	(37,867)	(27,759)	(32,351)	(42,153)	(50,635)	(44,938)
1998	(5,487)	(13,974)	(26,432)	(26,892)	(18,347)	(18,979)	(16,027)	(48,983)	11,773
1999	(12,336)	11,598	12,943	18,199	15,389	(11,941)	(13,609)	(65,826)	(11,381)
2000	(885)	21,290	(12,380)	6,467	(55,146)	(108,405)	(213,863)	(245,687)	(10,991)
2001	(1,280)	15,179	(71,300)	(10,799)	(163,980)	(159,942)	(122,692)	(264,276)	198,217
2002	567,746	(57,677)	(409,122)	(541,109)	(834,072)	(1,568,391)	(438,096)	(1,625,468)	(557,030)
2003	(6,453)	(194,748)	(788,952)	(14,427)	1,095,632	(940,019)	(3,375,305)		
2004	(72,599)	(1,323,246)	(2,987,555)						
Total	450,012	(1,573,040)	(4,319,619)	(615,933)	8,460	(2,843,559)	(4,228,556)	(2,290,833)	(404,207)

Appendix B
Exhibit 1

r^2 By Coverage

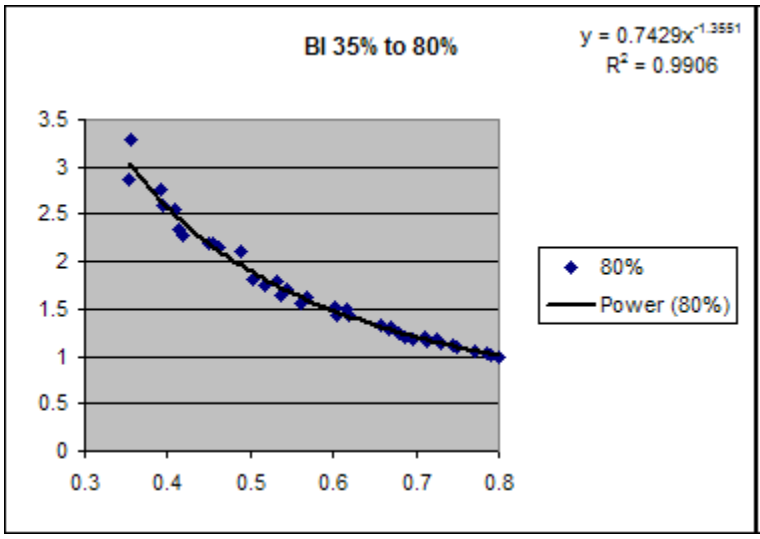
Using a single curve to 99% closure

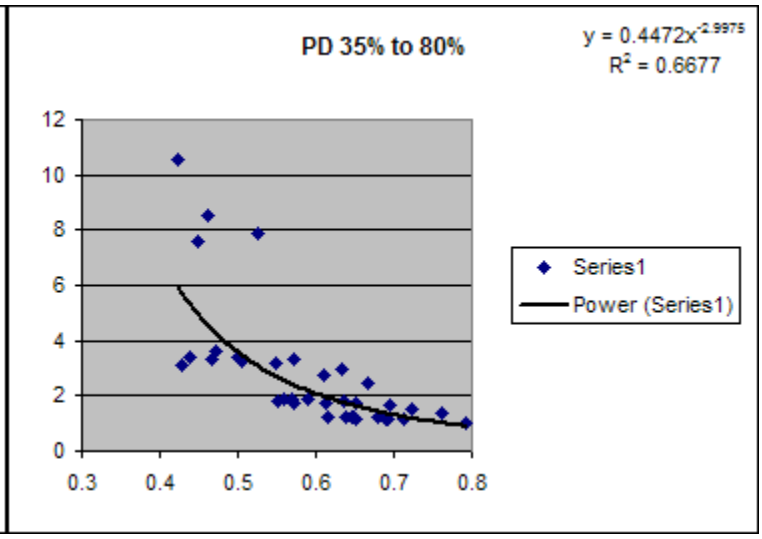
BI	UM	MP	PD
0.9952	0.9798	0.9207	0.9775

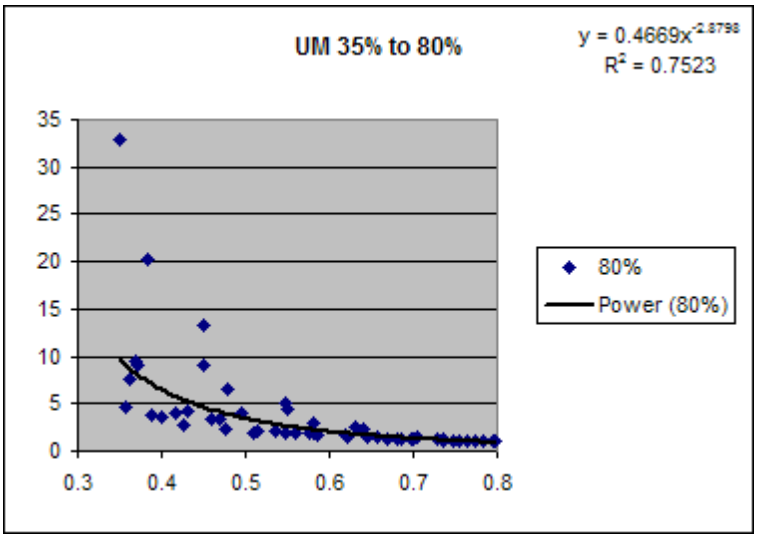
Appendix B

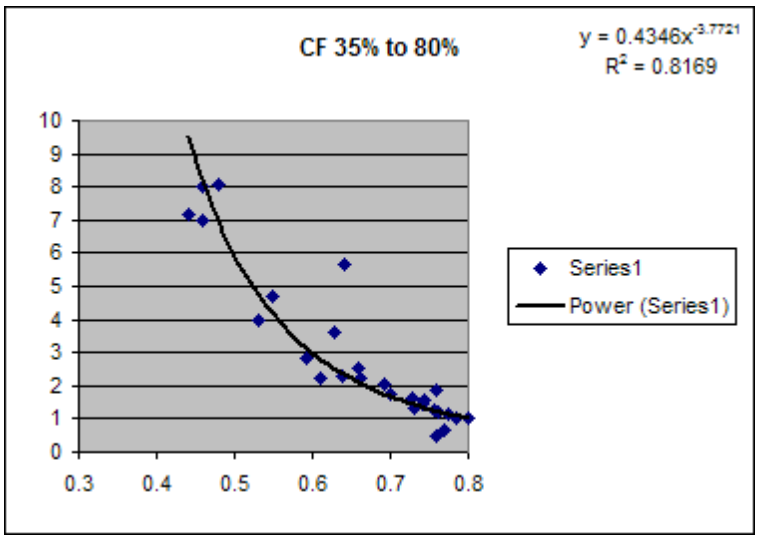
Simple Regression 35% to 80% Closure

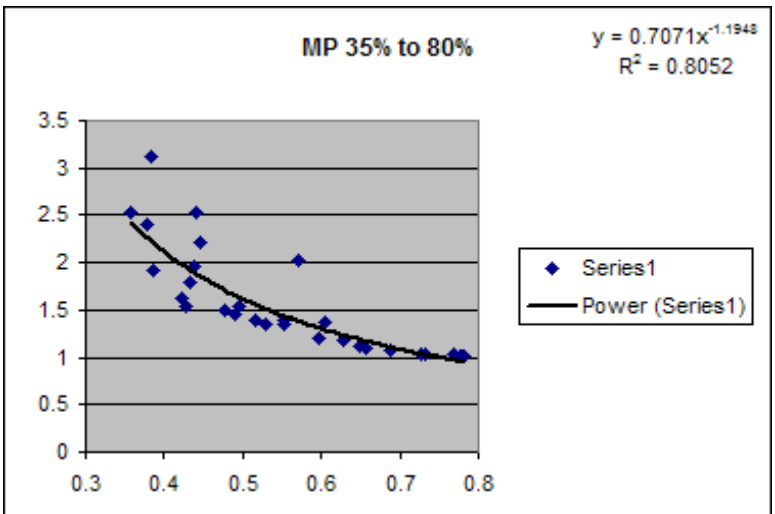
Exhibit 2

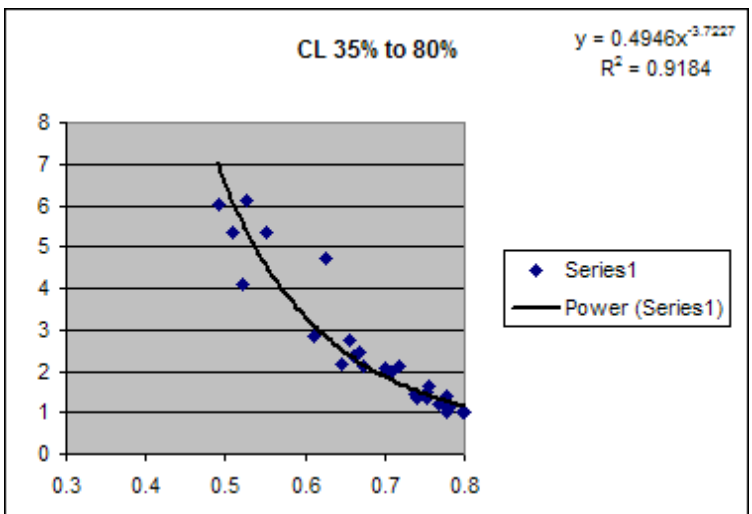












Appendix B
Exhibit 3

Simple Regression % Closed to 99% Closure
Using Age 12 or Greater