

STATE OF NORTH CAROLINA  
DEPARTMENT OF INSURANCE

In The Matter of the Application of the            )  
North Carolina Rate Bureau Dated February )  
1, 2005, as revised July 29, 2005,            )  
for a +9.6% Total Limits Increase            )                   Docket No. 1235  
in Private Passenger Automobile Rates and )  
a -1.5% Decrease in Motorcycle Rates        )

Direct Pre-Filed Testimony of Allan I. Schwartz

**I - QUALIFICATIONS**

- Q. Please state your name and address?
- A. My name is Allan I. Schwartz. My address is 4400 Route 9 South, Freehold, New Jersey.
- Q. By whom are you employed and in what capacity?
- A. I am President of AIS Risk Consultants, an actuarial consulting firm which I started in November 1984. In that capacity I have performed consulting work for a variety of clients covering a wide spectrum of actuarial projects.
- Q. What was your previous employment history?
- A. From May 1988 to January 1990 I was Assistant Commissioner with the New Jersey Department of Insurance (NJDOI). In that position, I was responsible for all property/liability filings, excluding workers' compensation, submitted to the NJDOI in addition to other responsibilities. From June 1986 until April 1988 I was Chief Actuary for the North Carolina Department of Insurance (NCDOI). I was responsible for all the actuarial work at the NCDOI, both property / liability and life / accident / health. From August 1977 to November 1984 I worked for the actuarial consulting firm of Woodward and Fondiller. My last position at that firm was Senior Actuary. Prior to that, from March 1976 to August 1977, I was employed by the National Council on Compensation Insurance (NCCI). While there, I worked on rate level analyses, benefit factor evaluations, and special projects. Before that, I attended college where I received a B.S. degree in physics from Cooper Union.
- Q. Are you a member of any actuarial societies?
- A. I am a Fellow of the Casualty Actuarial Society, an Associate in the Society of Actuaries, a Member of the American Academy of Actuaries, and a Fellow of the Conference of

Consulting Actuaries. I have belonged to various regional actuarial organizations and professional actuarial committees. In addition, I have served on the Property / Casualty and Life / Accident / Health Actuarial Task Forces of the National Association of Insurance Commissioners (NAIC). I was also Chairperson of a subcommittee for the NAIC statistical task force. This subcommittee developed NAIC standard private passenger automobile statistical data reporting requirements.

Q. Do you have any professional designations related to insurance other than your actuarial credentials?

A. Yes. I have received various professional designations from the Insurance Institute of America. Those are:

Associate in Reinsurance

Associate in Claims

Associate in Premium Auditing

Associate in Underwriting

Associate in Insurance Accounting and Finance

Associate in Risk Management

Q. What are the qualification requirements to receive the Insurance Institute of America professional designation of Associate in Insurance Accounting and Finance?

A. A description of the program and requirements is given in Appendix AIS-A.

Q. Do you have a resume setting forth your professional background?

A. Yes. It is attached as Appendix AIS-B.

Q. Have you received any awards in connection with your professional work?

A: Yes. (See Appendix AIS-C)

I received a Research Excellence Award from Farmers Insurance Group in connection with the paper I wrote entitled, "Actuarial Issues to be Addressed in Pricing Excess of Loss Reinsurance".

I received the Reinsurance Association of America Award for Academic Excellence in connection with my Associate in Reinsurance designation.

I received the National Association of Mutual Insurance Companies Award for Academic Excellence in connection with my Associate in Insurance Accounting and Finance designation.

Q: Have you met the requirements for continuing education of the actuarial profession?

A: Yes I have.

Among the continuing professional education I have taken is a course on Statutory Accounting given by the National Association of Insurance Commissioners, for which I received credit for passing the final examination.

I have also taken a Casualty Actuarial Society Course on Interest Rate Models, for which I received credit for passing the final examination.

Q: In the course of your professional work have you dealt with issues of insurance accounting and finance?

A: Yes I have.

Q: Would you please describe some of your additional professional activities?

A: I have written several papers dealing with various aspects of actuarial work. These have included topics on ratemaking, reserving, and reinsurance. I have also presented lectures and taught classes on these subjects. In addition, I was editor of Fresh Air Magazine, a newsletter published by Actuaries in Regulation. This is a special interest group of the Casualty Actuarial Society composed of actuaries who work for State Insurance Departments.

Q: Have you previously testified in regulatory proceedings regarding insurance rates?

A: Yes. I have testified in property / liability insurance rate proceedings in Arkansas, California, District of Columbia, Florida, Georgia, Maine, Massachusetts, Nevada, New Jersey, North Carolina, Oklahoma, Rhode Island, South Carolina, Texas and Virginia.

Q: Have you prepared private passenger automobile insurance rate filings on behalf of insurance companies?

A: Yes I have. During the last several years we have prepared private passenger automobile insurance rate filings for a number of insurance companies for submission to the New Jersey Department of Banking and Insurance.

## II - SUMMARY

Q. Have you reviewed the rate filing by the North Carolina Rate Bureau (NCRB) dated February 1, 2005 proposing an +11.5% increase in total limits private passenger automobile insurance base rates and a +0.2% increase in motorcycle insurance base rates, the NCRB revised calculations dated July 29, 2005 proposing a +9.6% increase in total limits private passenger automobile insurance base rates and a -1.5% decrease in motorcycle insurance base rates, the additional information supplied in response to data requests, and other materials.

A. Yes. I have.<sup>1</sup>

Q. What did your analysis of the filing reveal?

A. Based upon my analysis of the filing, there were six items where the procedure I used differed from that of the NCRB and had an impact on the overall rate level indication. These were the: (1) years of experience to use, (2) law changes, (3) general plus other acquisition expenses, (4) underwriting profit and contingency [UPC] provisions, (5) type of experience data base to use and (6) treatment of dividends plus deviations<sup>2</sup>.

Corrections were made to the NCRB procedure for these six items. These six items and the numerical impact they have on the indicated rate levels are set forth in Schedule AIS-3, Sheets 1 to 3 and for private passenger automobile liability, physical damage and combined, respectively.

In addition, this year there is an issue concerning the ratemaking formula to use. We have used a modified version of the loss ratio method. This is the procedure that has been used by me, other NCDOI witnesses, the NCRB, the NCRB witnesses, the Commissioner of Insurance and the North Carolina Courts for more than two decades. In the current filing, the NCRB uses a pure premium approach.<sup>3</sup> As we shall discuss, there is no reasonable or rational basis for the NCRB to propose this change in the ratemaking formula.

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<sup>1</sup> In various aspects of this testimony the words "I", "me", "my", "our", "we" etc. are used to refer to the work performed by AIS Risk Consultants in this analysis. All this work was performed either directly by Allan I. Schwartz or under his supervision, and he takes responsibility for this entire testimony and related exhibits and appendices.

<sup>2</sup> In the current filing, the NCRB includes a 0% provision for dividends and includes the entire inflated rate level for these two items combined in the deviation factor. However, since these two items have been so interrelated over time in the NCRB rate filings, Commissioner of Insurance decisions, and North Carolina Court decisions; we will provide a combined discussion of these two items in this testimony. The NCRB includes the deviation factor by including North Carolina Reinsurance Facility business and consent to rate physical damage business in the rate level calculation. The rate level derived by the NCRB is inflated by about 12.5% from the use of this inappropriate data base. This gives a value for the approximate impact of the NCRB including a deviation factor in the data base.

<sup>3</sup> The NCRB first introduced a pure premium ratemaking method in connection with the 2003 rate filing. That filing was resolved by a settlement between the NCDOI and the NCRB. The NCRB also proposed the use of a pure premium ratemaking method in its 2004 filing. The NCRB settled that filing for a 0% rate change after the North Carolina Supreme Court Decision *State ex rel. Comm'r of Insurance v. N.C. Rate Bureau*, 358 N.C. 539; 597 S.E.2d

Q. What was the result of your analysis of the overall rate level indication?

A. That the NCRB's revised proposed total limits rate change for an increase of +9.6% for private passenger automobile insurance and a decrease of -1.5% for motorcycle insurance will lead to excessive as well as unfairly discriminatory rates.

My indications are for an overall rate decrease of -15.9% for private passenger automobile insurance. This would be split as -11.8% for liability and -20.8% for physical damage. The rate level indications by coverage are derived in Schedule AIS-2, Sheets 1 to 11 for liability [bodily injury liability (BI), property damage liability (PD) and medical payments (MP)], physical damage [comprehensive and collision], uninsured motorists (UM), underinsured motorists (UIM) and increased limits. These values are combined and summarized in Schedule AIS-1.

For motorcycle insurance, my indicated rate change is a decrease of -27.2% for liability, as shown in Schedule AIS-16.

The six items where I used a different value from the NCRB in the rate level calculations are set forth in Schedule AIS-3. The numeric values of these six variables, as well as the impact on the rate level, are set forth in Sheets 1, 2 and 3 for liability, physical damage and combined.

Q. Based upon your analysis, what is your recommendation regarding the needed private passenger automobile and motorcycle insurance rate level changes?

A. I recommend that the overall rate level be decreased by -15.9% for private passenger automobile insurance and decreased by -27.2% for motorcycle liability insurance.

### **III - RATE MAKING FORMULA**

Q. What ratemaking formula did you use in your analysis?

A. The ratemaking technique used in my analysis is a modified version of the loss ratio method, which has been described as follows:

The loss ratio method develops indicated rate changes rather than indicated rates. Indicated rates are determined by application of an adjustment factor, the ratio of the experience loss ratio to a target loss ratio, to the current rates. The experience loss ratio is the ratio of the experience losses to the on-level earned premium - the earned premium

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*128 (2004)*, upheld the North Carolina Court of Appeals Decision *State ex rel. Comm'r of Insurance v. N.C. Rate Bureau*, 160 N.C. App. 416; 586 S.E.2d (2003), that the ratemaking procedure used by the NCRB was inappropriate.

which would have resulted for the experience period had the current rates been in effect for the entire period.

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Foundations of Casualty Actuarial Science, Casualty Actuarial Society, p. 37

The modification I have used is to compare the sum of the experience losses, allocated loss adjustment expenses plus fixed expenses to the target loss, allocated loss adjustment expense plus fixed expense ratio. This modification is a commonly used actuarial procedure which reflects that allocated loss adjustment expenses and fixed expenses tend not to vary in direct proportion to premium, but are more closely related to losses and general economic conditions, respectively.<sup>4</sup> The target loss, allocated loss adjustment expense plus fixed expense ratio is equivalent mathematically to:  $1.0 - \text{variable expense ratio} - \text{underwriting profit factor}$ .

Fixed expenses in the ratemaking formula consist of unallocated loss adjustment expenses, other acquisition plus general expenses -- subject to any applicable limitations and adjusted as appropriate for offsetting insurer income items such as installment fee income.

Variable expenses consist of commissions and premium taxes.

In algebraic terms, the actuarial rate formula would be as follows:

Let:

L = Provision for Losses

E = Provision for Loss Adjustment Expenses

F = Fixed Expenses

V = Variable Expenses

U = Underwriting Profit Factor

T = Target Loss, Loss Adjustment Expense and Fixed Expense Ratio

R = Actuarial Rate Indication

Then:

$$R = [ L + E + F ] / [ 1 - V - U ]$$

or

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<sup>4</sup> This is the ratemaking formula that has historically been used in North Carolina for private passenger automobile insurance ratemaking.

$$R = [ L + E + F ] / T$$

The target loss, allocated loss adjustment expense and fixed expense ratio (also referred to as the permissible loss, allocated loss adjustment expense and fixed expense ratio) is numerically equal to 100% - variable expense ratio - underwriting profit factor<sup>5</sup>. The permissible ratio is the proportion of the premium dollar that can be (or is permitted or targeted to be) paid out in losses, allocated loss adjustment expenses plus fixed expenses and still allow insurance companies the *opportunity* to earn a fair profit, after variable expenses (i.e., commissions & brokerage, and premium taxes) are paid. If the projected proportion of the premium dollar expected to be paid out is more than the permissible amount, then a rate increase is needed to bring revenue up to the level of outgo. Similarly, if the projected proportion of the premium dollar expected to be paid out is less than the permissible amount, then a rate decrease should be implemented in order to bring income and outgo into balance. The amount of the rate change is determined by dividing the projected ratio by the permissible ratio.

Q. Is the modified loss ratio ratemaking formula that you used the same one that has historically been used in North Carolina for private passenger automobile insurance ratemaking?

A. Yes. The overall structure and formula is the same, although there have obviously been disagreements over time regarding the inputs to that formula.

Q. Has the Commissioner of Insurance consistently used the modified loss ratio ratemaking formula in his Orders?

A. Yes.

Q. Has the North Carolina Court of Appeals or the North Carolina Supreme Court ever found that the use by the Commissioner of Insurance of the modified loss ratio ratemaking formula was inappropriate?

A. No.

Q. Did the Court of Appeals uphold the ratemaking procedure used by the Commissioner of Insurance in connection with the May 1, 2001 filing by the NCRB?

A. Yes.<sup>6</sup>

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<sup>5</sup> The numerical value of the target loss, loss adjustment expense and fixed expense ratio is not shown on Schedule AIS-2. The variable cost ratio shown in Schedule AIS-2 is the combined value for the variable expense ratio plus the underwriting profit factor.

<sup>6</sup> The Court of Appeals Decision *State ex rel. Comm'r of Insurance v. N.C. Rate Bureau*, 160 N.C. App. 416; 586 S.E.2d (2003) affirming the ratemaking method used by the Commissioner of Insurance was upheld by the North Carolina Supreme Court. *State ex rel. Comm'r of Insurance v. N.C. Rate Bureau*, 358 N.C. 539; 597 S.E.2d 128 (2004)

The Court of Appeals decision stated in part:

The North Carolina Rate Bureau (“Bureau”) appeals from an order entered by the North Carolina Commissioner of Insurance (“Commissioner”) that denied the Bureau’s request for an adjustment in automobile insurance rates. The Bureau asserts four arguments on appeal: (1) the Commissioner improperly considered investment income on capital and surplus funds while deriving his underwriting profit provisions; (2) the Commissioner did not give due consideration to dividends and deviations; (3) the Commissioner overstated the amount of investment income generated from policyholder-supplied funds; and (4) the Commissioner improperly substituted his own ratemaking procedure. After careful review of the record, briefs and arguments of counsel, we discern no error and affirm the Commissioner’s order. State ex rel. Comm’r of Insurance v. N.C. Rate Bureau, 160 N.C. App. 416; 586 S.E.2d (2003)

Q. Was the ratemaking procedure used by the Commissioner of Insurance in that proceeding the modified loss ratio method?

A. Yes.

Q. What ratemaking formula does the NCRB use in its current filing?

A. The NCRB uses a pure premium method in its current filing.

Q. Prior to the NCRB proposing the pure premium method of ratemaking, what method of ratemaking was used by the NCRB?

A. Before the NCRB introduced the use of a pure premium method in its rate filings, the loss ratio ratemaking method had been used for more than two decades by the NCRB.

Q. Should the rate change resulting from a pure premium method be any different than from a modified loss ratio method?

A. No. The NCRB witness, Michael Miller, admits this in his testimony when he states, “The two methods are mathematically equivalent and can be expected to produce identical indicated rates if applied to the same database.”, and “The two methods result in the same indicated average rate level.” (Miller revised direct pre-filed, pages 15 – 16, answer 29)

Q. If there is not an expected difference in the rate level between the modified loss ratio method and the pure premium method, why would the NCRB propose such a change?

A. Mr. Miller claims that the reason for the change is to avoid “... a substantial and time-consuming debate between the Rate Bureau witnesses and the Department witnesses ...”

regarding the premiums used to calculate the rate level change. (Miller direct pre-filed, page 14, answer 28)

Q. Is there a reason that the NCRB would want to avoid this debate?

A. Yes.

Q. What is that reason?

A. Because the appeals filed by the NCRB regarding the Commissioner of Insurance Orders on this issue have been rejected several times by the North Carolina Courts, most recently in *State ex rel. Comm'r of Insurance v. N.C. Rate Bureau*, 160 N.C. App. 416; 586 S.E.2d (2003). The issue of the premiums to use, as referenced in the testimony of Mr. Miller, actually deals with the consideration to be given to dividends and deviations. The NCRB apparently has finally conceded that it will not be able to include dividends and deviations in the rate calculation in the manner it has in the past in order to inflate rates to an excessive level. Therefore, the NCRB is trying to engage in misdirection by shifting its proposed excess loading for dividends and deviations into another part of its ratemaking calculation by using a different ratemaking formula.

Q. What methods have the NCRB used to shift its proposed excess loading for dividends and deviations into another part of its ratemaking calculation by using a different ratemaking formula?

A. The NCRB's 2004 rate filing included deviations through the use of an off balance factor in the rate calculation. After the North Carolina Supreme Court affirmed the decision of the North Carolina Court of Appeals with respect to the Commissioner's conclusion that the NCRB's treatment of deviations was improper, and after the testimonies of the NCDOI witnesses had been filed and served on the NCRB, the NCRB settled its 2004 filing.<sup>7</sup>

From the 2004 pre-filed testimony of the NCDOI witnesses, the NCRB could have concluded that its treatment of deviations in its 2004 filing was a transparent attempt to load deviations into the rate calculation in effectively the same manner as had been previously rejected by the Commissioner of Insurance, the Court of Appeals and the Supreme Court. The NCRB has already abandoned that method included in its 2004 rate filing, and has instead concocted a still different method of trying to add deviations into the rate level contrary to the previous Order of the Commissioner and previous Court decisions. The current method being proposed by the NCRB to hide a loading for deviations in the rate level is to use a different experience database than what has been used for more than two decades.<sup>8</sup>

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<sup>7</sup> The NCRB filed for an overall increase in rates of +12.3%. The settlement resulted in a 0.0% change in rates.

<sup>8</sup> Over the years, the NCRB has also used other methods to include a provision for deviations (and dividends) in the rate level. These other methods include inflating the profit provision, lowering the dollar amount of premium considered and using an additional expense provision. It would appear that the NCRB has no principled basis for

Q. Is Mr. Miller correct when he alleges that the NCRB's proposed change to the ratemaking formula will avoid a substantial and time consuming debate between the Rate Bureau witnesses and the Department witnesses regarding the premiums used to calculate the rate level change?

A. No, he is not.

Under the modified loss ratio method, as used by the NCRB in its rate filings prior to 2003, the issue was whether or not deviations should be incorporated into the rate level, in the manner proposed by the NCRB, by adjusting the historical premiums (or the other alternative methods used by the NCRB over time to include an additional provision for deviations).

Under the pure premium method as used by the NCRB in 2003 and 2004, the issue was whether or not deviations should be incorporated into the rate level, in the manner proposed by the NCRB, by using an offset factor to calculate the base rates.

Under the pure premium method as used by the NCRB this year, the issue is whether or not deviations should be incorporated into the rate level, in the manner proposed by the NCRB, by using experience from policyholders that are not insured in the voluntary market and subject to voluntary market rates.

Hence, the exact same issue -- that being whether the NCRB's treatment of deviations is appropriate -- arises under both the modified loss ratio method, the pure premium method proposed by the NCRB last year, and the alternate pure premium method proposed by the NCRB this year.

Mr. Miller's contention that the pure premium method eliminates this issue of deviations is completely erroneous.

Q. Has the Commissioner of Insurance made a determination regarding the appropriateness, or lack thereof, of the NCRB's treatment of deviations using the modified loss ratio method?

A. Yes.

Q. What was that determination?

A. That the NCRB's treatment of deviations using the modified loss ratio method was inappropriate.

Q. From an actuarial perspective, do those determinations by the Commissioner of Insurance, that the NCRB's treatment of deviations using the modified loss ratio method was

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inflating the rate level indication for dividends and deviations, but will just keep trying different schemes hoping that one such approach will finally get past the Commissioner of Insurance, Court of Appeals and Supreme Court.

inappropriate, apply equally to the NCRB's treatment of deviations using a pure premium method?

A. Yes.

Q. Have the North Carolina Courts made a determination regarding the appropriateness, or lack thereof, of the NCRB's treatment of deviations using the modified loss ratio method?

A. Yes.

Q. What was that determination?

A. That the NCRB's treatment of deviations using the modified loss ratio method was inappropriate.

Q. From an actuarial perspective, do those determinations by the North Carolina Courts that the NCRB's treatment of deviations using the modified loss ratio method was inappropriate apply equally to the NCRB's treatment of deviations using a pure premium method?

A. Yes.

Q. Is the pure premium method used by the NCRB for this filing easier to implement than the modified loss ratio method?

A. No.

The pure premium method used by the NCRB for this filing is not easier to implement than the modified loss ratio method. In fact, the pure premium method used by the NCRB for this filing is more difficult to implement than the modified loss ratio method. The pure premium method requires essentially all the same calculations as the loss ratio method, and then some.

In order to implement the pure premium method, the NCRB had to include extra items such as "Distributional Adjustment Factors" and "Historical Adjustment Factors". These additional items which need to be included in the pure premium method make the calculation much more complex. The NCRB pure premium formula and calculations are unnecessarily complicated.<sup>9,10</sup>

Q. Are there circumstances where the loss ratio method of ratemaking cannot be used?

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<sup>9</sup> Winston Churchill's statement regarding Russia could be an apt description of the NCRB filing, "It is a riddle wrapped in a mystery inside an enigma."

<sup>10</sup> While the mechanics of the NCRB's pure premium calculation may be difficult, the apparent intent of the calculation is clear. That apparent intent is for the NCRB to find a way to somehow inflate the rate level for deviations in whatever manner will fly, and to constantly change the appearance of that deviation provision, so that the NCRB can argue that the method has not been previously rejected by the Commissioner and the Courts.

A. Yes.

Q. What are some circumstances where the loss ratio method of ratemaking cannot be used?

A. The loss ratio method of ratemaking cannot be used for a new line of business where rates do not exist, or when the premiums at present rates cannot be determined.

Q. Do either or those circumstances apply to the current situation for North Carolina private passenger automobile insurance?

A. No. There is no reason not to continue the accepted practice of using the loss ratio method of ratemaking.

Q. Is it generally considered desirable to use a consistent ratemaking approach over time?

A. Yes it is. Using a consistent ratemaking approach over time leads to continuity in the ratemaking procedures and facilitates comparisons over time. Of course, if there is a valid reason to change the ratemaking procedure, that should be considered.

Q. In the current circumstances is there a valid reason to change the ratemaking procedure from a loss ratio method to a pure premium method?

A. No. In the current circumstances there is not a valid reason to change the ratemaking procedure from a loss ratio method to a pure premium method.

The NCRB has not shown that there is a problem with the loss ratio ratemaking method, and in fact there is no such problem.

The NCRB has not shown that the loss ratio ratemaking method cannot be implemented, and in fact the loss ratio method can be implemented.

The NCRB has not shown that the pure premium method has any advantage compared to the loss ratio ratemaking method, and in fact there is no advantage to using the pure premium ratemaking method.

The alleged reason given for the NCRB's proposed change from the accepted loss ratio ratemaking procedure to a pure premium ratemaking procedure is, supposedly, to avoid "... a substantial and time consuming debate between the Rate Bureau witnesses and the Department witnesses ..." (Miller revised direct, page 16).

However, the ratemaking procedure included in the NCRB filing will not avoid debates, since the NCRB filing continues to propose highly excessive rates. If the NCRB and its witnesses were truly interested in avoiding disagreements with the NCDOI, the NCRB would make a filing that complies with the Orders of the Commissioner of Insurance regarding

deviations and profits which have been upheld by the Court of Appeals and Supreme Court. However, the NCRB seems intent not on avoiding conflict, but in fueling disagreements, since the NCRB instead of complying with the decisions of the Commissioner and Courts, tries to find devious ways to circumvent those decisions.

Q. Can you summarize your testimony regarding the issue of the NCRB proposed pure premium ratemaking formula in place of the modified loss ratio ratemaking formula that has been used for more than two decades in North Carolina for private passenger automobile insurance ratemaking?

A. There is no reasonable basis for the NCRB to propose a change in the accepted ratemaking formula from the loss ratio method to the pure premium method. The NCRB itself has admitted that a change in the formula should not result in a different rate level. Furthermore, there has been no showing that there is any problem with the loss ratio method of ratemaking, or that the loss ratio method of ratemaking cannot be implemented. This is because there is no problem with the loss ratio method of ratemaking, and the loss ratio method of ratemaking can be implemented.

So the question becomes why the NCRB is proposing to change the accepted ratemaking formula. The answer is clear. It is an attempt by the NCRB to slip deviations into the rate level in a manner that has been rejected many times by the Commissioner of Insurance and the North Carolina Courts when considering NCRB rate filings based upon the loss ratio method of ratemaking. However, from an actuarial perspective, the attempt to include deviations in the rate calculation is the same whether the ratemaking procedure used is the loss ratio method or pure premium method.

#### **IV - YEARS OF EXPERIENCE**

Q. What is the issue with regard to the years of experience?

A. The NCRB relied exclusively on experience year 2003 in deriving the private passenger automobile insurance rate level indications for BI, PD, MP, Comp and Coll. The NCRB gave 0% weight to experience years 2001 and 2002.

Our analysis combined the rate level indications from the three years of experience from 2001, 2002 and 2003 in deriving the rate level changes by coverage.

Q. Why is it appropriate to use three years of data in deriving the rate level indication?

A. The use of three years of data will result in more stability in the rate level over time. This is because the use of three years of data takes into account a more diverse and complete set of factors that impacts the experience which occurs. Hence, it is not subject to instability because of potential unusual conditions in a given year.

The NCRB's exclusive use of only one year of data will result in more instability and fluctuations in the rate level. This happens because the experience from only one year of data can be distorted by random fluctuations and events that are peculiar and extreme to that given year and which will not likely be repeated in the future to the same extent.

Q. Can you explain why the NCRB's complete reliance on only one year of experience using 4,000 claims for full credibility is not appropriate?

A. The 4,000 claim standard used by the NCRB only takes into account process variance and does not reflect parameter variance.

Q. Can you explain in more detail the difference between process variance and parameter variance?

A. Yes.

Process variance assumes that you are dealing with a fixed set of underlying circumstances that do not change over time. In other words, the process used to generate the losses is known with 100% certainty. In such a circumstance, once a given number of claims is reached, the actuary can assign 100% credibility to that data because the underlying process used to generate claims is fixed.

With parameter variance the underlying process used to generate claims is changing over time. Therefore, whatever the losses were in one year provides only limited information about the losses the next year because the parameters of the loss generating process change over time. Because of that, simply adding more claims for a given year does not reduce parameter variance because you are not obtaining additional information about other possible loss parameter distributions.

Q. Can you give an example to illustrate those concepts?

A. Yes. Let us assume that we have three coins.

In the first example, let us assume that all three coins have the same probability of a head or tail. Then just by flipping one coin a sufficient number of times, an estimate can be made of the overall probability of getting a head or tail if any of the coins are picked at random, because each coin has the same distribution.

In the second example, let us assume that all three coins have a different probability of a head or tail from each other. Then whether a single coin is flipped 1,000 or 1,000,000 times there is still a considerable uncertainty about the overall probability of a head or tail from a coin picked at random because the first coin tells us nothing about the probability distribution for the second and third coins. The only way to obtain that information is to actually observe the behavior of the other two coins.

Similarly, when the historical years have different underlying loss generating processes that result in the observed experience by year, the only way to evaluate that different experience across years is to obtain data from the varying years.

Q. What types of factors can cause the loss generating process to vary from one year to another?

A. There are many such factors. Among the underlying conditions that can cause the loss generating process to vary from one year to another are the : (i) weather, (ii) demographics, (iii) economics, (iv) legal environment and (v) public attitudes.

The NCRB, by relying completely upon the experience of one year, raises the possibility that the sample being used for these various factors will not be representative of the expected conditions in the future period for which rates are being set.

Q. Is there any empirical evidence that parameter variance, which the NCRB credibility standard does not reflect, is a valid consideration?

A. Yes.

The rate level indications between years vary more than would be expected from process variance alone. The NCRB indicated required premium per exposure for bodily injury liability varies by year from \$158.83 to \$163.31, which is a difference of 2.8%. The NCRB indicated required premium per exposure for comprehensive varies by year from \$108.34 to \$122.47, which is a difference of 13.0%. The NCRB indicated required premium per exposure for collision varies by year from \$266.02 to \$285.64, which is a difference of 7.4%.

These differences in the rate level indications by year are higher than would be expected from process variance alone. This indicates that parameter variance between years is also an important factor that needs to be considered.

Q. What impact did the NCRB's total reliance on experience year 2003 data to the exclusion of 2001 and 2002 experience year data have on the indicated rate level change?

A. The rate change derived by the NCRB is too low by -0.4% for liability, is too high by 1.2% for physical damage, and on a combined basis is too high by 0.3%, because the NCRB excluded 2001 and 2002 data.<sup>11</sup> (see Schedule AIS-3, Sheets 1, 2 and 3)

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<sup>11</sup> The impact of this issue on the rate level calculation, as well as the other issues discussed in this testimony, should be considered approximate since the exact numerical value depends upon the interaction with other factors and the order in which the calculations are performed.

Q. Mr. Miller claims in his revised direct testimony (page 20, answer 38) that, “I [Mr. Miller] have analyzed the Rate Bureau auto rate filings back in time through the 1995 filing. For every coverage, I found that reliance on the pure premium for the latest year in the filing was a more responsive and reliable prediction of the next year’s pure premium than would have been the reliance on a straight three - year average pure premium.” What response do you have to that testimony?

A. In order to perform a proper pure premium comparison analysis, care must be taken to make sure all the various years of experience are placed on a comparable cost level. What adjustment, if any, made by Mr. Miller to account for the varying cost levels between years was not explained. Therefore, it is impossible to evaluate the accuracy and veracity of the conclusions by Mr. Miller.

Q. Did you perform any analysis of the issue of whether is it preferable to use a one year or three year period in making loss and expense projections?

A. Yes.

We examined the results of projecting the future year combined ratio based upon either the prior year combined ratio or the average of the three year combined ratio. The combined ratio reflects premiums, losses, loss adjustment expenses, fixed expenses and variable expenses - all of which are considered in the rate level calculation.

The results are set forth in Schedule AIS-2, Sheet 12 for liability, Sheet 13 for physical damage and Sheet 14 for liability and physical damage combined. We examined the projection errors using the accepted statistical measures of the average error, average absolute error and average squared error. The average error tends to measure how far off the projection is compared to the actual result, with differences on either side being able to cancel out. Hence, average error measures over the long term how far off the projection can be expected to be compared to the actual result. The average absolute error measures the average difference between the projections compared to the actual result, with differences on either side not being able to cancel out. Hence, average absolute error measures how far off the projection can be expected to be compared to the actual result in any one single year. The average squared error gives more weight to large differences between the projected and actual values than it does to small errors. Hence, the average squared error “penalizes” one large error more than several small errors that total to the same amount.

The results show that the one - year projection results in smaller projection errors for liability, but larger projection errors for physical damage, compared to the three - year projection. For liability plus physical damage combined, the average error is about the same for the two methods. But the absolute error and squared error is lower for the three - year method than for the one - year method.

Based upon this analysis, it can be concluded that the three - year method tends to result in more accurate projections than the one year method. Hence, the three - year method is preferable to the one - year method.

Q. Did you perform any analysis of the issue of whether a one year or three year database provides more stable results for losses and expenses?

A. Yes.

We examined the variability of the combined ratio for North Carolina private passenger automobile insurance based upon a one year experience period and a three year experience period. The combined ratio reflects premiums, losses, loss adjustment expenses, fixed expenses and variable expenses -- all of which are considered in the rate level calculation.

The results are set forth in Schedule AIS-2, Sheet 15 for liability, Sheet 16 for physical damage and Sheet 17 for liability and physical damage combined. We examined the variability using the accepted statistical measures of the standard deviation and standard error of the mean. Both of these values measure how variable the results are in terms of the difference from the average value.

The results show that the three - year average combined ratio results in a smaller variability than the one year combined ratio for liability, physical damage, and combined.

Based upon this analysis, it can be concluded that the three - year method tends to result in more stable results than the one year method. Hence, the three - year method is preferable to the one - year method.

Q. Has the issue of whether to use a one - year or three - year projection method arisen in prior rate cases?

A. Yes.

In both the 2001 and 2002 rate cases, the NCRB proposed the use of a one - year method, while the NCDOI proposed the use of a three - year method.

Q. What did the Commissioner of Insurance decide on this issue in those rate cases?

A. In both the 2001 and 2002 rate cases, the Commissioner of Insurance Order adopted the use of a three - year method.<sup>12</sup>

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<sup>12</sup> In the 2001 rate case, the three - year projection method resulted in a lower rate level indication than the one - year method. However, in the 2002 rate case, the three - year projection method resulted in a higher rate level indication than the one - year method. Hence, the Commissioner of Insurance has ordered the use of a three - year projection method whether it resulted in a lower rate level or a higher rate level.

Q. Did the NCRB appeal the Commissioner's Order regarding the use of a three - year projection method?

A. Yes.

Q. Has the Court of Appeals issued a decision regarding the Commissioner's use of a three - year average?

A. Yes. The Court of Appeals upheld the Commissioner's use of a three - year projection method. *State ex rel. Comm'r of Insurance v. N.C. Rate Bureau*, 160 N.C. App. 416; 586 S.E.2d (2003)

### **V – LAW CHANGES**

Q. Did the NCRB filing take into account law changes which could impact the expected costs of private passenger automobile insurance?

A. Yes and no. The NCRB filing did mention the issues of seat belts and graduated licensing (Pat Woods revised direct, page 8). But the NCRB filing did not mention Senate Bill 1218 which implemented enhancements to the NC CPS Law. Hence, while the NCRB filing "considered" old law changes, the impact of which is already reflected in the historical experience, the NCRB did not consider the more recent law change, the impact of which is not reflected in the historical experience.

Q. Did you make any adjustment to reflect these law changes?

A. Yes. We used a -1% impact on the projected losses for the bodily injury, medical payments and uninsured motorists' coverages. This is comparable to the impact previously used for seat belts.

### **VI - GENERAL AND OTHER ACQUISITION EXPENSES**

Q. What procedure did you use to determine the general plus other acquisition expenses used in your analysis?

A. My starting point was the same as that used by the NCRB, which are the general plus other acquisition expenses reported by insurance companies. However, we made a necessary adjustment to that data that was not reflected in the NCRB analysis.

Q. What necessary adjustment did you make to that data which was not reflected in the NCRB analysis of general plus other acquisition expenses?

A. The NCRB simply used the data reported as expenses by insurance companies without taking into account that those values contain expenditures and alleged expenditures which should not be charged to consumers of private passenger automobile insurance.

Q. Can you explain what types of expenditures and alleged expenditures are contained within the general plus other acquisition data reported as expenses by insurance companies which should not be charged to consumers of private passenger automobile insurance?

A. There are many such types of expenses. A partial listing of those includes :

- Expenses that exceed industry wide values by an inappropriate amount
- Lobbying expenses
- Various advertising expenses
- Damages against the insurer for bad faith
- Damages against the insurer for fines or penalties for violation of law
- Legislative advocacy
- Contributions to social, religious, political or fraternal organizations
- Fees and assessments to advisory organizations
- Inappropriate transactions between affiliated companies

Q. Is it a common practice for insurance regulatory agencies to disallow a portion of the general plus other acquisition expenses reported by insurance companies from being passed along to insurance consumers?

A. Yes it is.

Among the insurance regulatory agencies that follow this accepted practice of disallowing a portion of the general plus other acquisition expenses reported by insurance companies in the ratemaking process are Massachusetts, New Jersey, Texas and California.

Q. Did you determine the amount of general plus other acquisition expenses reported by insurance companies that should not be passed along to consumers of private passenger automobile insurance?

A. Yes I have.

Based upon my experience with insurance regulatory agencies in other jurisdictions, a reasonable amount to use for these inappropriate expenses and alleged expenses reported by insurance companies is about 1% of premium.

I used that value of 1% for the excessive general plus other acquisition expenses reported by insurance companies that should not be passed along to consumers of private passenger automobile insurance in my analysis of the rate level calculation for this proceeding.

Q. Did the issues of the appropriateness and accuracy of the expenses reported by insurance companies in the NCRB expense call arise in connection with the 2002 rate case?

A. Yes it did.

Q. How did the Commissioner of Insurance address those issues in the Order in that proceeding?

A. The Commissioner of Insurance stated that (Docket No. 1073),

47. However, given the testimony in this case regarding potential errors in the expense data, the Commissioner hereby orders that those errors noted by Merlino must be evaluated. Once evaluation is completed, a data quality full report must be submitted to the Department detailing the results of the evaluation, any corrective action taken, and any new procedures implemented to ensure consistent and reliable expense data and to minimize future errors.

48. In addition, to address Schwartz's concerns regarding potentially inappropriate expenses, the data quality report must contain an explanation as to how the Expense Call will be amended in order to obtain information from the companies as to the types of expenses the companies have included in their data. The Commissioner knows that such an amendment to the Expense Call is possible because the Expense Call for 2000 expense data included form E-1R in an attempt to segregate refund expenses as required by the 2000 Settlement and Consent Order. *DOI-12; Evans T pp. 57-58.*

Q. Have the issues raised in that previous Order by the Commissioner of Insurance been resolved?

A. Not that I am aware of. In fact, the NCRB initially appeared to take an affirmative position that it does not want to comply with the request by the Commissioner of Insurance for more information on expenses. (see Appendix AIS-D) It is my understanding that subsequently there have been discussions on this issue between the NCRB and the NCDOI, but that no resolution has been reached.

Q. Can you summarize your testimony regarding general and other acquisition expenses?

A. The general plus other acquisition expenses reported by insurance companies contain inappropriate amounts that should not be passed through to insurance consumers in the ratemaking process. The NCRB, after being requested to collect this information in connection with the 2002 rate case, initially declined to do so. Although discussions have taken place between the NCRB and the NCDOI since that time, the issue has not been resolved. Given that this is still an open unresolved issue, we used the results of the analysis of this issue by insurance

regulatory agencies in other jurisdictions to determine a value for the amount of the expenses and alleged expenses reported by insurance companies that should not be passed along to consumers in the rate level calculation. This amounts to 1% of premium.

## **VII - UNDERWRITING PROFIT AND CONTINGENCY FACTOR**

Q. What procedure did you use to determine the underwriting profit and contingency factors used in your analysis?

A. I considered the : (i) various types of profit for an insurance company, (ii) applicable statutes and judicial decisions for North Carolina and (iii) relevant data and experience.

Q. What are the various types of profit for an insurance company?

A. Three broad categories of profit are: (i) underwriting profit, (ii) operating profit and (iii) total return (or total profit). These can be defined as follows<sup>13</sup>:

Underwriting Profit -- Premiums less losses, loss adjustment expenses, underwriting expenses, and policyholder dividends.<sup>14</sup>

Operating Profit -- The sum of underwriting profit, miscellaneous (non-investment) income from insurance operations, and investment income from insurance operations. Associated income taxes are recognized when the analysis is on a post - tax basis.

Total Return -- The sum of operating profit and investment income on capital, usually after income taxes, often expressed in percentage terms.<sup>15</sup>

Q. Is the total return related to the cost of capital?

A. Yes. Total return and cost of capital measure essentially the same item. Definitions for cost of capital follow:

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<sup>13</sup> Actuarial Standard of Practice No. 30, "Treatment of Profit and Contingency Provisions and the Cost of Capital in Property / Casualty Insurance Ratemaking"

<sup>14</sup> Underwriting profit can also be calculated before subtracting out profits distributed in the form of policyholder dividends, as the following indicates, "If the premiums collected exceed the expenses and losses paid, the insurer makes what is called an underwriting profit; if not, there is an underwriting loss." Foundations of Casualty Actuarial Science, Casualty Actuarial Society, Third Edition, page 59. Another illustration of this is the Statutory Annual Statement filed by insurance companies with the North Carolina Department of Insurance, which does not subtract out policyholder dividends in the calculation of the underwriting profit (Annual Statement, Page 4, Lines 1 to 7).

<sup>15</sup> Capital as used in this definition encompasses what is sometimes referred to as capital and surplus.

The **cost of capital** is the rate of return on assets that must be earned to permit the firm to meet its interest obligations and provide the expected return to owners.<sup>16</sup>

*Company cost of capital* is simply another term for the expected return on assets,  $r_A$ .<sup>17</sup>

The return on assets for the cost of capital includes all of the company's assets, including the capital and surplus assets. Cost of capital is a total return concept, including investment income on capital and surplus, as well as unrealized capital gains. It is my understanding that neither investment income on capital nor surplus, nor unrealized capital gains can be used in examining profit provisions for insurance rates in North Carolina. Hence, cost of capital is not a factor that can be used in North Carolina for determining a profit provision.

Q. How are these different types of profit used to determine an underwriting profit provision?

A. As previously discussed, both total return and cost of capital includes consideration of investment income on capital and surplus. Hence, those values cannot be used in North Carolina to determine a profit factor.

An equation that can be used, which does not include any factors for investment income on capital and surplus, is as follows:

$$UP + IIR = OR$$

Where:

UP = Underwriting profit

IIR = Investment gain on reserves

OR = Target Operating Return

Using this equation, which is a generally accepted actuarial formula, the underwriting profit and contingency factor can be determined without using any values for investment income on capital and surplus.

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<sup>16</sup> Accounting for Finance and Insurance Professionals, First Edition, 1997, page 409, bold in original

<sup>17</sup> Principles of Corporate Finance, Brealey and Myers, Fifth Edition, page 455, italics in original

Q. Using the previous equation, what did your analysis of the appropriate underwriting profit and contingency factor indicate?

A. My calculation of the impact of investment income from reserves on the appropriate underwriting profit and contingency factors is set forth in Schedule AIS-6, Sheets 1 and 2 for liability and physical damage, respectively.

I started with a needed return as a percent of premium from insurance operations (i.e., underwriting profit plus investment gain on reserves<sup>18</sup>) of 4.5% for liability and 3.5% for physical damage. Using this, underwriting profit and contingency factors of -0.9% for liability and 1.4% for physical damage were obtained. This is derived by subtracting out the investment gain earned on reserves (losses, loss adjustment expenses and unearned premiums) from the insurance operations target return in relation to premiums.

Q. How did you derive these underwriting profit and contingency factors?

A. As shown by the equation used, the two main issues that need to be addressed in this calculation are the:

(1) Selected target operating return as a percent of premiums [OR], and

(2) Investment gain on loss, loss adjustment expense & unearned premium reserves [IIR].

Once these two values are determined, then the equation “UP = OR - IIR” can be used to solve for the underwriting profit [UP] factor.

Q. How did you determine the operating return as a percent of premiums?

A. In selecting the operating return as a percent of premium, a review was made of the historical operating rate of return earned by the property and casualty insurance industry on its insurance operations (i.e., underwriting plus investment gain on reserves), the riskiness of the property and casualty insurance industry as a whole, the riskiness of private passenger automobile insurance in relation to that of the property and casualty insurance industry, and the riskiness of private passenger automobile insurance in North Carolina compared to other jurisdictions.

Q. What did your review of the actual historical rate of return on insurance operations earned by the property and casualty insurance industry reveal?

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<sup>18</sup> Investment gain on reserves can include different components. There are investment income, realized capital gains, and unrealized capital gains. In order to comply with my understanding of North Carolina law, I did not include any provision for unrealized capital gains.

A. The operating return of the property and casualty insurance industry on insurance operations (i.e., underwriting plus investment gain on reserves) in relation to premiums is set forth in Schedule AIS-7, Sheet 3. The average during the twenty-one year period from 1983 to 2003 was 3.1%. This represents the operating return of the insurance industry over an extended period of time, and hence is not subject to significant distortion as a result of short term fluctuations.

It should also be noted that the amount of capital and surplus in the property and casualty insurance industry during this time period increased significantly. This is evidenced by the growth of policyholders' surplus. From the end of 1983 to the end of 2003, policyholders' surplus grew 440% [from \$65.6 billion to \$353.8 billion]. This is an average annual increase of 8.8%. During this period of time, policyholders' surplus also grew much faster than other measures of insurance industry activity such as premiums, reserves or liabilities (see Schedule AIS-8). Since resources did not leave the property and casualty insurance industry during this time span, and in fact the capital and surplus of property and casualty insurance industry grew at a substantial rate, it can be concluded that insurance company management and investors consider this 3.1% return on insurance operations to be a reasonable and adequate operating rate of return.

Q. Why is it appropriate to consider the historical profits of the property casualty insurance industry in determining the underwriting profit provision for North Carolina private passenger automobile insurance?

A. There are two main reasons.

First, the profit for this case should reflect the profitability of businesses of comparable risk. The business which is most comparable to North Carolina private passenger automobile insurance and which is large enough to form a reliable basis is the countrywide property casualty insurance business. By evaluating the profitability of the countrywide property casualty insurance business over a sufficient historical time period a value can be arrived at for the reasonable profit for North Carolina private passenger automobile insurance.

Second, as the Courts have stated repeatedly, investment income from capital and surplus is not to be considered in the rate level calculation. The historical profit of the countrywide property casualty insurance business can be calculated without reflecting investment income from capital and surplus. Hence, the method I have used is consistent with the directions given by the Courts. By contrast, the profit calculations performed by the NCRB give direct consideration to investment income from capital and surplus, and hence is contrary to the Court's directions, and is therefore fatally flawed.

Q. In your analysis, did you use this average actual historical return value of 3.1% for the property and casualty insurance industry?

A. The 3.1% historical operating return provides a guide to selecting a prospective operating profit. Taking into account this value we used a somewhat higher prospective range for the

operating profit of 3.5% to 4.0%.<sup>19</sup> This range was used as an approximate average overall return for liability and physical damage combined. However, to recognize differences in risk, I used a higher operating return of 4.5% for liability and a lower operating return of 3.5% for physical damage.<sup>20</sup>

Q. Did you reflect unrealized capital gains in your analysis of the profit provision?

A. No, I did not reflect unrealized capital gains in my analysis of the profit provision. Unrealized capital gains are not included either in the derivation of the actual operating return to insurance companies or in the target operating return.

Q. Why didn't you reflect unrealized capital gains in your analysis of the profit provision?

A. It is my understanding that under North Carolina law, it is not permissible to reflect unrealized capital gains in the profit calculation. NC §58-36-10(2)

Q. Did the profit analysis performed by the NCRB reflect unrealized capital gains?

A. Yes it did.

Q. Did you consider investment income on capital and surplus in your analysis of the profit provision?

A. No, I did not consider investment income on capital and surplus in my analysis of the profit provision. Investment income on capital and surplus is not included either in the derivation of the actual operating return to insurance companies or in the target operating return.

Q. Why didn't you consider investment income on capital and surplus in your analysis of the profit provision?

A. It is my understanding that under North Carolina law, it is not permissible to consider investment income on capital and surplus in the profit calculation. State ex rel. Commissioner of Insurance v. North Carolina Rate Bureau, 350 N.C. 539 (1999) and State ex rel. Commissioner of Insurance v. North Carolina Rate Bureau, 300 N.C. 381 (1980)

Q. Did the profit analysis performed by the NCRB reflect investment income on capital and surplus?

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<sup>19</sup> The operating profit for the property casualty insurance industry was extraordinary low during 2001, in large part because of the 9/11 event. This event could also have depressed the operating results during 2002. This unusual circumstance should be given little weight in determining a reasonable prospective target operating return.

<sup>20</sup> Liability insurance has a higher risk than physical damage insurance when measured on issues such as standard deviation of operating returns and the reserve to premium leverage ratio.

A. Yes it did.

Q. Did you make a deduction for agents' balances and / or prepaid expenses in your analysis of the profit provision?

A. No, I did not make a deduction for agents' balances and / or prepaid expenses in my analysis of the profit provision.

Q. Why didn't you make a deduction for agents' balances and / or prepaid expenses in your analysis of the profit provision?

A. It is my understanding that under North Carolina law, it is not permissible to make a deduction for agents' balances and / or prepaid expenses in the profit calculation. State ex rel. Commissioner of Insurance v. North Carolina Rate Bureau, 129 N.C. App 662 (1998) and State ex rel. Commissioner of Insurance v. North Carolina Rate Bureau, 124 N.C. App 674 (1996)

The Commissioner of Insurance found in connection with this issue in a previous private passenger automobile insurance rate case that:

426. These agents' balances and prepaid expense are working capital requirements and, as such, should be paid from the company's capital and not by the policyholder. The Bureau is effectively requiring policyholders to pay the expenses of the company but without giving them any credit for the income earned on policyholder funds.

...

428. ... at the time the policyholder remits a policy payment to the agent, that payment belongs to the insurance company.

...

431. ... prepaid expense and agents' balances are discretionary management decisions and should not be deducted from reserves.

Q. Did the profit analysis performed by the NCRB make a deduction for agents' balances and prepaid expenses?

A. Yes it did.

Q. Is the method you have used based upon starting with a total rate of return and then subtracting out investment income on capital and surplus?

A. No it is not. Investment income on capital and surplus does not enter into the calculations I have made.

Q. You previously stated that the profit analysis performed by the NCRB reflects unrealized capital gains. Can you explain how that occurred?

A. The Discounted Cash Flow (DCF) procedure used by Dr. Vander Weide in determining the target total return includes unrealized capital gains.

Q. How does the DCF method used by Dr. Vander Weide include unrealized capital gains?

A. In describing the basis of the DCF model, Dr. Vander Weide states in part (page 8 of his direct) that, "Likewise, investors value an investment in a firm's stock because they expect to receive a sequence of dividend payments and, perhaps, expect to sell the stock at a higher price sometime in the future." This future higher stock price is reflected in Dr. Vander Weide's DCF equation 2 (pages 8 - 9 of his direct) as  $P_n$ , which he defines as "price per share of stock at the time the investor expects to sell the stock". Both the DCF description and equation used by Dr. Vander Weide make clear that consideration is given to future price changes in the security, which is a capital gain that is not yet realized -- or in other words, unrealized capital gains.

Q. You previously stated that the profit analysis performed by the NCRB reflects investment income on capital and surplus. Can you explain how that occurred?

A. The two procedures used by Dr. Vander Weide to determine the target total return are the Discounted Cash Flow (DCF) and Risk Premium (RP) methods. Both of these procedures are based upon a total return methodology. Total return reflects both the return on insurance operations and investment income on capital and surplus. Hence, contrary to the Courts' instructions, the method used by the NCRB to determine the underwriting profit provision contains an amount for investment income on capital and surplus.

Q. How does the DCF method used by Dr. Vander Weide include investment income on surplus?

A. In implementing the DCF model, Dr. Vander Weide used projected earnings growth. This is shown in Exhibits RB-25 and RB-26, which are Dr. Vander Weide's implementation of the DCF model including a "g" factor. He defines the factor as follows: "g = I/B/E/S forecast of future earnings growth October 31, 2004." The earnings used in the analysis are total earnings, including investment income on capital and surplus. Hence, investment income on capital and surplus enters into Dr. Vander Weide's DCF calculations.

Q. How does the RP method used by Dr. Vander Weide include investment income on capital and surplus?

A. In implementing the RP model, Dr. Vander Weide adds the bond return to his risk premium. The addition of the bond return to the risk premium gives consideration to investment income on capital and surplus. This results because the bond return is a proxy for the amount of investment income on capital and surplus earned by insurance companies.

Q. You previously stated that the profit analysis performed by the NCRB makes a deduction for agents' balances and prepaid expenses. Can you explain how that occurred?

A. The “Pro Forma Statutory Return” calculations by Dr. Appel for private passenger auto liability (Exhibit RB-32) and private passenger physical damage (Exhibit RB-33) both make deductions for agents’ balances and prepaid expenses.

Q. Where does the deduction for agents’ balances appear in the profit calculations performed by the NCRB?

A. For both private passenger auto liability (Exhibit RB-32) and private passenger physical damage (Exhibit RB-33), a deduction is made for investment income on agents’ balances on Page 1, line 7.

Q. Where does the deduction for prepaid expenses appear in the profit calculations performed by the NCRB?

A. For both private passenger auto liability (Exhibit RB-32) and private passenger physical damage (Exhibit RB-33), a deduction is made for prepaid expenses on Page 7, line 4.

Q. What is the impact of Dr. Appel’s deduction for prepaid expenses and agents’ balances in his profit calculations?

A. Dr. Appel’s profit analysis incorporating prepaid expenses and agents’ balances lowers the amount of investment income on reserves he calculated. In order to have the same operating profit, which is composed of underwriting profit plus investment income on reserves, the NCRB would need to increase the underwriting profit in order to make up for the depressing impact of Dr. Appel’s calculation on investment income on reserves. An increased underwriting profit used by the NCRB would result in the rate level being inflated.

Q. What analysis did you perform concerning the riskiness of the property and casualty insurance industry?

A. I examined various indices of risk for several property and casualty insurance companies. They are set forth in Schedule AIS-9, Sheet 1 based upon information from Value Line. These statistics were beta, the safety index, the price stability index and the earnings predictability index.

Q. What do these statistics represent?

A. Beta is a measure of the volatility of stock prices. This statistic measures the risk of an investment in relationship to the overall economy. It does not consider any risk unique to the specific company. A value of 1.00 is of average risk, higher than 1.00 is above average risk, and lower than 1.00 is below average risk.

The safety index (1 to 5 with the lower value being safer) is a measure of the total risk of the company. It includes consideration of factors particular to the company's business such as financial condition and management competence.

The price stability index (5 to 100 with the higher value being better) is based upon a ranking of the standard deviation of weekly percent changes in the price of a stock during the prior five years.

The earnings predictability index (5 to 100 with the higher value being better) is a measurement of the reliability of an earnings forecast. It is based upon the standard deviation of percent changes in quarterly earnings over a ten-year period.

Q. Are measures of risk available from entities other than Value Line?

A. Yes.

Beta values are available from a number of organizations other than Value Line. Other organizations that calculate beta values are Yahoo!, Standard and Poors, and Ibbotson. The beta values calculated for property casualty insurance companies from these other organizations, as well as from Value Line, are shown in Schedule AIS-9, Sheet 2. These beta values are significantly less than 1.00, indicated a risk for the property casualty insurance industry much less than average.

Q. Based upon this analysis, what conclusions did you arrive at regarding the risk of the property and casualty insurance industry?

A. The property and casualty insurance companies are better than average (lower risk) for beta, safety and price stability, and lower than average (higher risk) for earnings predictability. Overall, the property and casualty insurance industry is of about average or somewhat below average risk.

Q. What analyses did you perform in measuring the risk characteristics of private passenger automobile insurance?

A. An analysis of countrywide operating ratios by line of insurance for the property and casualty insurance industry from 1976 to 2003 is set forth in Schedule AIS-10, Sheet 1. Both private passenger automobile physical damage and liability have a variability in operating ratios, as measured by the standard deviation, lower than the all lines average. This indicates a lower degree of risk for these two lines of insurance. In fact, private passenger automobile liability and physical damage have a lower risk, as measured by standard deviation, than any of the major lines of property - casualty insurance.<sup>21</sup>

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<sup>21</sup> Neither "other accident and health" nor "group accident and health" are considered major lines of property casualty insurance. These two coverages combined constitute about 3% of the total premiums for the property casualty insurance industry.

A comparison of the variability of private passenger automobile insurance operating results by state is set forth in Schedule AIS-10, Sheet 2. North Carolina has had a lower than average standard deviation when compared to the average result across all states. The North Carolina standard deviation was 2.5%. By contrast, the average standard deviation across all states was 4.1%, or about 64% higher. This indicates that North Carolina private passenger automobile insurance is less risky than private passenger automobile insurance in general.

Q. How are standard deviation and risk related?

A. Standard deviation is a measure of the variability of a set of data. It roughly measures the average amount by which any data point in a given set of experience varies from the middle of the data set. The higher the standard deviation, the greater the amount of variability, which in turns means a larger degree of risk.

Q. Do you know of any other studies which indicate the riskiness of private passenger automobile insurance in relation to the insurance industry as a whole?

A. Yes. One such study, which was published by ISO, concluded that personal automobile insurance was the least risky of the various lines of insurance. An excerpt from that ISO study follows.

Like the insurance segment analysis, this analysis uses three statistics - total variability, cycle-adjusted variability, and the composite risk index - to measure risk.

...

Personal auto - the fifth most profitable line of insurance - has been the least risky line, based on each of the three measures of risk.

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Risks and Returns: Property/Casualty Insurance Compared with Other Industries (see Appendix AIS-E)

Q. Did you examine any other risk characteristics of private passenger automobile insurance?

A. Yes. In addition to risk as related to reported profit results, I also examined risk in relation to reserves.

A comparison of the ratio of reserves to premiums is shown in Schedule AIS-11, Sheets 1 to 3 for five categories of property and casualty insurance. These are: (i) private passenger auto and homeowners predominating, (ii) automobile physical damage predominating, (iii) private passenger auto predominating, (iv) personal lines predominating and (v) the entire property and casualty insurance industry. As can be seen, the first four classes of business generate about a third less reserves per premium dollar than the entire property and casualty insurance industry. This lower relative reserve level for private passenger automobile insurance and automobile

physical damage is indicative of a lower level of risk than for the property and casualty insurance industry as a whole.

In addition to the level of reserves, I also examined the accuracy with which the loss (including loss adjustment expense) reserves have been established. A historical summary of the loss reserve development for private passenger automobile liability and automobile physical damage in relation to the remainder of the property casualty insurance industry is shown in Schedule AIS-11, Sheet 4. A negative difference would indicate an excessive reserve value, whereas a positive value would indicate a reserve deficiency. As can be clearly seen, for both private passenger automobile liability insurance as well as automobile physical damage, the tendency has been to establish redundant (i.e., excessive) loss reserves. However, for the other lines of property and casualty insurance, a different picture emerges. For the other lines of property and casualty insurance, loss reserves have generally not been set at an adequate level. The overall pattern for lines of insurance other than automobile is for inadequate reserves, as indicated by the average positive reserve runoff value.

This historical pattern -- redundant reserves for private passenger automobile liability and automobile physical damage, but inadequate reserves for the other property and casualty lines of insurance as a whole -- is another clear indication of private passenger automobile insurance being a less risky business than property and casualty insurance as a whole.

Q. You have discussed various quantitative reasons that North Carolina private passenger automobile insurance is less risky than property casualty insurance in general. Are there any qualitative factors that reflect on the relative risk of North Carolina private passenger automobile insurance compared to the property casualty insurance in general?

A. Yes. There are several factors which provide additional support for the conclusion that North Carolina private passenger automobile insurance is less risky than property casualty insurance in general. These include that : (i) private passenger automobile liability insurance is mandatory, (ii) the limits of liability are relatively low, (iii) there is no appreciable catastrophe hazard, (iv) a large amount of data are available regarding the cost of the product, (v) an automatic inflationary exposure base is used which increases premiums for insurance companies even without an increase in rates, (vi) insurance companies can cede business to the Reinsurance Facility and (vii) insurance companies can use consent to rate. Each of these factors contribute to the lower than average risk characteristics of North Carolina private passenger automobile insurance.

Q. Based upon your analysis, what conclusions did you reach regarding the riskiness of private passenger automobile insurance?

A. I concluded that the property and casualty insurance industry is an average or somewhat below average risk industry.

I also determined that private passenger automobile insurance was less risky than the property and casualty insurance industry in general.

Finally, North Carolina private passenger automobile insurance presents less risk than private passenger automobile insurance in general.

Hence, North Carolina private passenger automobile insurance presents less risk than the average economic activity.

Q. Based upon your conclusions about rate of return and the riskiness of North Carolina private passenger automobile insurance, how did you arrive at an underwriting profit and contingency factor?

A. I selected prospective insurance operating returns as a percent of premium of 4.5% and 3.5% for private passenger automobile liability and physical damage, respectively. This was based upon an analysis of the actual insurance operating returns for the property casualty insurance industry. The difference in operating returns between liability and physical damage reflects the somewhat lower risk presented by physical damage coverages.

The investment income on reserves is then subtracted out from these figures to arrive at the needed underwriting profit and contingency factors. This is accomplished in Schedule AIS-6, Sheets 1 and 2 for liability and physical damage, respectively.

The result was the derivation of an underwriting profit and contingency factor of -0.9% for liability and 1.4% for physical damage.

Q. How did you determine the amount of investment income that could be attributed to the loss, loss adjustment expense and unearned premium reserves for the liability and physical damage coverages?

A. My calculation of the amount of investment income derived from reserves is set forth in Schedule AIS-6, Sheets 1 and 2 for liability and physical damage, respectively. I used essentially the same procedure as that adopted by the NCRB with three modifications. These adjustments dealt with the : (1) deduction for agents balances made by the NCRB and (2) deduction for prepaid expenses made by the NCRB, and (3) the investment rate of return.

Q. How did you arrive at these revisions?

A. It is my understanding that under North Carolina law, deductions must not be made for agent's balances and for prepaid expenses. My calculation is consistent with that. The profit calculation by the NCRB is not.

For the investment rate of return on assets we used a higher value than the NCRB: 4.97% for the NCRB and 5.7% for AIS. The value of 5.7% that we used represents the actual investment income return earned by the property casualty insurance industry during 2003 of

4.4% plus the long term value from 1983 to 2003 of the investment gain from realized capital gains of 1.3%.<sup>22</sup>

Q. Can you explain the difference between your investment rate of return and the value used by the NCRB?

A. Yes.

The NCRB investment rate of return of 4.97% is the average of two values used by the NCRB – those being what the NCRB refers to as an “embedded yield” of 5.65% and what the NCRB refers to as being a “current yield” of 4.29%. (RB-32, page 10) The average of those two values is the 4.97% used by the NCRB.

As can be seen, the 5.65% value derived by the NCRB is the same as our proposed value of 5.7% within rounding. A complete explanation was not provided by the NCRB regarding the derivation of its 4.29% “current yield” value. However, it has been my experience that the type of calculation used by the NCRB to derive this value (RB-32, page 11) uses an inappropriate maturity distribution of investments and understates the investment rate of return. Because of this, the “current yield” value of 4.29% used by the NCRB is biased low and should not be used in the rate level calculation.

Q. What values did you arrive at for investment income on reserves in relation to premium?

A. I arrived at values for investment income on reserves as a percent of premium of 5.4% for liability and 2.3% for physical damage.

Q. From an actuarial perspective, does your methodology comply with the North Carolina Supreme Court decision 300 N.C. 381 (1980) that investment income on capital and surplus not be considered in the ratemaking process?

A. Yes it does. I did not include investment income on capital and surplus in either: (a) determining the target operating return in relation to premium of 4.5% for liability and 3.5% for physical damage, or (b) in calculating the projected operating return as a percent of premium for insurers from underwriting plus investment gain on reserves.

Q. From an actuarial perspective, did the methodology used by the NCRB comply with the North Carolina Supreme Court decision that investment income on capital and surplus not be considered in the ratemaking process?

A. No, it does not. The calculations by the NCRB include the consideration of investment income on capital and surplus when they determined a cost of capital (i.e., target total rate of return) for insurers. Furthermore, since the NCRB used the cost of capital including consideration of investment income on capital and surplus in evaluating the underwriting profit

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<sup>22</sup> 5.7% = 4.4% + 1.3%

provisions the NCRB proposed, it naturally follows that the underwriting profit provisions used by the NCRB also include consideration of investment income on capital and surplus. Hence, from an actuarial perspective, the NCRB method is not in compliance with a legal decision that investment income on capital and surplus cannot be considered in the ratemaking process.

Q. Are there other aspects of that North Carolina Supreme Court decision that you would care to comment on from an actuarial perspective?

A. Yes. I want to discuss the basis used to measure whether the profit provision is reasonable. The Supreme Court decision which I previously discussed cited several cases in making its analysis. The cases and passages cited by the Supreme Court would support the notion that premium, and not capital, is the proper basis upon which to determine if the profit provision is reasonable. For example, one of the cases cited is State ex rel. Commissioner of Insurance v. State ex rel. Attorney General, 19 N.C. App. 263, 198 S.E. 2d 575, cert. denied, which stated in part:

For this reason the courts have determined that proper profit levels for insurance companies may be more appropriately ascertained by taking a percentage of their premiums than by specifying a certain rate of return on their capital investment.

The North Carolina Supreme Court also cited Aetna Insurance Company v. Hyde, 315 Mo. 113, 285 S.W. 65 (1926), cert. dismissed, 275 U.S. 440, 48S.Ct. 174, 72 L.Ed. 357 (1928) which stated in part:

Each company can make as much money as it can. Some may make enormous profits, some may do a losing business, but the average profit, that is the aggregate profit on the aggregate business, must be reasonable. That seems to be sufficient reason for taking the business done and not the capital invested, as a basis for measuring a reasonable profit.

From an actuarial perspective, both of these excerpts from the North Carolina Supreme Court decision would support the use of premiums as a basis for measuring a reasonable profit, and reject the use of capital as a basis for measuring profit.

Q. Did your analysis, in compliance with the North Carolina Supreme Court decision, use premiums as a basis for measuring a reasonable profit?

A. Yes, my methodology is in compliance with the North Carolina Supreme Court decision in that I used premium as the measurement basis for the profit calculation. This can be clearly seen from Schedules AIS-6 and AIS-7.

Q. Did the NCRB analysis, in compliance with the North Carolina Supreme Court decision, use premium as a basis for measuring a reasonable profit?

A. No, the methodology used by the NCRB is not in compliance with the North Carolina Supreme Court decision. In fact, the NCRB employed the rejected method of using invested capital (and surplus) as a basis for measuring the profit. This can be clearly seen in numerous places in pre-filed testimony and exhibits of the NCRB witnesses [see for example RB-32 and RB-33, Line 10 titled “Total Return as a Percent of Net Worth (post tax)].

Q. What impact do the NCRB's proposed excessive underwriting profit and contingency factors have on the indicated rate level change?

A. The rate change derived by the NCRB is too high by 11.0% for liability and 10.1% for physical damage due to their use of excessive underwriting profit and contingency factors.

Q. Dr. Appel alleges that the property - casualty insurance industry is more risky than average. Do you have any response to that?

A. Yes, I do.

Dr. Appel seems to base his conclusions upon three main allegations. Those contentions by Dr. Appel are that : (i) the property casualty insurance industry is subject to unusual interest rate risk, (ii) that historical data show higher returns and high standard deviations (risk) for property casualty insurance companies and (iii) that property casualty insurance companies are of smaller than average size which increases risk.

Dr. Appel is wrong in each of those allegations.

Q. Dr. Appel alleges that the property casualty insurance industry is subject to unusual interest rate risk. Do you have any comment upon that?

A. Yes I do.

First, while Dr. Appel has performed some analysis of interest rate risk for property casualty insurance companies, he has not done so for any other type of business. Hence, there is no basis for comparison of the property casualty insurance companies to other industries. For example, manufacturing companies typically have a significant amount of interest bearing liabilities, but fewer interest bearing assets.<sup>23</sup> Hence, using Dr. Appel's logic, there is also an interest rate mismatch for those types of companies which cause, according to Dr. Appel, interest rate risk. However, since Dr. Appel has not examined that alleged interest rate risk for any industry other than property casualty insurance companies, there is simply no basis for contending that the property casualty insurance industry has unusual risk in that regard.

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<sup>23</sup> For instance, The Boeing Company as of 12/31/01 had Cash & Equivalents plus Short Term Investments plus Long Term Investments of \$633 million which was only 1% of its total assets of \$48.3 billion, but had total debt of \$12.3 billion which was 113% of its total equity of \$10.8 billion. As another example, General Motors as of 12/31/01 had Cash & Equivalents plus Short Term Investments plus Long Term Investments of \$69.6 billion which was only 21% of its total assets of \$324.0 billion, but had total debt of \$166.3 billion which was 844% of its total equity of \$19.7 billion. (see Appendix AIS-F)

Second, any interest rate risk for the property casualty insurance industry is already embedded in the various risk measures that I have previously discussed. Those risk measures are: (i) beta, (ii) safety, (iii) price stability, (iv) earnings predictability. (Schedule AIS-9) Those risk factors, which already reflect any interest rate risk, show that the property - casualty insurance industry is average or somewhat below average risk.

Q. Dr. Appel alleges that historical data show higher returns and high standard deviations (risk) for property casualty insurance companies. Do you have any comment upon that?

A. Yes I do.

First, Dr. Appel alleges to show historical return values for the property casualty insurance industry and the S&P 500 from the period 1980 - 1998 in NCRB Exhibit RB-30. However, no underlying data or calculations were provided to support the figures shown therein. Hence, it is impossible for anyone to determine, based upon the information provided by the NCRB, the accuracy or veracity of the values shown in RB-30, and from an actuarial / financial perspective those figures are not meaningful.

Second, the figures on Exhibit RB-30 regarding the returns for the property casualty insurance industry are contradicted by the actual returns earned during that time period. The average annual return on net worth earned by the property casualty insurance industry from 1980 to 1998 is 9.2%. (see Schedule AIS-7, Sheet 6) The value of 21.13% shown in RB-30 is more than twice as high as the actual return. This casts serious doubts upon the accuracy of RB-30.

Third, Dr. Appel alleges that, "These data indicate that insurance stocks are more volatile, and hence riskier, than the average security in the economy. In addition, the higher than average returns for these securities indicate that investors have been compensated for this additional risk." (Appel direct : RB-28, page 13) However, that position by Dr. Appel is contradicted by an Insurance Services Office study which found that:

During the two insurance cycles from 1978 to 1994, the property / casualty insurance industry was less profitable and less risky than most other industries. "Risks and Returns: Property / Casualty Insurance Compared with Other Industries" (see Appendix AIS-G)

Q. Dr. Appel alleges that property casualty insurance companies are of smaller than average size which increases risk. Do you have any comment upon that?

A. Yes I do.

There is doubt as to whether or not a small size effect exists in general or for property casualty insurance companies in particular.

One issue is whether the size premium included in Appel's calculations is statistically different than zero. This is not a trivial concern since the variability of the returns is so large compared to the alleged size premium impact. The alleged size premium in deciles 2 to 10 ranges from 0.42% to 5.67%. However, the variability of annual returns for those deciles range from 22.1% to 45.3%. The standard error of the mean for these deciles range from about 2.5% to 5.2%. Hence, the magnitude of the so called size premium that Dr. Appel uses is near to or less than the standard error of the returns. This is certainly indicative of the alleged size premium not being statistically different than zero, since the observed values can simply be the result of random fluctuations.

A review of the annual return data for large stocks compared to small stocks indicates that the alleged small size effect is not statistically significant. That is, the difference is not statistically different than 0%. (see Schedule AIS-7, Sheets 7 to 10)

In addition, the so-called historical small stock effect has arisen totally from returns during January, and in fact the aggregate return for small stocks in the other eleven months combined (from February to December) is less than that for large stocks. This is a further indication that the so called small stock effect is illusory.

Furthermore, the so called size premium only exists when the calculation is done using arithmetic returns. When the calculation is performed using geometric returns, there is no size premium (see Schedule AIS-7, Sheet 10). The problem with using an arithmetic return is that it does not measure the actual accumulation of wealth over a multi - time period. However, the geometric return does provide a proper measure of the total return over time. To illustrate this, consider the following example.

Illustration Showing Arithmetic Average Overstates Return

<u>Period Number</u>	<u>Asset Value</u>	<u>Return</u>
0	\$1,000	
1	\$ 500	-50%
2	\$ 810	+62%
Average Annual Return - Arithmetic		+ 6%
Average Annual Return - Geometric		-10%

Using an arithmetic average return, the “indicated” average annual return is +6%. Despite the average arithmetic returns being +6% per year, an investor would in reality have 19% less money, and therefore suffered a loss rather than having a gain. The use of a geometric return by contrast, shows correctly that the funds have gone down over the two year period. As can be seen, the use of an arithmetic average overstates the return.

The use of a geometric average is supported by various literature on this subject, as the following shows:

There is just as much disagreement among practitioners on the usage of the arithmetic versus the geometric mean. Those who use the arithmetic mean argue that it is much more consistent with the mean - variance framework of the CAPM and a better predictor of the premium in the next period. Use of the geometric mean is justified on the grounds that it takes into account compounding and that it is a better predictor of the average premium in the long term. There can be dramatic differences in premiums based upon the choices made at this stage, as illustrated in Table 4.1 based upon historical data on stock and bond returns.

The geometric mean generally yields lower premium estimates than the arithmetic mean. **In the context of valuation, where cash flows over a long time horizon are discounted back to the present, the geometric mean provides a better estimate of the risk premium.** (emphasis supplied)

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Investment Valuation by Aswath Damodaran, 1996, page 48

**We use a geometric average of rates of return because arithmetic averages are biased by the measurement period.** An arithmetic average estimates the rates of return by taking a simple average of the single period rates of return. Suppose you buy a share of a non dividend - paying stock for \$50. After one

year the stock is worth \$100. After two years the stock falls to \$50 once again. The first period return is 100 percent; the second period return is -50 percent. The arithmetic average is 25 percent [ ( 100 percent - 50 percent ) / 2 ]. The geometric return is zero. (The geometric average is the compound rate of return that equates the beginning and ending value.) **We believe that the geometric average represents a better estimate of investors' expected returns over long periods of time.** (emphasis supplied)

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Valuation : Measuring and Managing the Value of Companies by Tom Copeland, Tim Koller and Jack Murrin, 1994, pages 260 - 261

Third, for the property - casualty insurance industry, there is no evidence that there is a size impact in terms of smaller companies having a higher return than larger companies. In fact, the available data shows that to the extent there is any difference in earnings among insurance companies by size, it is the larger insurance companies that generally earn a higher return (see Schedule AIS-7, Sheets 11 - 16).

Q. Is the method you used to calculate the underwriting profit provision in this case the same method you used in the 2001 rate case?

A. Yes it is?

Q. Was that method adopted by the Commissioner of Insurance in his Order in that case?

A. Yes it was.<sup>24</sup>

Q. Did the North Carolina Court of Appeals uphold the use of that profit methodology?

A. Yes it did. *State ex rel. Comm'r of Insurance v. N.C. Rate Bureau*, 160 N.C. App. 416; 586 S.E.2d (2003)

Q. Did the North Carolina Supreme Court let stand the decision of the North Carolina Court of Appeals that the method used by the Commissioner of Insurance to set the profit provision in the 2001 case complied with North Carolina law?

A. Yes it did. *State ex rel. Comm'r of Insurance v. N.C. Rate Bureau*, 358 N.C. 539; 597 S.E.2d 128 (2004).

Q. Did the Commissioner of Insurance, in his 2001 Order, reject the NCRB's cost of capital approach to deriving a profit loading?

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<sup>24</sup> The Commissioner of Insurance used a different interest rate than I did, but that is a parameter selection in the model, as opposed to the model itself.

A. Yes.

Q. Do you have an understanding as to why the 2001 Order of the Commissioner of Insurance rejected the NCRB's cost of capital approach to deriving a profit loading?

A. Yes.

Because a cost of capital approach includes consideration of investment income on capital and surplus as well as unrealized capital gains, both of which are contrary to my understanding of what is allowed under the applicable North Carolina Statutes.

Q. What method does the current NCRB filing use to analyze the profit provision?

A. The current NCRB filing uses the same type of cost of capital approach to derive a profit provision as has been previously rejected by the Commissioner and the Courts.

### **VIII – EXPERIENCE DATABASE**

Q. What is the issue with regard to the experience database?

A. The NCRB has made a drastic change in the experience database used to perform the rate level calculation.

For more than the last two decades the NCRB rate filings have been based upon the experience of voluntary market insureds that are subject to NCRB rates. This would exclude insureds that are: Facility clean risk, Facility other than clean risk, and consent to rate business.

In this filing, the NCRB proposes to include consent to rate business, as well as to include all Reinsurance Facility business.

Q. Is there any precedent for the switch in the database being proposed by the NCRB?

A. None that I am aware of.

We have reviewed all of the most recent filings made by ISO that were provided by ISO. In each of those forty – seven jurisdictions, the database used in the filing consisted of voluntary market experience. (Appendix AIS-H)

Q. Was the experience used in the NCRB rate filing selected by the NCRB in a manner consistent with how the experience used in the North Carolina Reinsurance Facility (NCRF) rate filing was selected by the NCRF?

A. No. The two sets of data were selected in an inconsistent manner by the NCRB and the NCRF. The explanation of how the NCRF selected the data to use in its rate filing is as follows,

“The supporting data for the rate level changes for bodily injury liability, property damage liability, and medical payments coverages are the data from the risks insured by the Facility and subject to Facility the rates – i.e., the other than clean ceded risks.” (Pat Woods direct in NCRF filing, page 3)

Using those criteria, then neither the ceded business nor consent to rate business should be included in the NCRB voluntary market rate filing. This is because ceded business is not written in the voluntary market, and consent to rate business is not rated using the voluntary rates.

Using the criteria set forth by Pat Woods in the NCRF rate filing, the NCRB rate filing should contain data from business in the voluntary market excluding consent to rate business. That is the database which has been used by the NCRB, NCDOI and North Carolina Courts to determine voluntary market rates for more than two decades. There is no legitimate reason to make the drastic change to the experience database proposed by the NCRB.

Q. Is the above reasoning consistent with actuarial practices regarding the database to use for ratemaking?

A. Yes. It is generally accepted that the database to use for voluntary market rates should consist of voluntary market business that will be subject to those rates.

Q. Is it generally accepted that the database used by the NCRB for its voluntary market rate filing is not actuarially appropriate?

A. Yes.

The database used by the NCRB for its voluntary market rate filing is not actuarially appropriate.

I am not aware of a single instance anywhere else where a rate filing for the voluntary market included the experience of the residual market (e.g., the Reinsurance Facility for North Carolina) and consent to rate business.

Q. What is the impact of the NCRB database proposal to include consent to rate and Facility business in the calculation of the voluntary market rate level?

A. The result is that there will be hidden subsidies in the rates going from voluntary market policyholders that serve to increase insurance company profits. The mechanism by which this would happen is set forth in Schedule AIS-12.

The reason this occurs is because the higher losses associated with ceded clean risk business, ceded other than clean business, and consent to rate business will be used to inflate the voluntary market rates, but the revenue of insurance companies for these three types of business will remain the same. Increasing one source of revenue for insurance companies (i.e., voluntary

market business) while at the same time having another source of revenue remain the same (i.e., ceded clean risk business, ceded other than clean business and consent to rate business) of course results in an overall increase in the revenue for insurance companies.

Q. What is the impact of the NCRB's change in the experience database?

A. The NCRB's use of an actuarially inappropriate database that includes ceded clean risk business, ceded other than clean business and consent to rate business is to increase the rate level indication by 16.7% for the liability coverages, by 7.0% for the physical damage coverages and 12.5% on an overall basis.

### **IX - DEVIATIONS**

Q. What did the NCRB do with regard to deviations?

A. The NCRB added an additional loading for deviations into the rate level calculation, above and beyond the profit loading in the rates, as if deviations constituted a normal nondiscretionary operational expense item.<sup>25</sup> By following this procedure, the NCRB effectively disregarded the manual rates actually in place for North Carolina.

Q. How did the NCRB add in an additional loading for deviations in the rate level calculation?

A. The NCRB included an additional loading for deviations in large part by changing the data base used to perform the rate level calculation. For more than two decades, the data base used has consisted of the voluntary market subject to NCRB rates. In this filing, the NCRB also proposes to include Facility business and consent to rate business in the ratemaking data base.

In addition, the NCRB filing includes excessive underwriting profit and contingency provisions, which effectively include a provision for deviations.

Q. Is it actuarially appropriate to include Facility business and consent to rate business in the ratemaking data base used to calculate the voluntary market rate level change?

A. No. It is not. This was discussed in a previous section of this testimony.

Q. Is the NCRB's treatment of deviations proper?

A. No. Deviations should not be built back into the rate level in the way performed by the NCRB.

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<sup>25</sup> In testimony for previous private passenger automobile insurance rate cases, we discussed dividends and deviations together. For this proceeding, the NCRB has included a 0% provision for dividends, and has included the entire excess load in the deviation provision. Hence, for this proceeding, we will only discuss deviations and will not discuss dividends.

It is inappropriate to follow the procedure recommended by the NCRB whereby discretionary management decisions regarding deviations would be treated as necessary costs and funded by policyholder premiums.

Furthermore, the NCRB is effectively using the same methodology with regard to deviations that they used in the 1994, 1996 and 2001 rate cases. For all three of those cases, the North Carolina Court of Appeals determined that the method used by the NCRB was not appropriate. For the 1996 and 2001 cases, the North Carolina Supreme Court determined that the method used by the NCRB was not appropriate.<sup>26</sup>

A complete discussion of the deviation issue, providing background and historical information, including an explanation of why the NCRB procedure is inappropriate is included in Appendix AIS-J.

Q. Have you made any review of the provision for deviations contained within a manual rate based upon average cost projections?

A. Yes, I have.

The provision for deviations contained within the average manual rate level is about 4.5% to 6.0% of premium based upon data from 1992 to 1997, 2000, 2002 and 2003. This value is based upon the various savings for insurance companies related to losses and expenses that are lower than the average value contained in the manual rates.<sup>27</sup> The calculation of this value is set forth in Schedule AIS-15.

Q. What impact did the NCRB's inclusion of an additional cost factor for deviations and their negation of savings, by the use of a revised experience database; have on the indicated rate level change?

A. By ignoring the actual manual rates in effect, through their use of an additional cost factor for deviations and their negation of savings, the NCRB's rate level indications were inflated by 16.7% for liability and 7.0% for physical damage.<sup>28</sup>

## **X - MOTORCYCLES**

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<sup>26</sup> The North Carolina Supreme Court did not issue a final decision regarding dividends and deviations in the 1994 case.

<sup>27</sup> Other sources for deviations are not included in these values.

<sup>28</sup> This does not reflect the amount of deviations the NCRB has included in the item they refer to as "underwriting profit".

Q. Did you calculate a rate level indication for motorcycle insurance?

A. Yes, I did. The calculation is set forth in Schedule AIS-16 for liability.

Q. How does your rate level calculation differ from that of the NCRB for motorcycles?

A. I corrected the NCRB procedure in the areas of the underwriting profit, expenses, database and deviations. These adjustments and the basis for them were discussed previously in connection with the rate level determination for private passenger automobile insurance.

These corrections lead to an overall indicated rate decrease for motorcycles of -27.2% as opposed to the NCRB's proposed rate decrease of -1.5%.

Q. Can you explain how you made the correction to the NCRB motorcycle rate level calculation regarding the issue of deviations?

A. Yes.

The premiums at present rates used in the NCRB motorcycle rate level calculation reflects a reduction for deviations. The proper premium to use in the rate level calculation is the premium at present NCRB manual rates.

In order to make this correction, the amount of deviation reflected in the premiums at present rates used in the NCRB motorcycle rate level calculation must be removed. The NCRB claims that this information is not available. For the purpose of the motorcycle rate level calculation, we have therefore used the method presented in Exhibit RB-44A with a modification of using the premium distribution and deviation amount for each accident year.

Q. How are the rates for motorcycles related to the rates for private passenger automobile insurance?

A. The manual rates for motorcycles and private passenger automobile insurance depend upon some of the same factors, such as profit. In addition, the two sets of manual rates are linked together by a relatively formula. Because of this, a change in a rate calculation factor for private passenger automobile insurance could also impact the motorcycle rate level calculation, as well as the relatively between motorcycles and private passenger automobile insurance manual rates.

#### **XI - COMMENTS ON DR. APPEL'S TESTIMONY**

Q. Have you reviewed Dr. Appel's testimony and exhibits in this case?

A. Yes I have.

Q. Do you have any comments on Dr. Appel's testimony?

A. Yes I do.

Q. What issue regarding Dr. Appel's testimony do you want to discuss?

A. The issue is a comparison of Dr. Appel's current profit calculations to his prior profit calculations.

Q. What comments do you have regarding a comparison of Dr. Appel's current profit calculations to his prior profit calculations?

A. Dr. Appel is using the same profit methodology for this rate proceeding as he has used in the prior rate proceedings. Dr. Appel compares what he claims insurance companies will earn from writing private passenger automobile insurance to a target profit value based upon Dr. Vander Weide's cost of capital projections. Hence, Dr. Appel's profit analysis is based upon cost of capital values, which is the same procedure he used in the 2001 rate case. Those cost of capital values include provisions for both investment income on capital and surplus, as well as unrealized capital gains. In the 2001 case, the Commissioner of Insurance found that this procedure violated North Carolina law. The Order by the Commissioner of Insurance was upheld on appeal. Thus, Dr. Appel's profit procedure in this case has already been found by the Commissioner of Insurance and the Courts to violate North Carolina law.

Dr. Appel's calculation of the underwriting profit provision is the same as his prior profit calculations in numerous aspects, including:

1. Dr. Appel makes a deduction for prepaid expenses. This is contrary to accepted ratemaking practices approved by the Courts in North Carolina.
2. Dr. Appel makes a deduction for agents' balances. This is contrary to accepted ratemaking practices approved by the Courts in North Carolina.
3. Dr. Appel evaluates the profit provision in relation to capital instead of in relation to premium. This is contrary to accepted ratemaking practices approved by the Courts in North Carolina.
4. Dr. Appel uses a cost of capital provision which includes investment income on capital and surplus as well as unrealized capital gains. The use of investment income on capital surplus as well as unrealized capital gains is contrary to accepted ratemaking practices approved by the Courts in North Carolina.

For all these reasons the underwriting profit provisions calculated by Dr. Appel are contrary to North Carolina law and therefore cannot be relied upon.

In addition, the NCRB underwriting profit provisions as calculated by Dr. Appel fail a very simple test. The NCRB proposed underwriting profit provisions are contradicted by actual experience regarding the underwriting profit provisions achieved by the insurance industry for private passenger automobile insurance. The combined liability and physical damage underwriting profit during the last 20 years was -4.1%. The highest value achieved during that period of time was 1.5%. Against that background, the combined liability and physical damage underwriting profit provision proposed by the NCRB of 8.7% is shown to be so far removed from reality as to not have any credibility or believability.

## **XII - COMMENTS ON DR. VANDERWEIDE'S TESTIMONY**

Q. Have you reviewed Dr. Vander Weide's testimony and exhibits in this case?

A. Yes I have.

Q. Do you have any comments on Dr. Vander Weide's testimony?

A. Yes I do.

Q. What issues regarding Dr. Vander Weide's testimony do you want to discuss?

A. Dr. Vander Weide's testimony only deals with the cost of capital and I want to discuss that issue.

Q. What issues do you want to discuss Dr. Vander Weide's cost of capital calculation?

A. Dr. Vander Weide's has presented a cost of capital analysis, as he has done previously in North Carolina.

As previously discussed it is my understanding that Dr. Vander Weide's cost of capital has been found by the Commissioner of Insurance and the Courts to violate North Carolina law in that it incorporates investment income on capital and surplus as well as unrealized capital gains.

For this reason, I will not discuss any of the other technical problems that are inherent in Dr. Vander Weide's cost of capital analysis.

## **XIII - CONCLUSION**

Q. Would you please summarize your testimony?

A. The rate level changes proposed by the NCRB would result in excessive rates for both private passenger automobile insurance and motorcycles.

The erroneous procedures in the NCRB's filing include the use of:

- Underwriting profit and contingency provisions which include consideration of the impermissible factors of investment income on capital and surplus, unrealized capital gains, deductions for agents balances and deductions for prepaid expenses,
- An actuarially improper experience database,
- Deviation factors (included by the use of an improper experience database and excessive underwriting profit factors) over and above the provision included in an average manual rate, which do not recognize that the actuarial and statutory purpose of ratemaking is to test the rates in effect at a given point in time, which negate any savings impact of lower operating costs, which tend to protect high cost insurance companies and which do not provide an incentive for insurers to operate efficiently,
- Experience for only 2003 while ignoring the experience for experience years 2001 and 2002,
- Inappropriate amounts reported as expenses by insurance companies, and
- Projected losses which do not reflect law changes.

Q. Do you have an opinion regarding the NCRB's indicated rate level changes of +9.6% for private passenger automobiles and -1.5% for motorcycles?

A. Yes. I do.

Q. What is that opinion?

A. That they will lead to excessive and unfairly discriminatory rates.

Q. Do you have an opinion regarding your proposed rate level decrease of -15.9% for private passenger automobiles and decrease of -27.2% for motorcycles?

A. Yes. I do.

Q. What is that opinion?

A. That they will result in overall rate levels that are neither excessive, inadequate nor unfairly discriminatory.

Q. Does this complete your pre-filed direct testimony?

A. Yes, it completes my pre-filed testimony at this time.

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**STATEWIDE RATE LEVEL CHANGES BY COVERAGE**

(1) <u>COVERAGE</u>	(2) PREMIUM VOLUME (000's)	(3) INDICATED RATE LEVEL CHANGE			
	<u>Liability Coverages</u>				
		<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>Average</u>
Bodily Injury	\$778,196	-8.8%	-9.3%	-11.7%	-9.9%
Property Damage	\$644,716	-14.0%	-13.3%	-11.8%	-13.0%
Medical Payments	\$119,646	-14.1%	-15.0%	-14.0%	-14.4%
Uninsured Motorists	\$83,648	-21.9%	-20.9%	-22.7%	-21.8%
Underinsured Motorists	\$44,319	2.3%	1.8%	-0.9%	1.0%
<b>Sub-Total : Liability</b>	<b>\$1,670,525</b>	<b>-11.5%</b>	<b>-11.5%</b>	<b>-12.2%</b>	<b>-11.8%</b>
	<u>Physical Damage Coverages</u>				
Comprehensive	\$438,936	-26.5%	-17.3%	-12.7%	-18.8%
Collision	\$944,011	-22.0%	-19.3%	-23.8%	-21.7%
<b>Sub-Total : Physical Damage</b>	<b>\$1,382,947</b>	<b>-23.4%</b>	<b>-18.7%</b>	<b>-20.3%</b>	<b>-20.8%</b>
<b>GRAND TOTAL</b>	<b>\$3,053,472</b>	<b>-16.9%</b>	<b>-14.8%</b>	<b>-15.9%</b>	<b>-15.9%</b>

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**PRIVATE PASSENGER AUTOMOBILE INSURANCE  
LIABILITY COVERAGES - STATEWIDE RATE LEVEL**

(Amounts in 000's)

**ACCIDENT YEAR ENDED 12/31/03**

	<u>30/60 Bodily Injury</u>	<u>\$25,000 Property Damage</u>	<u>Total Limits Medical Payments</u>
( 1 ) Earned Premiums at Present Rates	\$637,600	\$637,123	\$119,646
( 2 ) Earned Premiums at Collected Level	\$534,796	\$575,692	\$97,780
( 3 ) Reported Incurred Losses & ALAE	\$295,453	\$339,142	\$59,759
( 4 ) Loss Development Factor	1.088	1.017	1.089
( 5 a ) Reported Inc. Losses & ALAE, Developed	\$321,453	\$344,907	\$65,077
( 5 b ) Factor to Adjust for Law Changes	0.99	1.00	0.99
( 5 c ) Adj. Reported Inc. Losses & ALAE, Developed	\$318,238	\$344,907	\$64,426
( 6 ) ULAE Loading Factor	0.118	0.125	0.118
( 7 ) Unallocated Loss Adjustment Expenses	\$37,552	\$43,113	\$7,602
( 8 ) Gen & Other Acq Loading Factor	0.138	0.138	0.138
( 9 ) General & Other Acquisition Expenses	\$73,802	\$79,446	\$13,494
( 10 ) Average Annual Change In Losses & ALAE	1.0%	2.0%	1.9%
( 11 ) Average Annual Change in Expenses	3.3%	3.3%	3.3%
( 12 ) Years of Trend - Losses & ALAE	3.03	3.03	3.03
( 13 ) Years of Trend - ULAE	3.03	3.03	3.03
( 14 ) Years of Trend - Gen & Other Acq Expenses	2.75	2.75	2.75
( 15 ) Trended Losses & ALAE	\$327,979	\$366,236	\$68,248
( 16 ) Trended Unallocated Loss Adj Expenses	\$41,434	\$47,570	\$8,388
( 17 ) Trended Gen & Other Acquisition Expenses	\$80,695	\$86,866	\$14,754
( 18 ) Total Losses & Fixed Expenses	\$450,108	\$500,672	\$91,390
( 19 ) Projected Loss & Fixed Expense Ratio	0.706	0.786	0.764
( 20 ) Variable Cost Ratio	0.112	0.112	0.112
( 21 ) Basic Limits Change	-20.5%	-11.5%	-14.0%
( 22 ) Increased Limits Adjustment Factor	11.1%	-0.4%	0.0%
( 23 ) <b>Indicated Rate Level Change</b>	<b>-11.7%</b>	<b>-11.8%</b>	<b>-14.0%</b>

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**PRIVATE PASSENGER AUTOMOBILE INSURANCE  
LIABILITY COVERAGES - STATEWIDE RATE LEVEL**

(Amounts in 000's)

**ACCIDENT YEAR ENDED 12/31/02**

	<u>30/60 Bodily Injury</u>	<u>\$25,000 Property Damage</u>	<u>Total Limits Medical Payments</u>
( 1 ) Earned Premiums at Present Rates	\$635,921	\$635,569	\$119,936
( 2 ) Earned Premiums at Collected Level	\$524,070	\$515,091	\$88,213
( 3 ) Reported Incurred Losses & ALAE	\$311,277	\$340,858	\$63,540
( 4 ) Loss Development Factor	1.033	1.000	1.030
( 5 a ) Reported Inc. Losses & ALAE, Developed	\$321,549	\$340,858	\$65,447
( 5 b ) Factor to Adjust for Law Changes	0.99	1.00	0.99
( 5 c ) Adj. Reported Inc. Losses & ALAE, Developed	\$318,334	\$340,858	\$64,792
( 6 ) ULAE Loading Factor	0.133	0.115	0.133
( 7 ) Unallocated Loss Adjustment Expenses	\$42,338	\$39,199	\$8,617
( 8 ) Gen & Other Acq Loading Factor	0.139	0.139	0.139
( 9 ) General & Other Acquisition Expenses	\$72,846	\$71,598	\$12,262
( 10 ) Average Annual Change In Losses & ALAE	0.8%	1.6%	0.6%
( 11 ) Average Annual Change in Expenses	3.3%	3.3%	3.3%
( 12 ) Years of Trend - Losses & ALAE	4.03	4.03	4.03
( 13 ) Years of Trend - ULAE	4.03	4.03	4.03
( 14 ) Years of Trend - Gen & Other Acq Expenses	3.75	3.75	3.75
( 15 ) Trended Losses & ALAE	\$328,722	\$363,375	\$66,373
( 16 ) Trended Unallocated Loss Adj Expenses	\$48,256	\$44,679	\$9,822
( 17 ) Trended Gen & Other Acquisition Expenses	\$82,278	\$80,868	\$13,850
( 18 ) Total Losses & Fixed Expenses	\$459,256	\$488,922	\$90,045
( 19 ) Projected Loss & Fixed Expense Ratio	0.722	0.769	0.751
( 20 ) Variable Cost Ratio	0.116	0.116	0.116
( 21 ) Basic Limits Change	-18.3%	-13.0%	-15.0%
( 22 ) Increased Limits Adjustment Factor	11.1%	-0.4%	0.0%
( 23 ) <b>Indicated Rate Level Change</b>	<b>-9.3%</b>	<b>-13.3%</b>	<b>-15.0%</b>

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**PRIVATE PASSENGER AUTOMOBILE INSURANCE  
LIABILITY COVERAGES - STATEWIDE RATE LEVEL**

(Amounts in 000's)

**ACCIDENT YEAR ENDED 12/31/01**

	<u>30/60 Bodily Injury</u>	<u>\$25,000 Property Damage</u>	<u>Total Limits Medical Payments</u>
( 1 ) Earned Premiums at Present Rates	\$623,896	\$623,684	\$117,468
( 2 ) Earned Premiums at Collected Level	\$527,404	\$472,481	\$86,046
( 3 ) Reported Incurred Losses & ALAE	\$312,730	\$336,315	\$61,074
( 4 ) Loss Development Factor	1.013	1.000	1.013
( 5 a ) Reported Inc. Losses & ALAE, Developed	\$316,795	\$336,315	\$61,868
( 5 b ) Factor to Adjust for Law Changes	0.99	1.00	0.99
( 5 c ) Adj. Reported Inc. Losses & ALAE, Developed	\$313,627	\$336,315	\$61,249
( 6 ) ULAE Loading Factor	0.128	0.116	0.128
( 7 ) Unallocated Loss Adjustment Expenses	\$40,144	\$39,013	\$7,840
( 8 ) Gen & Other Acq Loading Factor	0.127	0.127	0.127
( 9 ) General & Other Acquisition Expenses	\$66,980	\$60,005	\$10,928
( 10 ) Average Annual Change In Losses & ALAE	0.9%	1.4%	1.9%
( 11 ) Average Annual Change in Expenses	3.3%	3.3%	3.3%
( 12 ) Years of Trend - Losses & ALAE	5.03	5.03	5.03
( 13 ) Years of Trend - ULAE	5.03	5.03	5.03
( 14 ) Years of Trend - Gen & Other Acq Expenses	4.75	4.75	4.75
( 15 ) Trended Losses & ALAE	\$328,085	\$360,676	\$67,331
( 16 ) Trended Unallocated Loss Adj Expenses	\$47,266	\$45,934	\$9,231
( 17 ) Trended Gen & Other Acquisition Expenses	\$78,149	\$70,011	\$12,750
( 18 ) Total Losses & Fixed Expenses	\$453,500	\$476,621	\$89,312
( 19 ) Projected Loss & Fixed Expense Ratio	0.727	0.764	0.760
( 20 ) Variable Cost Ratio	0.115	0.115	0.115
( 21 ) Basic Limits Change	-17.9%	-13.7%	-14.1%
( 22 ) Increased Limits Adjustment Factor	11.1%	-0.4%	0.0%
( 23 ) <b>Indicated Rate Level Change</b>	<b>-8.8%</b>	<b>-14.0%</b>	<b>-14.1%</b>

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**PRIVATE PASSENGER AUTOMOBILE INSURANCE  
PHYSICAL DAMAGE COVERAGES - STATEWIDE RATE LEVEL**

(Amounts in 000's)

CALENDAR YEAR ENDED 12/31/03

	<u>Comprehensive</u>	<u>Collision</u>
( 1 ) Earned Premiums at Manual Rates	\$397,380	\$859,743
( 2 ) Model Year Trend Factor	1.056	1.065
( 3 ) Symbol Trend Factor	1.046	1.031
( 4 ) Trended Earned Premiums at Manual Rates	\$438,936	\$944,011
( 5 ) Earned Premium at Collected Level	\$420,581	\$829,806
( 6 ) Reported Paid Losses Excl. Excess W&W	\$241,548	\$441,609
( 7 ) Paid to Incurred Factor	0.997	0.997
( 8 ) Excess Wind and Water Factor	1.065	1.000
( 9 ) Incurred Losses	\$256,476	\$440,284
( 10 ) Losses Eliminated by Deductible		
( 11 ) LAE Loading Factor	0.129	0.129
( 12 ) Loss Adjustment Expenses	\$33,085	\$56,797
( 13 ) Gen & Other Acq Expense Loading Factor	0.116	0.116
( 14 ) General & Other Acquisition Expense	\$48,787	\$96,258
( 15 ) Average Annual Change In Losses & Deductible	-2.0%	1.0%
( 16 ) Average Annual Change in Expenses	0.033	0.033
( 17 ) Years of Trend - Losses	3.03	3.03
( 18 ) Years of Trend - LAE	3.03	3.03
( 19 ) Years of Trend - Gen & Other Acq Expenses	2.75	2.75
( 20 ) Trended Losses	\$241,322	\$453,250
( 21 ) Trended Loss Adjustment Expenses	\$36,505	\$62,669
( 22 ) Trended Gen & Other Acquisition Expenses	\$53,343	\$105,248
( 23 ) Total Losses & Fixed Expenses	\$331,170	\$621,167
( 24 ) Projected Loss & Fixed Expense Ratio	0.754	0.658
( 25 ) Variable Cost Ratio	0.136	0.136
( 26 ) Indicated Rate Level Change	-12.7%	-23.8%

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**PRIVATE PASSENGER AUTOMOBILE INSURANCE  
PHYSICAL DAMAGE COVERAGES - STATEWIDE RATE LEVEL**

(Amounts in 000's)

**CALENDAR YEAR ENDED 12/31/02**

	<u>Comprehensive</u>	<u>Collision</u>
( 1 ) Earned Premiums at Manual Rates	\$396,739	\$859,585
( 2 ) Model Year Trend Factor	1.056	1.065
( 3 ) Symbol Trend Factor	1.046	1.031
( 4 ) Trended Earned Premiums at Manual Rates	\$438,228	\$943,837
( 5 ) Earned Premium at Collected Level	\$381,756	\$735,123
( 6 ) Reported Paid Losses Excl. Excess W&W	\$208,626	\$433,166
( 7 ) Paid to Incurred Factor	1.023	1.023
( 8 ) Excess Wind and Water Factor	1.065	1.000
( 9 ) Incurred Losses	\$227,297	\$443,129
( 10 ) Losses Eliminated by Deductible		
( 11 ) LAE Loading Factor	0.168	0.168
( 12 ) Loss Adjustment Expenses	\$38,186	\$74,446
( 13 ) Gen & Other Acq Expense Loading Factor	0.123	0.123
( 14 ) General & Other Acquisition Expense	\$46,956	\$90,420
( 15 ) Average Annual Change In Losses & Deductible	-1.3%	1.4%
( 16 ) Average Annual Change in Expenses	0.033	0.033
( 17 ) Years of Trend - Losses	4.03	4.03
( 18 ) Years of Trend - LAE	4.03	4.03
( 19 ) Years of Trend - Gen & Other Acq Expenses	3.75	3.75
( 20 ) Trended Losses	\$215,621	\$468,666
( 21 ) Trended Loss Adjustment Expenses	\$43,524	\$84,853
( 22 ) Trended Gen & Other Acquisition Expenses	\$53,036	\$102,127
( 23 ) Total Losses & Fixed Expenses	\$312,181	\$655,646
( 24 ) Projected Loss & Fixed Expense Ratio	0.712	0.695
( 25 ) Variable Cost Ratio	0.139	0.139
( 26 ) Indicated Rate Level Change	-17.3%	-19.3%

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**PRIVATE PASSENGER AUTOMOBILE INSURANCE  
PHYSICAL DAMAGE COVERAGES - STATEWIDE RATE LEVEL**

(Amounts in 000's)

CALENDAR YEAR ENDED 12/31/01

	<u>Comprehensive</u>	<u>Collision</u>
( 1 ) Earned Premiums at Manual Rates	\$395,484	\$853,288
( 2 ) Model Year Trend Factor	1.056	1.065
( 3 ) Symbol Trend Factor	1.046	1.031
( 4 ) Trended Earned Premiums at Manual Rates	\$436,842	\$936,923
( 5 ) Earned Premium at Collected Level	\$347,928	\$671,639
( 6 ) Reported Paid Losses Excl. Excess W&W	\$195,748	\$420,842
( 7 ) Paid to Incurred Factor	1.006	1.006
( 8 ) Excess Wind and Water Factor	1.065	1.000
( 9 ) Incurred Losses	\$209,723	\$423,367
( 10 ) Losses Eliminated by Deductible		
( 11 ) LAE Loading Factor	0.137	0.137
( 12 ) Loss Adjustment Expenses	\$28,732	\$58,001
( 13 ) Gen & Other Acq Expense Loading Factor	0.120	0.120
( 14 ) General & Other Acquisition Expense	\$41,751	\$80,597
( 15 ) Average Annual Change In Losses & Deductible	-1.5%	2.0%
( 16 ) Average Annual Change in Expenses	0.033	0.033
( 17 ) Years of Trend - Losses	5.03	5.03
( 18 ) Years of Trend - LAE	5.03	5.03
( 19 ) Years of Trend - Gen & Other Acq Expenses	4.75	4.75
( 20 ) Trended Losses	\$194,370	\$467,709
( 21 ) Trended Loss Adjustment Expenses	\$33,829	\$68,290
( 22 ) Trended Gen & Other Acquisition Expenses	\$48,713	\$94,036
( 23 ) Total Losses & Fixed Expenses	\$276,912	\$630,035
( 24 ) Projected Loss & Fixed Expense Ratio	0.634	0.672
( 25 ) Variable Cost Ratio	0.138	0.138
( 26 ) Indicated Rate Level Change	-26.5%	-22.0%

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Total Limits Uninsured Motorist Rate Indication**

(Amounts in 000's)

	Accident Year Ending		
	<u>12/31/01</u>	<u>12/31/02</u>	<u>12/31/03</u>
( 1 ) Earned Premium at Manual Rates	\$102,873	\$105,793	\$108,029
( 2 ) Incurred Losses and ALAE - UMBI	\$45,216	\$47,554	\$42,618
( 3 ) Factor to Adjust to Voluntary Business Only	0.795	0.781	0.774
( 4 ) Factor to Adjust for Law Changes	0.990	0.990	0.990
( 5 ) Adjusted Incurred Losses and ALAE - UMBI	\$35,582	\$36,747	\$32,669
( 6 ) Incurred Losses and ALAE - UMPD	\$11,183	\$11,802	\$12,721
( 7 ) Factor to Adjust to Voluntary Business Only	0.866	0.858	0.851
( 8 ) Factor to Adjust for Law Changes	1.000	1.000	1.000
( 9 ) Adjusted Incurred Losses and ALAE - UMBI	\$9,680	\$10,124	\$10,831
( 10 ) Loss Development Factor - UMBI	1.018	1.044	1.189
( 11 ) Loss Development Factor - UMPD	1.000	1.000	1.017
( 12 ) ULAE Factor - UMBI	12.8%	13.3%	11.8%
( 13 ) ULAE Factor - UMPD	11.6%	11.5%	12.5%
( 14 ) Adjustment for stacking of policy limits	1.057	1.057	1.057
( 15 ) Developed Losses and LAE - UMBI	\$43,188	\$45,944	\$45,903
( 16 ) Developed Losses and LAE - UMPD	\$11,419	\$11,932	\$13,099
( 17 ) Average Annual Loss & LAE Trend - UMBI	2.0%	2.0%	2.0%
( 18 ) Average Annual Loss & LAE Trend - UMPD	2.0%	2.0%	2.0%
( 19 ) Years of Trend	5.03	4.03	3.03
( 20 ) Trended and Developed Losses - UMBI & UMPD	\$60,326	\$62,684	\$62,650
( 21 ) Incurred Claims - UMBI	6,066	6,481	6,512
( 22 ) Incurred Claims - UMPD	9,614	9,420	9,363
( 23 ) Incurred Claims - UMBI & UMPD	15,680	15,901	15,875
( 24 ) Projected Loss & LAE Ratio	0.586	0.593	0.580
( 25 ) Permissible Loss and LAE Ratio	0.75	0.75	0.75
( 26 ) Adjusted Indicated Rate Level Change	-21.9%	-20.9%	-22.7%
( 27 ) Three Year Average		-21.8%	
Selected Rate Level Change		-21.8%	

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Derivation of Underinsured Motorists Rate Change**

	Accident Year Ending			<u>Average</u>
	<u>12/31/01</u>	<u>12/31/02</u>	<u>12/31/03</u>	
(1) : NCRB UIM Indicated Rate Change	37.1%	37.1%	37.1%	37.1%
(2) : NCRB rate level change for BIL	22.2%	22.2%	22.2%	22.2%
(3) : AIS rate level change for BIL	-8.8%	-9.3%	-11.7%	-9.9%
(4) : AIS UIM Indicated Rate Change	2.3%	1.8%	-0.9%	1.0%

Notes:

(1) : NCRB filing, page A-1

(2) : NCRB filing, page A-1

(3) : Schedule AIS-2, Sheet 1, Line (23)

(4) :  $[ 1 + (1) ] \times [ 1 + (3) ] / ( [ 1 + (2) ] ) - 1$

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2001**

**Derivation of Factor to Adjust from Voluntary Plus Ceded to Voluntary Only Basis**

	Medical			Bodily Injury			Property Damage		
	2001	2002	2003	2001	2002	2003	2001	2002	2003
(1) : Voluntary Only Loss and ALAE Ratio	52.67%	54.57%	54.39%	50.78%	50.56%	50.42%	53.92%	53.63%	54.14%
(2) : Voluntary Plus Ceded Losses, and ALAE	\$83,554	\$90,454	\$91,472	\$530,195	\$550,633	\$560,685	\$514,123	\$528,217	\$544,146
(3) : Voluntary Plus Ceded Earned Premiums at Manual Rates	\$139,881	\$143,469	\$144,127	\$829,979	\$850,001	\$861,122	\$825,285	\$844,903	\$855,874
(4) : Voluntary Plus Ceded Loss Ratio	59.73%	63.05%	63.47%	63.88%	64.78%	65.11%	62.30%	62.52%	63.58%
(5) : Adjustment Factor	0.882	0.866	0.857	0.795	0.781	0.774	0.866	0.858	0.851

Notes:

(1) : Schedule AIS-2, Sheets 1a to 1c, Line (5)/ Line (1)

(2) : NCRB filing, pages C-1, C-3 and C-5, Line (3)

(3) : NCRB filing, page H-3, Sum of Earned Premium at Current Level

(4) : (2) / (3)

(5) : (1) / (4)

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Derivation of Bodily Injury Total Limits Change \***

	<u>12/31/2001</u>	<u>12/31/2002</u>	<u>12/31/2003</u>	<u>Total</u>
(1) Basic Limits Losses	\$312,730	\$311,277	\$295,453	\$919,460
(2) Basic Limits Losses Loss Dev Factor	1.013	1.033	1.088	
(3) Basic Limits Law Change Factor	0.990	0.990	0.990	
(4) Basic Limits Claim Cost Trend	1.010	1.010	1.010	
(5) Years of Trend	5.030	4.030	3.030	
(6) Basic Limits Trend Factor	1.051	1.041	1.031	
(7) Basic Limits Losses Trended and Developed	\$329,724	\$331,358	\$327,980	\$989,062
(8) Total Limits Losses	\$392,562	\$388,437	\$357,291	\$1,138,290
(9) Total Limits Loss Dev Factor	1.018	1.059	1.164	
(10) Total Limits Law Change Factor	0.990	0.990	0.990	
(11) Total Limits Claim Cost Trend	1.025	1.025	1.025	
(12) Years of Trend	5.030	4.030	3.030	
(13) Total Limits Trend Factor	1.132	1.105	1.078	
(14) Total Limits Losses Trended and Developed	\$447,952	\$449,852	\$443,714	\$1,341,518
(15) Indicated Average ILF	1.359	1.358	1.353	1.356
(16) Average Increased Limits Factor	1.220	1.224	1.221	1.221
(17) Indicated Change to Excess Limits				61.03%
(18) Indicated Total Limits Change				11.06%

\* Voluntary data only.

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Derivation of Property Damage Total Limits Change \***

	<u>12/31/2001</u>	<u>12/31/2002</u>	<u>12/31/2003</u>	<u>Total</u>
(1) Basic Limits Losses	\$336,315	\$340,858	\$339,142	\$1,016,316
(2) Basic Limits Losses Loss Dev Factor	1.000	1.000	1.017	
(3) Basic Limits Losses Developed	\$336,315	\$340,858	\$344,907	\$1,022,081
(4) Total Limits Losses	\$338,378	\$342,681	\$343,267	\$1,024,327
(5) Total Limits Loss Dev Factor	1.000	1.000	1.017	
(6) Total Limits Losses Developed	\$338,378	\$342,681	\$349,103	\$1,030,162
(7) Indicated Average ILF	1.006	1.005	1.012	1.008
(8) Average Increased Limits Factor	1.011	1.012	1.012	1.012
(9) Indicated Change to Excess Limits				-32.1%
(10) Indicated Total Limits Change				-0.4%

\* Voluntary data only.

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Calculation of Average Increased Limits Factors - Voluntary Only**

Limit of Liability	(1)	(2)	(3)	(4)	(5)
	2003 BI Written Premium	= (1) / (3) Prior ILF	2003 BI 30/60 Premium	= (5) / (3) Current ILF	T/L Premium
30/60	98,948,606		98,948,606		98,948,606
50/100	160,354,476		140,661,821		160,354,476
100/300	285,615,390		216,375,295		285,615,389
Over 100/300	66,743,943		43,910,489		66,743,943
All Other	45,648,619		38,658,722		45,648,619
	657,311,034	1.221	538,554,933	1.221	657,311,034
Limit of Liability	2002 BI Written Premium	Prior ILF	2002 BI 30/60 Premium	Current ILF	T/L Premium
30/60	98,130,900		98,130,900		98,130,900
50/100	155,531,366		138,867,291		158,308,712
100/300	277,165,553		216,535,589		285,826,977
Over 100/300	60,726,360		44,004,609		66,887,006
All Other	18,177,921		15,495,522		18,672,324
	609,732,100	1.188	513,033,911	1.224	627,825,919
Limit of Liability	2001 BI Written Premium	Prior ILF	2001 BI 30/60 Premium	Current ILF	T/L Premium
30/60	107,102,332		107,102,332		107,102,332
50/100	152,219,359		135,910,142		154,937,562
100/300	279,670,368		218,492,475		288,410,067
Over 100/300	57,403,759		41,596,927		63,227,329
All Other	15,795,084		13,383,211		16,234,095
	612,190,902	1.185	516,485,087	1.220	629,911,385
Limit of Liability	2003 PD Written Premium	Prior ILF	2003 PD 30/60 Premium	Current ILF	T/L Premium
15,000	(148)		(148)		(148)
25,000	147,273,378		147,273,378		147,273,378
50,000	279,844,324		277,073,588		279,844,324
100,000	124,678,215		121,046,811		124,678,215
250,000	1,665,162		1,572,391		1,665,162
300,000	1,129,035		1,056,160		1,129,035
All Other	19,082,580		18,893,755		19,082,579
	573,672,546	1.012	566,915,935	1.012	573,672,546
Limit of Liability	2002 PD Written Premium	Prior ILF	2002 PD 30/60 Premium	Current ILF	T/L Premium
15,000	22,396		22,396		22,396
25,000	147,571,046		147,571,046		147,571,046
50,000	268,419,337		263,156,213		265,787,775
100,000	114,568,806		110,162,313		113,467,182
250,000	1,510,344		1,411,536		1,494,817
300,000	1,586,702		1,469,169		1,570,542
All Other	971,419		949,287		963,750
	534,650,050	1.019	524,741,960	1.012	530,877,508
Limit of Liability	2001 PD Written Premium	Prior ILF	2001 PD 30/60 Premium	Current ILF	T/L Premium
15,000	78,166		78,166		78,166
25,000	140,601,057		140,601,057		140,601,057
50,000	235,930,469		231,304,381		233,617,425
100,000	95,456,748		91,785,334		94,538,894
250,000	1,253,474		1,171,471		1,240,588
300,000	1,271,023		1,176,873		1,258,077
All Other	732,255		708,041		723,476
	475,323,192	1.018	466,825,323	1.011	472,057,682

(1), (3) & (5) Schedule AIS-2, Sheet 9 values minus Schedule AIS-2, Sheet 10 values.

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Calculation of Average Increased Limits Factors - Voluntary plus Ceded**

	(1)	(2)	(3)	(4)	(5)
	2003 BI	Prior	2003 BI	Current	(3) x (4)
Limit of	Written	ILF	30/60	ILF	T/L
<u>Liability</u>	<u>Premium</u>		<u>Premium</u>		<u>Premium</u>
30/60	277,825,010	1.000	277,825,010	1.000	277,825,010
50/100	218,540,083	1.140	191,701,827	1.140	218,540,083
100/300	333,573,531	1.320	252,707,220	1.320	333,573,530
Over 100/300	68,211,768	1.520	44,876,163	1.520	68,211,768
All Other	49,755,306	1.171	42,489,587	1.171	49,755,306
	947,905,698	1.171	809,599,807	1.171	947,905,697
	2002 BI	Prior	2002 BI	Current	(3) x (4)
Limit of	Written	ILF	30/60	ILF	T/L
<u>Liability</u>	<u>Premium</u>		<u>Premium</u>		<u>Premium</u>
30/60	258,268,756	1.000	258,268,756	1.000	258,268,756
50/100	203,418,802	1.120	181,623,930	1.140	207,051,280
100/300	318,846,544	1.280	249,098,863	1.320	328,810,499
Over 100/300	61,515,444	1.380	44,576,409	1.520	67,756,142
All Other	22,922,689	1.148	19,967,499	1.175	23,461,811
	864,972,235	1.148	753,535,457	1.175	885,348,488
	2001 BI	Prior	2001 BI	Current	(3) x (4)
Limit of	Written	ILF	30/60	ILF	T/L
<u>Liability</u>	<u>Premium</u>		<u>Premium</u>		<u>Premium</u>
30/60	268,170,958	1.000	268,170,958	1.000	268,170,958
50/100	194,866,321	1.120	173,987,787	1.140	198,346,077
100/300	318,326,001	1.280	248,692,188	1.320	328,273,688
Over 100/300	57,577,354	1.380	41,722,720	1.520	63,418,534
All Other	21,456,124	1.145	18,738,973	1.171	21,943,337
	860,396,758	1.145	751,312,626	1.171	880,152,595
	2003 PD	Prior	2003 PD	Current	(3) x (4)
Limit of	Written	ILF	30/60	ILF	T/L
<u>Liability</u>	<u>Premium</u>		<u>Premium</u>		<u>Premium</u>
15,000	(862)	1.000	(862)	1.000	(862)
25,000	311,070,577	1.000	311,070,577	1.000	311,070,577
50,000	372,535,864	1.010	368,847,390	1.010	372,535,864
100,000	126,516,975	1.030	122,832,015	1.030	126,516,975
250,000	1,665,471	1.059	1,572,683	1.059	1,665,471
300,000	1131899	1.069	1058839	1.069	1,131,899
All Other	22,853,709	1.009	22,649,860	1.009	22,853,709
	835,773,633	1.009	828,030,502	1.009	835,773,633
	2002 PD	Prior	2002 PD	Current	(3) x (4)
Limit of	Written	ILF	30/60	ILF	T/L
<u>Liability</u>	<u>Premium</u>		<u>Premium</u>		<u>Premium</u>
15,000	(1,529)	1.000	(1,529)	1.000	(1,529)
25,000	300,697,893	1.000	300,697,893	1.000	300,697,893
50,000	347,023,878	1.020	340,219,488	1.010	343,621,683
100,000	115,734,286	1.040	111,282,967	1.030	114,621,456
250,000	1,512,254	1.070	1,413,321	1.059	1,496,707
300,000	1590139	1.080	1472351	1.069	1,573,943
All Other	1,964,896	1.015	1,935,858	1.009	1,953,281
	768,521,817	1.015	757,020,349	1.009	763,963,434
	2001 PD	Prior	2001 PD	Current	(3) x (4)
Limit of	Written	ILF	30/60	ILF	T/L
<u>Liability</u>	<u>Premium</u>		<u>Premium</u>		<u>Premium</u>
15,000	121,628	1.000	121,628	1.000	121,628
25,000	276,787,428	1.000	276,787,428	1.000	276,787,428
50,000	296,537,445	1.020	290,722,985	1.010	293,630,215
100,000	95,744,476	1.040	92,061,996	1.030	94,823,856
250,000	1,255,454	1.070	1,173,321	1.059	1,242,547
300,000	1272412	1.080	1178159	1.069	1,259,452
All Other	2,251,681	1.015	2,218,405	1.009	2,238,371
	673,970,524	1.015	664,263,922	1.009	670,103,496

Source : NCRB Rate Filing pages G-6, G-7

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Calculation of Average Increased Limits Factors - Ceded Only**

	(1)	(2)	(3)	(4)	(5)
	2003 BI	Prior	2003 BI	Current	(3) x (4)
Limit of	Written	ILF	30/60	ILF	T/L
<u>Liability</u>	<u>Premium</u>		<u>Premium</u>		<u>Premium</u>
30/60	178,876,404	1.000	178,876,404	1.000	178,876,404
50/100	58,185,607	1.140	51,040,006	1.140	58,185,607
100/300	47,958,141	1.320	36,331,925	1.320	47,958,141
Over 100/300	1,467,825	1.520	965,674	1.520	1,467,824
All Other	4,106,687	1.072	3,830,865	1.072	4,106,687
	290,594,664	1.072	271,044,874	1.072	290,594,664
	2002 BI	Prior	2002 BI	Current	(3) x (4)
Limit of	Written	ILF	30/60	ILF	T/L
<u>Liability</u>	<u>Premium</u>		<u>Premium</u>		<u>Premium</u>
30/60	160,137,856	1.000	160,137,856	1.000	160,137,856
50/100	47,887,436	1.120	42,756,639	1.140	48,742,568
100/300	41,680,991	1.280	32,563,274	1.320	42,983,522
Over 100/300	789,084	1.380	571,800	1.520	869,136
All Other	4,744,768	1.061	4,471,977	1.071	4,789,487
	255,240,135	1.061	240,501,546	1.071	257,522,570
	2001 BI	Prior	2001 BI	Current	(3) x (4)
Limit of	Written	ILF	30/60	ILF	T/L
<u>Liability</u>	<u>Premium</u>		<u>Premium</u>		<u>Premium</u>
30/60	161,068,626	1.000	161,068,626	1.000	161,068,626
50/100	42,646,962	1.120	38,077,645	1.140	43,408,515
100/300	38,655,633	1.280	30,199,713	1.320	39,863,621
Over 100/300	173,595	1.380	125,793	1.520	191,205
All Other	5,661,040	1.057	5,355,762	1.066	5,709,242
	248,205,856	1.057	234,827,539	1.066	250,241,210
	2003 PD	Prior	2003 PD	Current	(3) x (4)
Limit of	Written	ILF	30/60	ILF	T/L
<u>Liability</u>	<u>Premium</u>		<u>Premium</u>		<u>Premium</u>
15,000	(714)	1.000	(714)	1.000	(714)
25,000	163,797,199	1.000	163,797,199	1.000	163,797,199
50,000	92,691,540	1.010	91,773,802	1.010	92,691,540
100,000	1,838,760	1.030	1,785,204	1.030	1,838,760
250,000	309	1.059	292	1.059	309
300,000	2864	1.069	2679	1.069	2,864
All Other	3,771,129	1.004	3,756,105	1.004	3,771,129
	262,101,087	1.004	261,114,567	1.004	262,101,088
	2002 PD	Prior	2002 PD	Current	(3) x (4)
Limit of	Written	ILF	30/60	ILF	T/L
<u>Liability</u>	<u>Premium</u>		<u>Premium</u>		<u>Premium</u>
15,000	(23,925)	1.000	(23,925)	1.000	(23,925)
25,000	153,126,847	1.000	153,126,847	1.000	153,126,847
50,000	78,604,541	1.020	77,063,275	1.010	77,833,908
100,000	1,165,480	1.040	1,120,654	1.030	1,154,274
250,000	1,910	1.070	1,785	1.059	1,890
300,000	3437	1.080	3182	1.069	3,402
All Other	993,477	1.007	986,571	1.003	989,531
	233,871,767	1.007	232,278,389	1.003	233,085,926
	2001 PD	Prior	2001 PD	Current	(3) x (4)
Limit of	Written	ILF	30/60	ILF	T/L
<u>Liability</u>	<u>Premium</u>		<u>Premium</u>		<u>Premium</u>
15,000	43,462	1.000	43,462	1.000	43,462
25,000	136,186,371	1.000	136,186,371	1.000	136,186,371
50,000	60,606,976	1.020	59,418,604	1.010	60,012,790
100,000	287,728	1.040	276,662	1.030	284,962
250,000	1,980	1.070	1,850	1.059	1,959
300,000	1389	1.080	1286	1.069	1,375
All Other	1,519,426	1.006	1,510,364	1.003	1,514,895
	198,647,332	1.006	197,438,599	1.003	198,045,814

Source : NCRF Rate Filing pages E-4, E-5

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**PRIVATE PASSENGER AUTOMOBILE INSURANCE**

**Adjustment to Reported Losses for Law Changes**

<u>Year Ending</u>	<u>Coverage</u>	(1) <u>Effective Date of Law Change</u>	(2) <u>Proportion of Experience Prior to Law Change</u>	(3) <u>Estimated Effect of Primary Law Change</u>	(4) <u>Proportionate Effect of Primary Law Change</u>	(5) <u>Primary Seat Belt Adjustment Factor</u>
12/31/2003	BI	01/01/2005	1.000	-0.010	-0.010	0.990
12/31/2002	BI	01/01/2005	1.000	-0.010	-0.010	0.990
12/31/2001	BI	01/01/2005	1.000	-0.010	-0.010	0.990
12/31/2003	PD	01/01/2005	1.000	0.000	0.000	1.000
12/31/2002	PD	01/01/2005	1.000	0.000	0.000	1.000
12/31/2001	PD	01/01/2005	1.000	0.000	0.000	1.000
12/31/2003	MED	01/01/2005	1.000	-0.010	-0.010	0.990
12/31/2002	MED	01/01/2005	1.000	-0.010	-0.010	0.990
12/31/2001	MED	01/01/2005	1.000	-0.010	-0.010	0.990
12/31/2003	UMBI	01/01/2005	1.000	-0.010	-0.010	0.990
12/31/2002	UMBI	01/01/2005	1.000	-0.010	-0.010	0.990
12/31/2001	UMBI	01/01/2005	1.000	-0.010	-0.010	0.990
12/31/2003	UMPD	01/01/2005	1.000	0.000	0.000	1.000
12/31/2002	UMPD	01/01/2005	1.000	0.000	0.000	1.000
12/31/2001	UMPD	01/01/2005	1.000	0.000	0.000	1.000
12/31/2003	CP	01/01/2005	1.000	0.000	0.000	1.000
12/31/2002	CP	01/01/2005	1.000	0.000	0.000	1.000
12/31/2001	CP	01/01/2005	1.000	0.000	0.000	1.000
12/31/2003	CL	01/01/2005	1.000	0.000	0.000	1.000
12/31/2002	CL	01/01/2005	1.000	0.000	0.000	1.000
12/31/2001	CL	01/01/2005	1.000	0.000	0.000	1.000

**Notes :**

- (1) : Statutory effective date
- (2) : Proportion of experience year prior to January 1, 2005.
- (3) : Selected
- (4) : (2) x (3)
- (5) : 1.0 + (4)

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Prediction Reliability of Historical Experience**

**Private Passenger Auto Liability Combined Ratio**

Prediction <u>Year</u>	Direct Earned <u>Premium</u>	Combined <u>Ratio</u>	PREDICTORS	
			Model A	Model B
			Combined Ratio Two Years <u>Prior</u>	Average Comb Ratio Two to Four <u>Years Prior</u>
1991	1,280,860	1.111	1.118	1.177
1992	1,375,687	1.079	1.193	1.159
1993	1,459,487	1.023	1.111	1.141
1994	1,534,912	1.066	1.079	1.128
1995	1,702,727	1.018	1.023	1.071
1996	1,811,310	1.024	1.066	1.056
1997	1,834,431	1.044	1.018	1.036
1998	1,866,680	1.022	1.024	1.036
1999	1,869,613	1.043	1.044	1.029
2000	1,769,891	1.143	1.022	1.030
2001	1,897,750	1.105	1.043	1.036
2002	1,957,506	1.057	1.143	1.069
2003	2,099,057	1.079	1.105	1.097
Average		1.063	1.076	1.082
Wtd Avg		1.062	1.073	1.076

Prediction <u>Year</u>	ERROR MEASURES MODEL A			ERROR MEASURES MODEL B		
	<u>Error</u>	Absolute <u>Error</u>	Squared <u>Error</u>	<u>Error</u>	Absolute <u>Error</u>	Squared <u>Error</u>
1991	(0.007)	0.007	0.000	(0.066)	0.066	0.004
1992	(0.114)	0.114	0.013	(0.080)	0.080	0.006
1993	(0.088)	0.088	0.008	(0.118)	0.118	0.014
1994	(0.013)	0.013	0.000	(0.062)	0.062	0.004
1995	(0.005)	0.005	0.000	(0.053)	0.053	0.003
1996	(0.042)	0.042	0.002	(0.032)	0.032	0.001
1997	0.026	0.026	0.001	0.008	0.008	0.000
1998	(0.002)	0.002	0.000	(0.014)	0.014	0.000
1999	(0.001)	0.001	0.000	0.014	0.014	0.000
2000	0.121	0.121	0.015	0.113	0.113	0.013
2001	0.062	0.062	0.004	0.069	0.069	0.005
2002	(0.086)	0.086	0.007	(0.012)	0.012	0.000
2003	(0.026)	0.026	0.001	(0.018)	0.018	0.000
Average	(0.013)	0.046	0.004	(0.019)	0.051	0.004
Wtd Avg	(0.011)	0.045	0.004	(0.014)	0.048	0.004

Source : NAIC Profitability by Line by State

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Prediction Reliability of Historical Experience**

**Private Passenger Auto Physical Damage Combined Ratio**

Prediction <u>Year</u>	Direct Earned <u>Premium</u>	Combined <u>Ratio</u>	PREDICTORS	
			Model A	Model B
			Combined Ratio Two Years <u>Prior</u>	Average Comb Ratio Two to Four <u>Years Prior</u>
1991	678,297	0.837	1.038	0.936
1992	717,374	0.825	0.938	0.968
1993	688,364	1.050	0.837	0.938
1994	755,404	1.010	0.825	0.867
1995	799,431	1.127	1.050	0.904
1996	872,679	1.397	1.010	0.962
1997	1,131,476	1.002	1.127	1.062
1998	1,297,939	1.001	1.397	1.178
1999	1,390,596	1.048	1.002	1.175
2000	1,480,905	0.993	1.001	1.133
2001	1,550,867	0.915	1.048	1.017
2002	1,696,688	0.892	0.993	1.014
2003	1,787,834	0.928	0.915	0.985
Average		1.002	1.014	1.011
Wtd Avg		0.991	1.024	1.030

Prediction <u>Year</u>	ERROR MEASURES MODEL A			ERROR MEASURES MODEL B		
	<u>Error</u>	Absolute <u>Error</u>	Squared <u>Error</u>	<u>Error</u>	Absolute <u>Error</u>	Squared <u>Error</u>
1991	(0.201)	0.201	0.040	(0.099)	0.099	0.010
1992	(0.113)	0.113	0.013	(0.143)	0.143	0.020
1993	0.213	0.213	0.045	0.112	0.112	0.013
1994	0.185	0.185	0.034	0.143	0.143	0.021
1995	0.077	0.077	0.006	0.223	0.223	0.050
1996	0.387	0.387	0.150	0.435	0.435	0.190
1997	(0.125)	0.125	0.016	(0.060)	0.060	0.004
1998	(0.396)	0.396	0.157	(0.177)	0.177	0.031
1999	0.046	0.046	0.002	(0.127)	0.127	0.016
2000	(0.008)	0.008	0.000	(0.140)	0.140	0.020
2001	(0.133)	0.133	0.018	(0.102)	0.102	0.010
2002	(0.101)	0.101	0.010	(0.122)	0.122	0.015
2003	0.013	0.013	0.000	(0.057)	0.057	0.003
Average	(0.012)	0.154	0.038	(0.009)	0.149	0.031
Wtd Avg	(0.033)	0.137	0.034	(0.039)	0.139	0.027

Source : NAIC Profitability by Line by State

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Prediction Reliability of Historical Experience**

**Private Passenger Auto Total Combined Ratio**

Prediction <u>Year</u>	Direct Earned <u>Premium</u>	Combined <u>Ratio</u>	PREDICTORS	
			Model A	Model B
			Combined Ratio Two Years <u>Prior</u>	Average Comb Ratio Two to Four <u>Years Prior</u>
1991	1,959,157	1.016	1.087	1.073
1992	2,093,061	0.992	1.099	1.085
1993	2,147,851	1.032	1.016	1.067
1994	2,290,316	1.047	0.992	1.036
1995	2,502,158	1.053	1.032	1.013
1996	2,683,989	1.145	1.047	1.024
1997	2,965,907	1.028	1.053	1.044
1998	3,164,619	1.013	1.145	1.082
1999	3,260,209	1.045	1.028	1.075
2000	3,250,796	1.075	1.013	1.062
2001	3,448,617	1.019	1.045	1.029
2002	3,654,194	0.980	1.075	1.044
2003	3,886,891	1.009	1.019	1.046
Average		1.035	1.050	1.052
Wtd Avg		1.034	1.050	1.052

Prediction <u>Year</u>	ERROR MEASURES MODEL A			ERROR MEASURES MODEL B		
	<u>Error</u>	Absolute <u>Error</u>	Squared <u>Error</u>	<u>Error</u>	Absolute <u>Error</u>	Squared <u>Error</u>
1991	(0.071)	0.071	0.005	(0.057)	0.057	0.003
1992	(0.107)	0.107	0.011	(0.093)	0.093	0.009
1993	0.016	0.016	0.000	(0.035)	0.035	0.001
1994	0.055	0.055	0.003	0.011	0.011	0.000
1995	0.021	0.021	0.000	0.040	0.040	0.002
1996	0.098	0.098	0.010	0.121	0.121	0.015
1997	(0.025)	0.025	0.001	(0.016)	0.016	0.000
1998	(0.132)	0.132	0.017	(0.069)	0.069	0.005
1999	0.017	0.017	0.000	(0.030)	0.030	0.001
2000	0.062	0.062	0.004	0.013	0.013	0.000
2001	(0.026)	0.026	0.001	(0.010)	0.010	0.000
2002	(0.095)	0.095	0.009	(0.064)	0.064	0.004
2003	(0.010)	0.010	0.000	(0.037)	0.037	0.001
Average	(0.015)	0.057	0.005	(0.017)	0.046	0.003
Wtd Avg	(0.016)	0.055	0.005	(0.018)	0.044	0.003

Source : NAIC Profitability by Line by State

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Comparison of the Variability of the Combined Ratio  
One Year and Three Years**

**Private Passenger Auto Liability Combined Ratio**

<u>Year</u>	<u>Direct Earned Premium</u>	<u>1 Year Ending Combined Ratio</u>	<u>3 Year Ending Avg. Combined Ratio</u>
1991	1,280,860	1.111	1.141
1992	1,375,687	1.079	1.128
1993	1,459,487	1.023	1.071
1994	1,534,912	1.066	1.056
1995	1,702,727	1.018	1.036
1996	1,811,310	1.024	1.036
1997	1,834,431	1.044	1.029
1998	1,866,680	1.022	1.030
1999	1,869,613	1.043	1.036
2000	1,769,891	1.143	1.069
2001	1,897,750	1.105	1.097
2002	1,957,506	1.057	1.102
2003	2,099,057	1.079	1.080
Standard Deviation		0.039	0.038
Std Error of the Mean		0.011	0.010

Source : NAIC Profitability by Line by State

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Comparison of the Variability of the Combined Ratio  
One Year and Three Years**

**Private Passenger Auto Physical Damage Combined Ratio**

<u>Year</u>	<u>Direct Earned Premium</u>	<u>1 Year Ending Combined Ratio</u>	<u>3 Year Ending Avg. Combined Ratio</u>
1991	678,297	0.837	0.938
1992	717,374	0.825	0.867
1993	688,364	1.050	0.904
1994	755,404	1.010	0.962
1995	799,431	1.127	1.062
1996	872,679	1.397	1.178
1997	1,131,476	1.002	1.175
1998	1,297,939	1.001	1.133
1999	1,390,596	1.048	1.017
2000	1,480,905	0.993	1.014
2001	1,550,867	0.915	0.985
2002	1,696,688	0.892	0.933
2003	1,787,834	0.928	0.912
Standard Deviation		0.147	0.104
Std Error of the Mean		0.041	0.029

Source : NAIC Profitability by Line by State

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Comparison of the Variability of the Combined Ratio  
One Year and Three Years**

**Private Passenger Auto Total Combined Ratio**

<u>Year</u>	<u>Direct Earned Premium</u>	<u>1 Year Ending Combined Ratio</u>	<u>3 Year Ending Avg. Combined Ratio</u>
1991	1,959,157	1.016	1.067
1992	2,093,061	0.992	1.036
1993	2,147,851	1.032	1.013
1994	2,290,316	1.047	1.024
1995	2,502,158	1.053	1.044
1996	2,683,989	1.145	1.082
1997	2,965,907	1.028	1.075
1998	3,164,619	1.013	1.062
1999	3,260,209	1.045	1.029
2000	3,250,796	1.075	1.044
2001	3,448,617	1.019	1.046
2002	3,654,194	0.980	1.025
2003	3,886,891	1.009	1.003
Standard Deviation		0.042	0.024
Std Error of the Mean		0.012	0.007

Source : NAIC Profitability by Line by State

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**COMPARISON OF RATE LEVEL INDICATIONS - LIABILITY**

<u>Rate Level Item</u>	<u>AIS Risk Consultants</u>	<u>N.C. Rate Bureau</u>	<u>Impact ~ of NCRB Factor</u>
	<u>Liability</u>		
Years of Experience	2001 - 2003	2003	-0.4%
Experience Data *	NCRB Voluntary	Includes NCRF & CTR	16.7%
Expenses	Varies	Varies	1.3%
Underwriting Profit and Contingencies	-0.9%	7.5%	11.0%
Effect of Law Changes	-1.0%	0.0%	0.7%
Other			0.4%
Rate Level Indication	-11.8%	17.9%	29.7%

\* This is the portion of the rate calculation where the NCRB includes a provision for deviations.

~ The impact values should be considered approximate since the exact numerical figure depends upon the interaction with other factors and the order in which the calculations are performed.

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**COMPARISON OF RATE LEVEL INDICATIONS - PHYSICAL DAMAGE**

<u>Rate Level Item</u>	<u>AIS Risk Consultants</u>	<u>N.C. Rate Bureau</u>	<u>Impact ~ of NCRB Factor</u>
	<u>Physical Damage</u>		
Years of Experience	2001 - 2003	2003	1.2%
Experience Data *	NCRB Voluntary	Includes NCRF & CTR	7.0%
Expenses	Varies	Varies	1.2%
Underwriting Profit and Contingencies	1.4%	7.5%	10.1%
Effect of Law Changes	0.0%	0.0%	0.0%
Other			-0.1%
Rate Level Indication	-20.8%	-1.4%	19.4%

\* This is the portion of the rate calculation where the NCRB includes a provision for deviations.

~ The impact values should be considered approximate since the exact numerical figure depends upon the interaction with other factors and the order in which the calculations are performed.

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**COMPARISON OF RATE LEVEL INDICATIONS - COMBINED**

<u>Rate Level Item</u>	<u>AIS Risk Consultants</u>	<u>N.C. Rate Bureau</u>	<u>Impact ~ of NCRB Factor</u>
	<u>Combined</u>		
Years of Experience	2001 - 2003	2003	0.3%
Experience Data *	NCRB Voluntary	Includes NCRF & CTR	12.5%
Expenses	Varies	Varies	1.3%
Underwriting Profit and Contingencies	0.0%	7.5%	10.6%
Effect of Law Changes	0.0%	0.0%	0.4%
Other			0.4%
Rate Level Indication	-15.9%	9.6%	25.5%

\* This is the portion of the rate calculation where the NCRB includes a provision for deviations.

~ The impact values should be considered approximate since the exact numerical figure depends upon the interaction with other factors and the order in which the calculations are performed.

# **NORTH CAROLINA - PPA - 2/1/2005**

## **SUMMARY OF RATE LEVEL DIFFERENCES (1)**

<b><u>Rate Level Item</u></b>	<b><u>AIS Risk Consultants</u></b>	<b><u>N.C. Rate Bureau</u></b>
<b>Experience Database</b>	<b>&gt; Used Voluntary NCRB Business</b>	<b>&gt; Included Reinsurance Facility and Consent to Rate Business</b>
	<b>&gt; Method is Consistent with ISO Procedures</b>	<b>&gt; Method is Inconsistent with ISO Procedures</b>
	<b>&gt; Method Produces No Hidden Subsidies</b>	<b>&gt; Method Produces Hidden Subsidies</b>
	<b>&gt; Method Does Not Build Back Deviations into the Rate Level</b>	<b>&gt; Method Builds Back Deviations into the Rate Level</b>

# NORTH CAROLINA - PPA - 2/1/2005

## SUMMARY OF RATE LEVEL DIFFERENCES (2)

<u>Rate Level Item</u>	<u>AIS Risk Consultants</u>	<u>N.C. Rate Bureau</u>
Underwriting Profit	<ul style="list-style-type: none"> <li>&gt; Used Reasonable Target Return</li> <li>&gt; Reasonably Considered Investment of Policyholder Funds</li> <li>&gt; In Compliance With Applicable Law</li> <li>&gt; Did NOT Consider Investment Income on Capital and Surplus or Unrealized Capital Gains</li> <li>&gt; Did NOT deduct for prepaid expenses and agents balances</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Used Excessive Target Return</li> <li>&gt; Did Not Fully Consider Investment of Policyholder Funds</li> <li>&gt; Inconsistent With Applicable Law</li> <li>&gt; DID Consider Investment Income on Capital and Surplus or Unrealized Capital Gains</li> <li>&gt; DID deduct for prepaid expenses and agents balances</li> </ul>

# **NORTH CAROLINA - PPA - 2/1/2005**

## **SUMMARY OF RATE LEVEL DIFFERENCES (3)**

<b><u>Rate Level Item</u></b>	<b><u>AIS Risk Consultants</u></b>	<b><u>N.C. Rate Bureau</u></b>
<b>Years of Experience</b>	<b>&gt; Used Three Years of Experience Consistent with Statute</b>	<b>&gt; Ignored Experience for 2001 and 2002</b>
	<b>&gt; Results in Stability in Rate Level Indications</b>	<b>&gt; Rate Level Indications Subject to Random Fluctuation</b>
<b>Expenses</b>	<b>&gt; Reflected Appropriate Amounts</b>	<b>&gt; Included Inappropriate Amounts</b>
<b>Law Changes</b>	<b>&gt; Adjusted Losses to Reflect the Impact of Law Changes</b>	<b>&gt; Did Not Adjust Losses to Reflect the Impact of Law Changes</b>

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**SUMMARY OF EXPENSE & PROFIT PROVISIONS**

	2003			2002			2001		
	<u>Liability</u>	<u>Physical Damage</u>	<u>Uninsured Motorists</u>	<u>Liability</u>	<u>Physical Damage</u>	<u>Uninsured Motorists</u>	<u>Liability</u>	<u>Physical Damage</u>	<u>Uninsured Motorists</u>
( 1 ) Commission & Brokerage	9.7%	9.9%	9.7%	10.0%	10.2%	10.0%	10.0%	10.0%	10.0%
( 2 ) Taxes, Licenses & Fees	2.4%	2.3%	2.4%	2.5%	2.3%	2.5%	2.4%	2.4%	2.4%
( 3 ) Underwriting Profit & Contingencies	-0.9%	1.4%	-0.9%	-0.9%	1.4%	-1.9%	-0.9%	1.4%	-1.9%
( 4 ) Additional Contingency Loading Above UPC Factor	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
( 5 ) Additional Policyholder Dividends Above UPC Factor	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
( 6 ) Additional Deviations Above UPC Factor	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
( 7 ) Total Variable Expenses	11.2%	13.6%	11.2%	11.6%	13.9%	10.6%	11.5%	13.8%	10.5%
( 8 ) Other Acquisition Expenses	8.6%	7.6%	8.6%	8.2%	7.9%	8.2%	7.3%	7.4%	7.3%
( 9 ) General Expenses	6.2%	5.0%	6.2%	6.7%	5.4%	6.7%	6.4%	5.6%	6.4%
( 10 ) Excess Reported Expenses	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
( 11 ) Total Fixed Expenses	13.8%	11.6%	13.8%	13.9%	12.3%	13.9%	12.7%	12.0%	12.7%
( 12 ) Losses & Loss Adjustment Expenses	75.0%	74.8%	75.0%	74.5%	73.8%	75.5%	75.8%	74.2%	76.8%
( 13 ) Loss Adjustment Expenses									
Bodily Injury & Medical Payments	11.8%	NA		13.3%	NA		12.8%	NA	
Property Damage	12.5%	NA		11.5%	NA		11.6%	NA	
Physical Damage	NA	12.9%		NA	16.8%		NA	13.7%	

**Notes:**

- ( 1 ) Value for given year from Schedule AIS-5, adjusted for reinsurance facility experience.
- ( 2 ) Value for given year from Schedule AIS-5
- ( 3 ) Schedules AIS-6, Sheets 1 & 2
- ( 4 ) NCRB Filing, Page D-21
- ( 5 ) See pre-filed testimony
- ( 6 ) See pre-filed testimony
- ( 7 ) Sum of (1) to (6)
- ( 8 ) Value for given year from Schedule AIS-5
- ( 9 ) Value for given year from Schedule AIS-5
- ( 10 ) Based upon a review of information and actions by insurance regulatory agencies in other jurisdictions.
- ( 11 ) (8)+(9) - (10)
- ( 12 ) 100% - (11) - (7)
- ( 13 ) Value for given year from Schedule AIS-5

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**HISTORICAL EXPENSE EXPERIENCE**

<u>Expense Item</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>
<u>Liability</u>									
Commission & Brokerage	9.0%	9.6%	9.7%	9.8%	10.0%	9.5%	10.0%	10.0%	9.7%
Other Acquisition	8.1%	7.1%	7.1%	7.9%	8.9%	7.7%	7.3%	8.2%	8.6%
General Expenses	4.3%	4.2%	4.6%	4.3%	5.3%	5.9%	6.4%	6.7%	6.2%
Taxes, Licenses and Fees	2.3%	2.2%	2.1%	2.3%	2.2%	2.2%	2.4%	2.5%	2.4%
Unallocated Loss Adj. Exp. - BI	10.0%	11.2%	10.8%	12.5%	13.3%	13.2%	12.8%	13.3%	11.8%
Unallocated Loss Adj. Exp. - PD	9.3%	9.4%	10.0%	12.4%	11.2%	10.8%	11.6%	11.5%	12.5%
<u>Physical Damage</u>									
Commission & Brokerage	8.3%	9.5%	9.6%	10.1%	9.6%	9.6%	10.0%	10.2%	9.9%
Other Acquisition	8.0%	7.0%	7.2%	7.3%	8.6%	8.0%	7.4%	7.9%	7.6%
General Expenses	3.7%	3.7%	4.1%	3.7%	5.1%	4.9%	5.6%	5.4%	5.0%
Taxes, Licenses and Fees	2.3%	2.2%	2.1%	2.2%	2.2%	2.2%	2.4%	2.3%	2.3%
Loss Adjustment Expenses	10.3%	10.1%	12.3%	13.1%	15.7%	14.1%	13.7%	16.8%	12.9%

Source: NCRB Filing, pages H-701 & H-702

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**LIABILITY COVERAGES**

**DERIVATION OF UNDERWRITING PROFIT & CONTINGENCY LOADING  
AND PROJECTED INVESTMENT EARNINGS ON LOSS, LOSS  
ADJUSTMENT EXPENSE AND UNEARNED PREMIUM RESERVES**

A. Unearned Premium Reserve

(1) Direct Earned Premium for Accident Year		\$1,670,525,179
(2) Mean Unearned Premium Reserve (1) x	0.278	\$464,406,000

B. Loss and Loss Expense Reserves

(1) Direct Earned Premium		\$1,670,525,179
(2) Expected Incurred Losses and Loss Adjustment Expenses (1) x	0.7500	\$1,252,893,885
(3) Expected Mean Loss Reserve (2) x	0.885	\$1,108,811,088

C. Total Reserves (A2) + (B3) \$1,573,217,088

D. Average Rate of Return 5.70%

E. Investment Earnings on Net Reserves (C) X (D) \$89,673,374

F. Average Rate of Return as a Percent of  
Direct Earned Premium (E) / (A1) 5.4%

G. Total Return Needed from Investment Earnings on Reserves  
plus Underwriting Profit & Contingencies 4.5%

<b>H. Underwriting Profit and Contingency Factor (G) - (F)</b>	<b>-0.9%</b>
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**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**PHYSICAL DAMAGE COVERAGES**

**DERIVATION OF UNDERWRITING PROFIT & CONTINGENCY LOADING  
AND PROJECTED INVESTMENT EARNINGS ON LOSS, LOSS  
ADJUSTMENT EXPENSE AND UNEARNED PREMIUM RESERVES**

A. Unearned Premium Reserve

(1) Direct Earned Premium for Accident Year		\$1,382,947,037
(2) Mean Unearned Premium Reserve (1) x	0.281	\$388,608,117

B. Loss and Loss Expense Reserves

(1) Direct Earned Premium		\$1,382,947,037
(2) Expected Incurred Losses and Loss Adjustment Expenses (1) x	0.7480	\$1,034,444,383
(3) Expected Mean Loss Reserve (2) x	0.116	\$119,995,548

C. Total Reserves (A2) + (B3) \$508,603,666

D. Average Rate of Return 5.70%

E. Investment Earnings on Net Reserves (C) X (D) \$28,990,409

F. Average Rate of Return as a Percent of  
Direct Earned Premium (E) / (A1) 2.1%

G. Total Return Needed from Investment Earnings on Reserves  
plus Underwriting Profit & Contingencies 3.5%

<b>H. Underwriting Profit and Contingency Factor (G) - (F)</b>	<b>1.4%</b>
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**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Derivation of Actual Investment Return for Property Casualty Insurers**

(1)	(2)	(3)	(4) = .5 x [ (2) + (3) ]	(5)	(6)	(7) = (5) + (6)	(8) = (7) / (4)
Year	Beginning	Invested Assets Ending	Average	Investment Income	Realized Capital Gains	Total Investment Return Dollars	Percent
1983	\$194,738,537	\$210,540,748	\$202,639,643	\$15,973,234	\$2,109,932	\$18,083,166	8.9%
1984	\$210,540,748	\$219,640,298	\$215,090,523	\$17,659,729	\$3,063,213	\$20,722,942	9.6%
1985	\$219,640,298	\$258,808,408	\$239,224,353	\$19,507,866	\$5,483,243	\$24,991,109	10.4%
1986	\$258,808,408	\$314,272,903	\$286,540,656	\$21,924,445	\$6,874,220	\$28,798,665	10.1%
1987	\$314,272,903	\$360,752,329	\$337,512,616	\$23,959,981	\$3,335,320	\$27,295,301	8.1%
1988	\$360,752,329	\$401,776,313	\$381,264,321	\$27,723,269	\$2,725,466	\$30,448,735	8.0%
1989	\$401,776,313	\$445,077,013	\$423,426,663	\$31,207,257	\$4,648,681	\$35,855,938	8.5%
1990	\$445,077,013	\$470,493,393	\$457,785,203	\$32,901,120	\$2,880,410	\$35,781,530	7.8%
1991	\$470,493,393	\$514,564,282	\$492,528,838	\$34,246,720	\$4,806,376	\$39,053,096	7.9%
1992	\$514,564,282	\$539,656,015	\$527,110,149	\$33,733,750	\$9,893,402	\$43,627,152	8.3%
1993	\$539,656,015	\$579,833,900	\$559,744,958	\$32,645,415	\$9,817,573	\$42,462,988	7.6%
1994	\$579,833,900	\$609,505,252	\$594,669,576	\$33,687,234	\$1,663,541	\$35,350,775	5.9%
1995	\$609,505,252	\$664,008,342	\$636,756,797	\$36,833,628	\$5,997,029	\$42,830,657	6.7%
1996	\$664,008,342	\$700,806,046	\$682,407,194	\$37,962,390	\$9,243,907	\$47,206,297	6.9%
1997	\$700,806,046	\$766,061,919	\$733,433,983	\$41,498,996	\$10,807,929	\$52,306,925	7.1%
1998	\$766,061,919	\$796,780,574	\$781,421,247	\$39,925,393	\$18,019,189	\$57,944,582	7.4%
1999	\$796,780,574	\$799,060,669	\$797,920,622	\$38,854,920	\$13,016,157	\$51,871,077	6.5%
2000	\$799,060,669	\$789,330,250	\$794,195,460	\$40,703,636	\$16,204,649	\$56,908,285	7.2%
2001	\$789,330,250	\$781,730,299	\$785,530,275	\$37,739,311	\$6,630,679	\$44,369,990	5.6%
2002	\$781,730,299	\$830,034,922	\$805,882,611	\$39,072,949	\$2,854,860	\$41,927,809	5.2%
2003	\$830,034,922	\$947,119,065	\$888,576,994	\$39,291,343	\$5,990,661	\$45,282,004	5.1%
Average			\$553,507,746	\$32,240,599	\$6,955,545	\$39,196,144	7.1%

Year	Investment Rate of Return on		Total
	Investment Income	Realized Gains	
1983	7.9%	1.0%	8.9%
1984	8.2%	1.4%	9.6%
1985	8.2%	2.3%	10.4%
1986	7.7%	2.4%	10.1%
1987	7.1%	1.0%	8.1%
1988	7.3%	0.7%	8.0%
1989	7.4%	1.1%	8.5%
1990	7.2%	0.6%	7.8%
1991	7.0%	1.0%	7.9%
1992	6.4%	1.9%	8.3%
1993	5.8%	1.8%	7.6%
1994	5.7%	0.3%	5.9%
1995	5.8%	0.9%	6.7%
1996	5.6%	1.4%	6.9%
1997	5.7%	1.5%	7.1%
1998	5.1%	2.3%	7.4%
1999	4.9%	1.6%	6.5%
2000	5.1%	2.0%	7.2%
2001	4.8%	0.8%	5.6%
2002	4.8%	0.4%	5.2%
2003	4.4%	0.7%	5.1%
Average	5.8%	1.3%	7.1%
Selected	4.4%	1.3%	5.7%

Source: Best's Aggregates and Averages, P&C Organizations Summary Amounts in 000's

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Derivation of Investment Gain on Reserves**

(1)	(2)	(3)	(4)	(5)	(6)
<u>Year</u>	<u>Unearned Premium</u>	<u>Reserves for Losses &amp; LAE</u>	<u>Combined</u>	<u>Investment Rate of Return</u>	<u>Investment Gain on Reserves</u>
1983	\$42,450,000	\$122,715,000	\$165,165,000	8.9%	\$14,699,685
1984	\$45,832,000	\$134,926,000	\$180,758,000	9.6%	\$17,352,768
1985	\$56,850,000	\$154,425,000	\$211,275,000	10.4%	\$21,972,600
1986	\$67,374,000	\$184,577,000	\$251,951,000	10.1%	\$25,447,051
1987	\$72,302,000	\$217,646,000	\$289,948,000	8.1%	\$23,485,788
1988	\$76,831,000	\$241,692,000	\$318,523,000	8.0%	\$25,481,840
1989	\$79,941,000	\$269,294,000	\$349,235,000	8.5%	\$29,684,975
1990	\$82,561,000	\$289,878,000	\$372,439,000	7.8%	\$29,050,242
1991	\$84,572,000	\$307,141,000	\$391,713,000	7.9%	\$30,945,327
1992	\$87,365,000	\$326,900,000	\$414,265,000	8.3%	\$34,383,995
1993	\$93,128,000	\$336,316,000	\$429,444,000	7.6%	\$32,637,744
1994	\$98,734,000	\$348,504,000	\$447,238,000	5.9%	\$26,387,042
1995	\$103,852,000	\$360,940,000	\$464,792,000	6.7%	\$31,141,064
1996	\$108,536,000	\$365,319,000	\$473,855,000	6.9%	\$32,695,995
1997	\$112,802,000	\$363,351,000	\$476,153,000	7.1%	\$33,806,863
1998	\$116,668,000	\$365,196,000	\$481,864,000	7.4%	\$35,657,936
1999	\$120,638,000	\$362,019,000	\$482,657,000	6.5%	\$31,372,705
2000	\$124,931,077	\$356,498,245	\$481,429,322	7.2%	\$34,662,911
2001	\$136,482,481	\$371,765,553	\$508,248,034	5.6%	\$28,461,890
2002	\$157,574,887	\$394,795,447	\$552,370,334	5.2%	\$28,723,257
2003	\$175,078,875	\$423,911,835	\$598,990,710	5.1%	\$30,548,526

Avg Latest 5 Years

5.9%

**Notes:**

(2) : Best's Aggregates and Averages, Amounts in 000's

(3) : Best's Aggregates and Averages, Amounts in 000's

(4) : (2) + (3)

(5) : Schedule AIS-7, Sheet 1, Column (8)

(6) : (4) X (5)

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Derivation of Target Return from Operations as a Percent of Premium**

(1) <u>Year</u>	(2) <u>Earned Premium</u>	(3) <u>Underwriting Profit / Loss</u>	(4) <u>Investment Gain on Reserves</u>	(7) = (5)+(6)		
				(5) = (3) / (2) <u>Underwriting</u>	(6) = (4) / (2) <u>Investment</u>	<u>Combined</u>
1983	\$107,195,857	(\$13,322,000)	\$14,699,685	-12.4%	13.7%	1.3%
1984	\$115,009,836	(\$21,618,000)	\$17,352,768	-18.8%	15.1%	-3.7%
1985	\$133,341,852	(\$25,105,000)	\$21,972,600	-18.8%	16.5%	-2.3%
1986	\$166,381,186	(\$16,568,000)	\$25,447,051	-10.0%	15.3%	5.3%
1987	\$188,989,174	(\$10,195,000)	\$23,485,788	-5.4%	12.4%	7.0%
1988	\$199,978,326	(\$11,814,000)	\$25,481,840	-5.9%	12.7%	6.8%
1989	\$206,669,462	(\$20,835,000)	\$29,684,975	-10.1%	14.4%	4.3%
1990	\$215,952,506	(\$21,652,000)	\$29,050,242	-10.0%	13.5%	3.4%
1991	\$222,150,735	(\$20,458,000)	\$30,945,327	-9.2%	13.9%	4.7%
1992	\$226,039,748	(\$36,260,000)	\$34,383,995	-16.0%	15.2%	-0.8%
1993	\$235,643,339	(\$18,094,000)	\$32,637,744	-7.7%	13.9%	6.2%
1994	\$244,315,912	(\$22,083,000)	\$26,387,042	-9.0%	10.8%	1.8%
1995	\$254,171,967	(\$17,375,000)	\$31,141,064	-6.8%	12.3%	5.4%
1996	\$263,350,846	(\$17,162,000)	\$32,695,995	-6.5%	12.4%	5.9%
1997	\$271,501,980	(\$6,030,000)	\$33,806,863	-2.2%	12.5%	10.2%
1998	\$277,689,827	(\$16,572,000)	\$35,657,936	-6.0%	12.8%	6.9%
1999	\$282,791,107	(\$24,429,399)	\$31,372,705	-8.6%	11.1%	2.5%
2000	\$294,024,329	(\$30,846,704)	\$34,662,911	-10.5%	11.8%	1.3%
2001	\$311,528,647	(\$51,539,430)	\$28,461,890	-16.5%	9.1%	-7.4%
2002	\$350,110,637	(\$31,387,169)	\$28,723,257	-9.0%	8.2%	-0.8%
2003	\$386,616,861	(\$4,685,214)	\$30,548,526	-1.2%	7.9%	6.7%
Average : 1983 - 2003				-9.6%	12.6%	3.1%

<b>Selected Target Return on Operations as a Percent of Premium : Liability</b>	<b>4.5%</b>
<b>Selected Target Return on Operations as a Percent of Premium : Physical Damage</b>	<b>3.5%</b>

Notes:

- (2) : Best's Aggregates and Averages, Amounts in 000's
- (3) : Best's Aggregates and Averages, Amounts in 000's
- (4) : Schedule AIS-7, Sheet 2, Column (6)

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Historical Underwriting Profits for Private Passenger Automobile Insurance and Comparison to Underwriting Profit Provisions of AIS Risk Consultants and the NCRB**

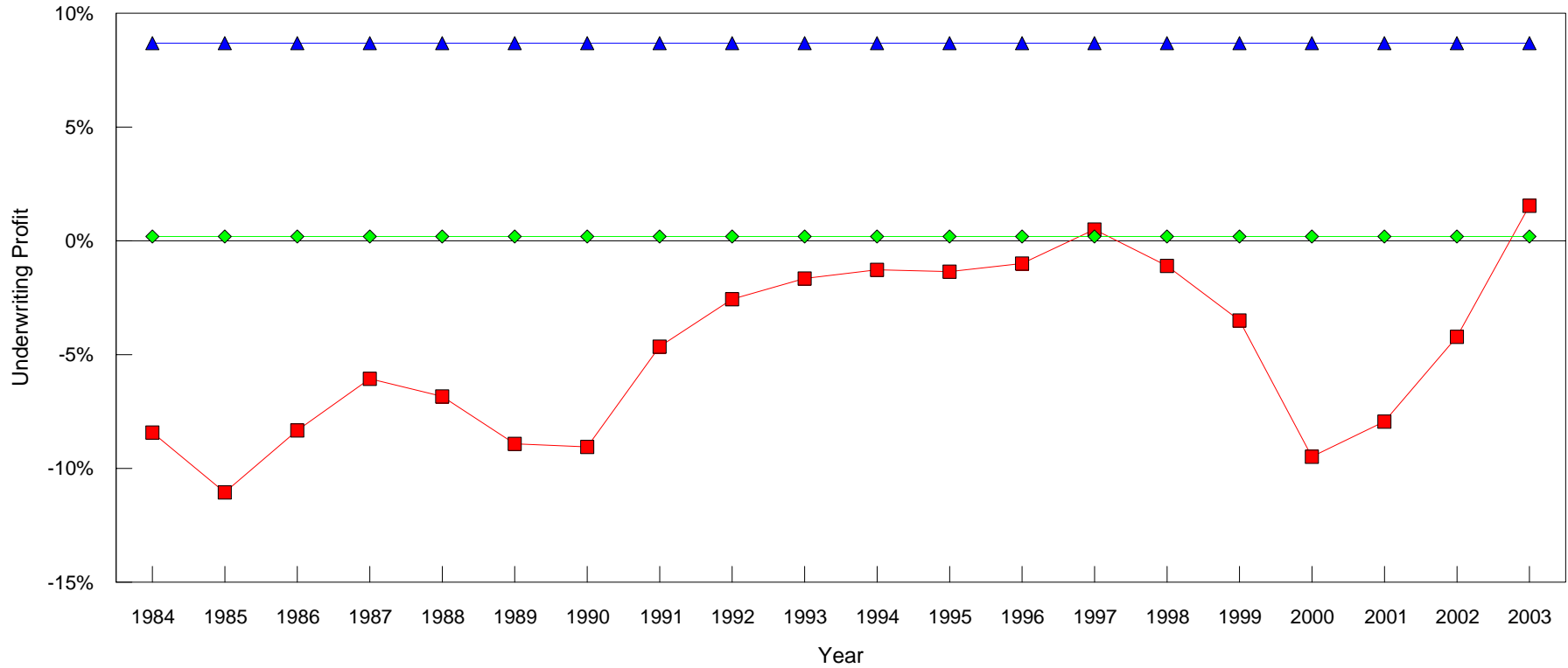
Year	Earned Premium (in 000's)			Underwriting Profit		
	Liability	Physical Damage	Total	Liability	Physical Damage	Total
1984	\$24,474,856	\$18,047,321	\$42,522,177	-13.6%	-1.4%	-8.4%
1985	\$26,969,979	\$20,139,888	\$47,109,867	-19.6%	0.4%	-11.0%
1986	\$31,553,653	\$23,104,807	\$54,658,460	-18.6%	5.7%	-8.3%
1987	\$36,165,438	\$25,999,155	\$62,164,593	-17.1%	9.3%	-6.1%
1988	\$39,845,488	\$28,207,012	\$68,052,500	-16.7%	7.1%	-6.8%
1989	\$43,073,918	\$29,397,413	\$72,471,331	-17.6%	3.8%	-8.9%
1990	\$46,912,975	\$30,343,553	\$77,256,528	-18.4%	5.4%	-9.1%
1991	\$50,040,309	\$31,225,683	\$81,265,992	-14.1%	10.5%	-4.6%
1992	\$54,081,266	\$32,454,880	\$86,536,146	-11.0%	11.5%	-2.6%
1993	\$57,861,722	\$33,630,173	\$91,491,895	-8.6%	10.3%	-1.7%
1994	\$60,832,460	\$34,205,291	\$95,037,751	-5.7%	6.6%	-1.3%
1995	\$64,338,111	\$35,960,806	\$100,298,917	-3.0%	1.6%	-1.4%
1996	\$67,145,686	\$38,757,778	\$105,903,464	-0.3%	-2.2%	-1.0%
1997	\$69,663,561	\$41,918,920	\$111,582,481	0.2%	1.0%	0.5%
1998	\$70,488,746	\$45,375,351	\$115,864,097	-2.0%	0.3%	-1.1%
1999	\$69,546,306	\$47,982,283	\$117,528,589	-6.6%	1.0%	-3.5%
2000	\$69,560,947	\$49,919,307	\$119,480,254	-13.7%	-3.6%	-9.5%
2001	\$73,131,170	\$52,579,680	\$125,710,850	-12.0%	-2.3%	-7.9%
2002	\$79,709,534	\$56,378,023	\$136,087,557	-10.1%	4.1%	-4.2%
2003	\$86,714,057	\$60,642,927	\$147,356,984	-2.9%	7.9%	1.5%
<u>Total / Average</u>						
1984 - 1993	\$410,979,604	\$272,549,885	\$683,529,489	-15.0%	6.9%	-6.2%
1994 - 2003	\$711,130,578	\$463,720,366	\$1,174,850,944	-5.7%	1.5%	-2.8%
1984 - 2003	\$1,122,110,182	\$736,270,251	\$1,858,380,433	-9.1%	3.5%	-4.1%
<u>Recommended Underwriting Profit Provisions</u>						
AIS Risk Consultants				-0.9%	1.4%	0.2%
NCRB				7.5%	10.0%	8.7%

<p><b>CONCLUSION :</b></p> <p><b>The underwriting profit provisions proposed by AIS display reasonable correspondence to actual historical results. The values proposed by the NCRB are completely contradicted by actual experience on realized underwriting profits.</b></p>
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Source : Best's Aggregates and Averages, Property - Casualty

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Historical Underwriting Profits for Private Passenger Automobile Insurance and Comparison to Underwriting Profit Provisions of AIS Risk Consultants and the NCRB**



■ Actual Underwriting Profit -- Liability & Physical Damage Combined    ▲ NCRB Recommended Underwriting Profit Provisions Combined  
◆ AIS Recommended Underwriting Profit Provisions Combined

**CONCLUSION :**  
**The underwriting profit provisions proposed by AIS display reasonable correspondence to actual historical results. The values proposed by the NCRB are completely contradicted by actual experience on realized underwriting profits.**

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Historical Profitability of Property Casualty Insurers**

<u>Year</u>	<u>Return on Net Worth</u>	<u>Average Return</u>	
		<u>Actual</u>	<u>Shown in RB-30</u>
1978	18.4%		
1979	15.2%		
1980	13.1%		
1981	11.5%		
1982	8.5%		
1983	8.1%	10.3%	22.7%
1984	1.9%		
1985	1.0%		
1986	13.6%		
1987	15.8%		
1988	13.2%	9.1%	25.9%
1989	9.9%		
1990	8.8%		
1991	9.6%		
1992	4.5%		
1993	11.0%	8.8%	13.9%
1994	5.6%		
1995	8.7%		
1996	9.3%		
1997	11.6%		
1998	8.5%	8.7%	22.4%
1999	6.0%		
2000	5.9%		
2001	-1.2%		
2002	2.2%		
2003	8.9%	4.4%	
2004	9.4%		
Average 1980 - 1988	9.9%	9.2%	21.1%
Average All Years	8.9%	8.3%	
Standard Deviation 1980 - 1988	3.9%		
Standard Deviation All Years	4.7%		

**Notes:**

(1) : Appendices AIS-G and AIS-I

(2) : Average values of actual returns from 1980 - 83, 1984 - 88, 1989 - 93, 1994 - 98, 1999-2003, 1980 - 98 and 1980 to 02

(3) : NCRB Exhibit RB-30

**CONCLUSION :**

**The values shown in RB-30 do not accurately  
represent the profitability of insurance companies**

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Analysis of Difference in Annual Arithmetic Returns for Large and Small Stocks**

<u>Year</u>	<u>Large Company Stocks</u>	<u>Small Company Stocks</u>	<u>Small - Large Difference</u>
1926	11.62%	0.28%	-11.34%
1927	37.49%	22.10%	-15.39%
1928	43.61%	39.69%	-3.92%
1929	-8.42%	-51.36%	-42.94%
1930	-24.90%	-38.15%	-13.25%
1931	-43.34%	-49.75%	-6.41%
1932	-8.19%	-5.39%	2.80%
1933	53.99%	142.87%	88.88%
1934	-1.44%	24.22%	25.66%
1935	47.67%	40.19%	-7.48%
1936	33.92%	64.80%	30.88%
1937	-35.03%	-58.01%	-22.98%
1938	31.12%	32.80%	1.68%
1939	-0.41%	0.35%	0.76%
1940	-9.78%	-5.16%	4.62%
1941	-11.59%	-9.00%	2.59%
1942	20.34%	44.51%	24.17%
1943	25.90%	88.37%	62.47%
1944	19.75%	53.72%	33.97%
1945	36.44%	73.61%	37.17%
1946	-8.07%	-11.63%	-3.56%
1947	5.71%	0.92%	-4.79%
1948	5.50%	-2.11%	-7.61%
1949	18.79%	19.75%	0.96%
1950	31.71%	38.75%	7.04%
1951	24.02%	7.80%	-16.22%
1952	18.37%	3.03%	-15.34%
1953	-0.99%	-6.49%	-5.50%
1954	52.62%	60.58%	7.96%
1955	31.56%	20.44%	-11.12%
1956	6.56%	4.28%	-2.28%
1957	-10.78%	-14.57%	-3.79%
1958	43.36%	64.89%	21.53%
1959	11.96%	16.40%	4.44%
1960	0.47%	-3.29%	-3.76%
1961	26.89%	32.09%	5.20%
1962	-8.73%	-11.90%	-3.17%
1963	22.80%	23.57%	0.77%
1964	16.48%	23.52%	7.04%
1965	12.45%	41.75%	29.30%
1966	-10.06%	-7.01%	3.05%
1967	23.98%	83.57%	59.59%
1968	11.06%	35.97%	24.91%
1969	-8.50%	-25.05%	-16.55%
1970	4.01%	-17.43%	-21.44%
1971	14.31%	16.50%	2.19%
1972	18.98%	4.43%	-14.55%
1973	-14.66%	-30.90%	-16.24%
1974	-26.47%	-19.95%	6.52%
1975	37.20%	52.82%	15.62%
1976	23.84%	57.38%	33.54%
1977	-7.18%	25.38%	32.56%
1978	6.56%	23.46%	16.90%
1979	18.44%	43.46%	25.02%
1980	32.42%	39.88%	7.46%
1981	-4.91%	13.88%	18.79%
1982	21.41%	28.01%	6.60%
1983	22.51%	39.67%	17.16%
1984	6.27%	-6.67%	-12.94%
1985	32.16%	24.66%	-7.50%
1986	18.47%	6.85%	-11.62%
1987	5.23%	-9.30%	-14.53%
1988	16.81%	22.87%	6.06%
1989	31.49%	10.18%	-21.31%
1990	-3.17%	-21.56%	-18.39%
1991	30.55%	44.63%	14.08%
1992	7.67%	23.35%	15.68%
1993	9.99%	20.98%	10.99%
1994	1.31%	3.11%	1.80%
1995	37.43%	34.46%	-2.97%
1996	23.07%	17.62%	-5.45%
1997	33.36%	22.78%	-10.58%
1998	28.58%	-7.31%	-35.89%
1999	21.04%	29.79%	8.75%
2000	-9.11%	-3.59%	5.52%
2001	-11.88%	22.77%	34.65%
2002	-22.10%	-13.28%	8.82%

Source : Ibbotson 2002 SBBI Yearbook, Table A-1 and A-4

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Analysis of Difference in Annual Arithmetic Returns for Large and Small Stocks**

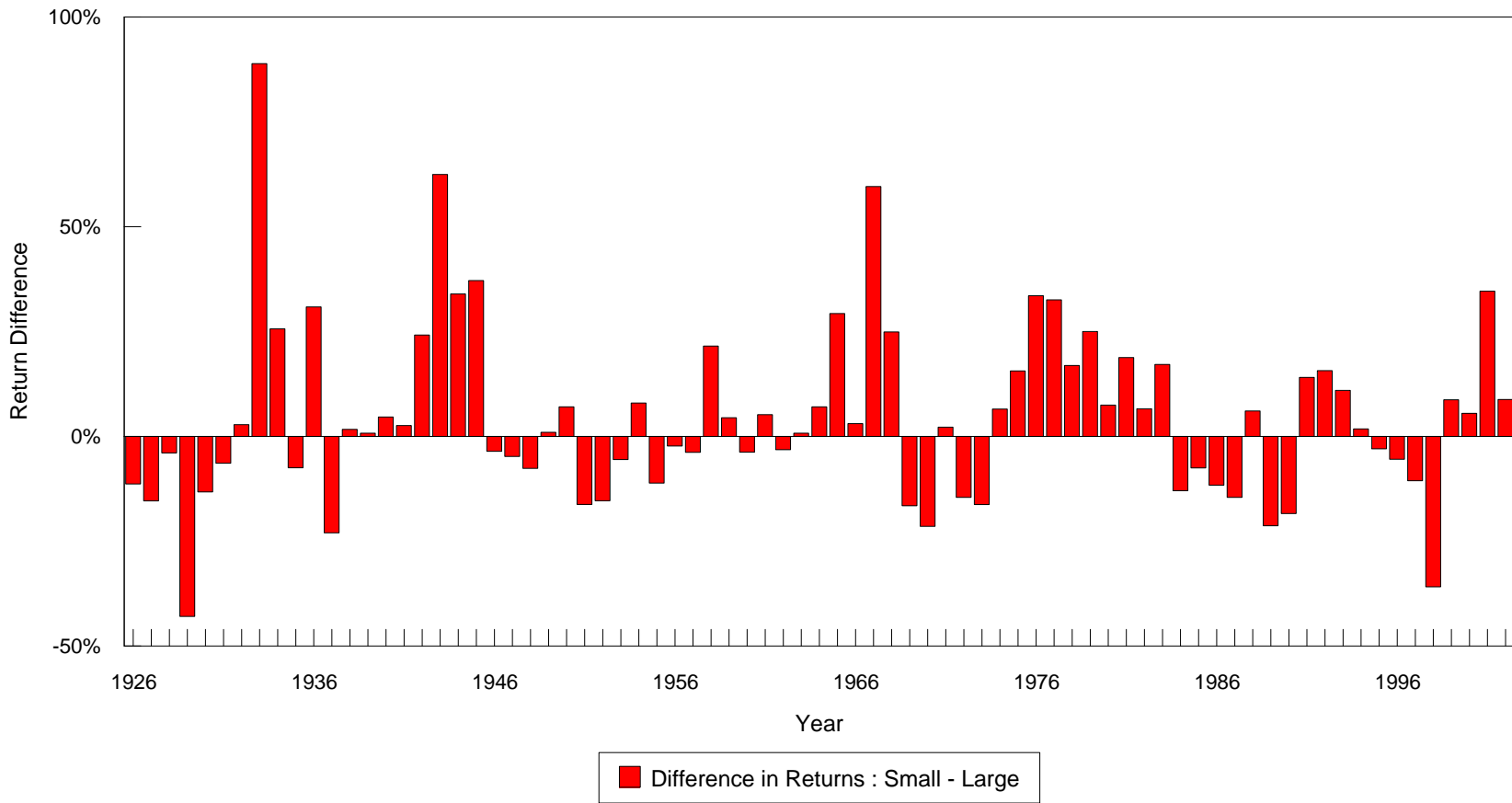
	<u>Large Company Stocks</u>	<u>Small Company Stocks</u>	<u>Small - Large Difference</u>
Arithmetic Average	12.20%	16.95%	4.74%
Standard Deviation	20.49%	33.19%	21.31%
Standard Error of the Mean	2.34%	3.78%	2.43%
Number of Deviates			1.95
Beta	1.00	1.25	0.25
Beta Adjustment			2.10%
Difference Adjusted for Beta			2.64%
Adjusted Number of Deviates			1.09
Significance Level			27.75%

**CONCLUSION :**

**There is no statistical difference in the  
returns between small and large stocks.**

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Analysis of Difference in Annual Arithmetic Returns for Large and Small Stocks**



**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Calculation of Alleged Size Premium Based Upon Geometric Returns**

(1) <u>Decile</u>	(2) <u>Geometric Return</u>	(3) <u>Excess Return</u>	(4) <u>Beta</u>	(5) <u>Beta * MRP</u>	(6) <u>Size Premium</u>
1	9.4%	5.6%	0.91	5.8%	-0.2%
2	10.5%	6.7%	1.03	6.6%	0.1%
3	10.9%	7.1%	1.09	7.0%	0.1%
4	11.0%	7.2%	1.13	7.2%	0.0%
5	11.1%	7.3%	1.16	7.4%	-0.1%
6	11.3%	7.5%	1.18	7.6%	-0.1%
7	11.1%	7.3%	1.23	7.9%	-0.6%
8	11.3%	7.5%	1.27	8.1%	-0.6%
9	11.5%	7.7%	1.34	8.6%	-0.9%
10	13.1%	9.3%	1.41	9.0%	0.3%

**CONCLUSION :**  
**When geometric returns are used, there is no  
indication of a small stock premium effect.**

Notes:

(2) : Ibbotson 2003 SBBI Yearbook, page 124

(3) : (2) - U. S. Treasury Bill Return of 3.8% (Ibbotson 2003 SBBI, page 33)

(4) : Ibbotson 2003 SBBI, page 136

(5) : (4) X Market Risk Premium (MRP) of 6.4%, 6.4% = Stock return of 10.2% -  
Treasury Bill return of 3.8% (Ibbotson 2002 SBBI, page 33)

(6) : (3) - (5)

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Property / Casualty Insurance Industry Leverage Ratios to Surplus**

(Amounts in 000's)

<u>Year</u>	<u>Loss &amp; LAE Reserves</u>	<u>Total Liabilities</u>	<u>Net Premium Written</u>	<u>Policyholder's Surplus</u>	<u>Reserves</u>	<u>Ratio to Surplus of Liabilities</u>	<u>Premium</u>
1970	20,256	39,816	32,578	15,499	1.31	2.57	2.10
1971	22,927	44,140	35,360	19,065	1.20	2.32	1.85
1972	26,609	50,423	38,930	23,812	1.12	2.12	1.63
1973	30,394	56,537	42,075	21,389	1.42	2.64	1.97
1974	34,574	60,707	44,704	16,270	2.13	3.73	2.75
1975	39,513	68,343	49,605	19,712	2.00	3.47	2.52
1976	47,105	80,956	60,439	24,631	1.91	3.29	2.45
1977	56,970	97,313	72,406	29,300	1.94	3.32	2.47
1978	68,767	113,718	81,699	35,379	1.94	3.21	2.31
1979	81,113	131,214	90,169	42,395	1.91	3.10	2.13
1980	92,493	145,504	95,702	52,174	1.77	2.79	1.83
1981	102,422	158,498	99,373	53,805	1.90	2.95	1.85
1982	111,959	171,298	104,038	60,395	1.85	2.84	1.72
1983	122,715	183,515	109,247	65,606	1.87	2.80	1.67
1984	134,926	200,925	118,591	63,809	2.11	3.15	1.86
1985	154,425	235,853	144,860	75,511	2.05	3.12	1.92
1986	184,577	279,800	176,993	94,288	1.96	2.97	1.88
1987	217,646	322,714	193,689	103,996	2.09	3.10	1.86
1988	241,692	358,735	202,285	118,195	2.04	3.04	1.71
1989	269,294	393,013	208,834	133,972	2.01	2.93	1.56
1990	289,878	417,912	218,100	138,401	2.09	3.02	1.58
1991	307,141	442,788	223,243	158,658	1.94	2.79	1.41
1992	326,900	474,232	227,751	163,080	2.00	2.91	1.40
1993	336,316	489,263	241,691	182,275	1.85	2.68	1.33
1994	348,504	511,254	250,709	193,346	1.80	2.64	1.30
1995	360,940	535,229	259,803	230,001	1.57	2.33	1.13
1996	365,319	546,781	268,730	255,527	1.43	2.14	1.05
1997	363,351	561,577	276,568	308,479	1.18	1.82	0.90
1998	378,278	591,271	284,810	338,787	1.12	1.75	0.84
1999	375,605	600,335	290,316	339,707	1.11	1.77	0.85
2000	371,288	612,522	303,874	322,809	1.15	1.90	0.94
2001	388,059	682,235	329,622	295,289	1.31	2.31	1.12
2002	412,464	752,030	379,167	290,905	1.42	2.59	1.30
2003	445,422	820,479	415,299	353,849	1.26	2.32	1.17

Average : All	1.70	2.72	1.66
Average : 1990 - 2003	1.52	2.35	1.16

Source: Best's Aggregates and Averages

**Conclusion**

**The Capitalization of the Property - Casualty Insurance Industry Has Increased Significantly Over Time Resulting in Overcapitalization**

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Private Passenger Automobile and Homeowners  
Predominating Insurance Leverage Ratios to Surplus**

(Amounts in 000's)

<u>Year</u>	<u>Loss &amp; LAE Reserves</u>	<u>Total Liabilities</u>	<u>Net Premium Written</u>	<u>Policyholder's Surplus</u>	<u>Reserves</u>	<u>Ratio to Surplus of Liabilities</u>	<u>Premium</u>
1990	73,651	116,285	90,447	51,576	1.43	2.25	1.75
1991	79,511	127,926	96,411	58,416	1.36	2.19	1.65
1992	90,975	145,393	107,562	62,125	1.46	2.34	1.73
1993	90,129	147,138	110,573	69,057	1.31	2.13	1.60
1994	95,777	156,423	116,638	70,394	1.36	2.22	1.66
1995	109,091	181,096	129,623	107,778	1.01	1.68	1.20
1996	86,805	150,027	111,515	87,519	0.99	1.71	1.27
1997	86,522	154,532	121,346	106,389	0.81	1.45	1.14
1998	88,069	160,473	121,476	118,056	0.75	1.36	1.03
1999	88,343	166,118	124,932	122,138	0.72	1.36	1.02
2000	90,019	185,084	128,651	116,422	0.77	1.59	1.11
2001	94,570	184,123	139,932	108,264	0.87	1.70	1.29
2002	96,939	196,951	164,213	118,473	0.82	1.66	1.39
2003	103,526	214,862	164,213	118,473	0.87	1.81	1.39
Average: 1990 - 2003					1.04	1.82	1.37

Source: Best's Aggregates and Averages

**Conclusion**

**The Capitalization of the Property - Casualty Insurance Industry Has  
Increased Significantly Over Time Resulting in Overcapitalization**

NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005

Property / Casualty Insurance Industry Capitalization

<u>Year</u>	<u>Loss &amp; LAE Reserves</u>	<u>Total Liabilities</u>	<u>Net Premium Written</u>	<u>Policyholder's Surplus</u>	<u>(LIABILITIES + PREMIUM)/ SURPLUS</u>
1970	20,256	39,816	32,578	15,499	4.67
1971	22,927	44,140	35,360	19,065	4.17
1972	26,609	50,423	38,930	23,812	3.75
1973	30,394	56,537	42,075	21,389	4.61
1974	34,574	60,707	44,704	16,270	6.48
1975	39,513	68,343	49,605	19,712	5.98
1976	47,105	80,956	60,439	24,631	5.74
1977	56,970	97,313	72,406	29,300	5.79
1978	68,767	113,718	81,699	35,379	5.52
1979	81,113	131,214	90,169	42,395	5.22
1980	92,493	145,504	95,702	52,174	4.62
1981	102,422	158,498	99,373	53,805	4.79
1982	111,959	171,298	104,038	60,395	4.56
1983	122,715	183,515	109,247	65,606	4.46
1984	134,926	200,925	118,591	63,809	5.01
1985	154,425	235,853	144,860	75,511	5.04
1986	184,577	279,800	176,993	94,288	4.84
1987	217,646	322,714	193,689	103,996	4.97
1988	241,692	358,735	202,285	118,195	4.75
1989	269,294	393,013	208,834	133,972	4.49
1990	289,878	417,912	218,100	138,401	4.60
1991	307,141	442,788	223,243	158,658	4.20
1992	326,900	474,232	227,751	163,080	4.30
1993	336,316	489,263	241,691	182,275	4.01
1994	348,504	511,254	250,709	193,346	3.94
1995	360,940	535,229	259,803	230,001	3.46
1996	365,319	546,781	268,730	255,527	3.19
1997	363,351	561,577	276,568	308,479	2.72
1998	378,278	591,271	284,810	338,787	2.59
1999	375,605	600,335	290,316	339,707	2.62
2000	371,288	612,522	303,874	322,809	2.84
2001	388,059	682,235	329,622	295,289	3.43
2002	412,464	752,030	379,167	290,905	3.89
2003	445,422	820,479	415,299	353,849	3.49

AVERAGE ANNUAL CHANGE DURING VARIOUS TIME PERIODS

<b>All Years</b>	<b>10.0%</b>	<b>9.7%</b>	<b>8.2%</b>	<b>10.6%</b>	<b>-0.3%</b>
<b>30 Years</b>	<b>9.6%</b>	<b>9.5%</b>	<b>8.1%</b>	<b>10.4%</b>	<b>-0.4%</b>
<b>20 Years</b>	<b>6.8%</b>	<b>7.9%</b>	<b>7.1%</b>	<b>9.2%</b>	<b>-0.8%</b>
<b>15 Years</b>	<b>4.2%</b>	<b>5.7%</b>	<b>5.0%</b>	<b>8.0%</b>	<b>-1.6%</b>
<b>10 Years</b>	<b>2.9%</b>	<b>5.4%</b>	<b>5.6%</b>	<b>7.4%</b>	<b>-0.8%</b>
<b>5 Years</b>	<b>3.4%</b>	<b>6.9%</b>	<b>7.9%</b>	<b>1.4%</b>	<b>6.7%</b>

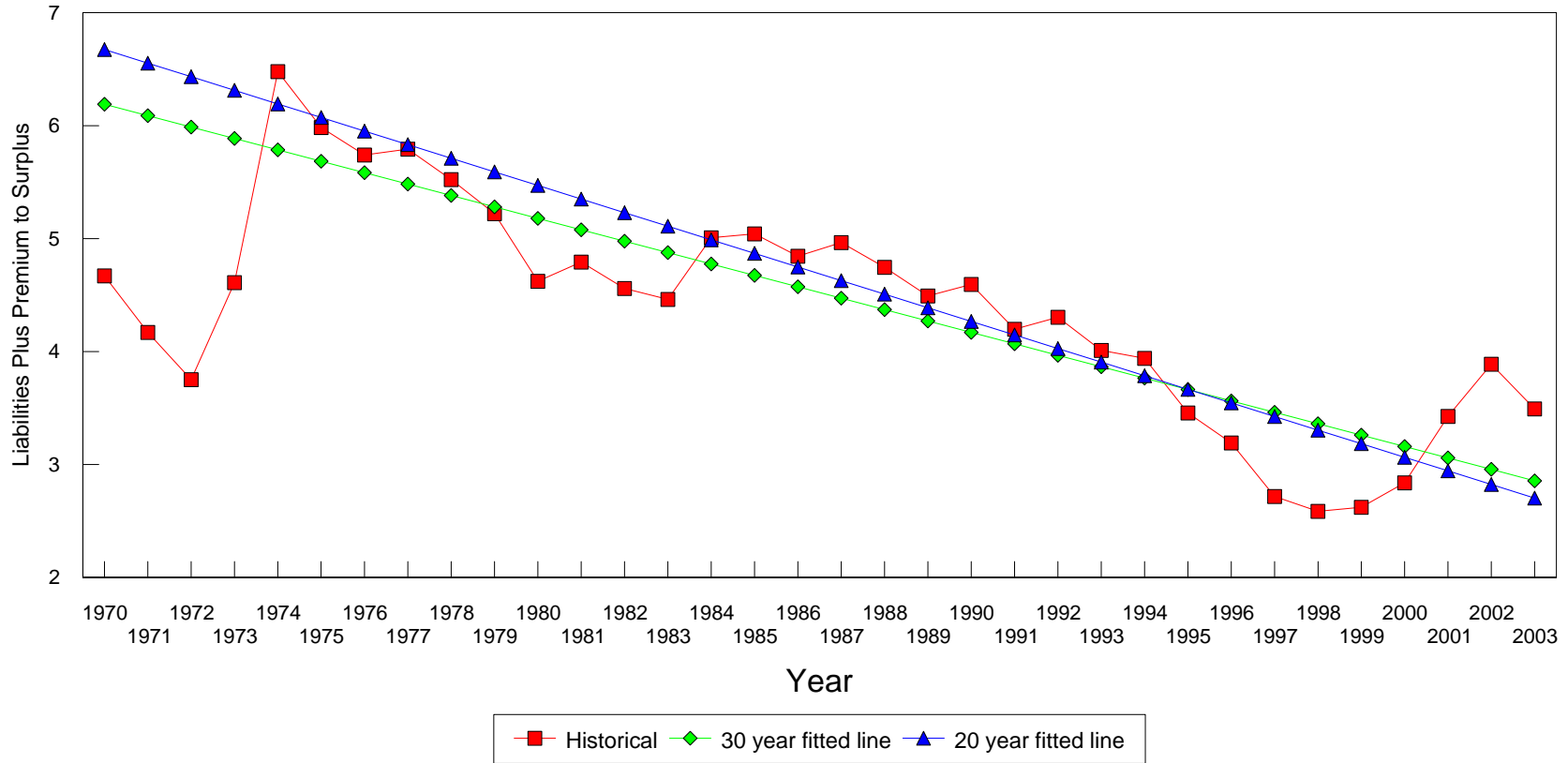
**Conclusion**

**The Capitalization of the Property - Casualty Insurance Industry Has Increased Significantly Over Time Resulting in Overcapitalization**

Source: Best's Aggregates and Averages

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Property / Casualty Insurance Industry Capitalization**



**Conclusion**

**The Capitalization of the Property / Casualty Insurance Industry Has Increased Significantly Over Time Resulting in Overcapitalization**

**NORTH CAROLINA RATE BUREAU  
PRIVATE PASSENGER AUTOMOBILE  
2/1/2005 Rate Filing**

**Cost of Capital Analysis**

<b>Property / Casualty</b>				
Company	Beta	Safety	Price Stability	Earnings Predictability
ACE Limited	1.45	3	40	10
Alleghany Corp.	0.55	1	100	10
Allmerica Financial	1.50	3	30	5
Allstate	0.90	2	85	55
American Financial Group	0.95	3	85	10
Argonaut Group	0.75	3	50	5
Baldwin & Lyons	0.55	3	65	40
Berkley (W.R.)	0.80	3	75	5
Berkshire Hathaway	0.75	1	100	5
Chubb	1.05	2	75	35
Cincinnati Financial	0.85	2	95	50
CNA Financial	1.05	2	80	5
CNA Surety Corp	0.80	3	75	10
Direct General	NMF	-----	NMF	NMF
Donegal Group	0.65	3	60	40
EMC Insurance	0.75	3	55	20
Erie Indemnity	0.70	1	100	85
Everest Re Group	1.10	3	65	50
Fidelity National Finan.	NMF	3	NMF	NMF
Harleysville Group	1.00	3	65	5
HCC	0.95	3	85	65
Infinity Prop & Cas.	0.85	3	75	NMF
Markel Corp	0.80	2	95	5
Meadowbrook Insurance	0.95	3	25	15
Merchants Group	0.40	1	100	35
Mercury General	0.85	2	90	65
Midland Co	0.70	3	75	55
Montpeiler Re	1.15	2	80	NMF
Odyssey Re Holdings	1.05	3	55	NMF
Ohio Casualty	0.85	3	60	5
Old Republic	1.05	3	80	75
PartnerRe Ltd.	1.10	3	65	5
Philadelphia Consolidated	0.95	3	60	55
Progressive (Ohio)	0.95	2	75	30
PMI Group	1.05	3	70	85
PXRE Group	0.90	3	50	5
RLI Corp	0.70	2	95	90
RenaissanceRe Holdings	0.65	2	75	30
SAFECO Corp	0.85	3	75	10
Safety Insurance	0.70	2	85	NMF
Selective Insurance	0.85	3	80	55
State Auto Financial	0.75	3	75	35
St. Paul Travelers	1.20	3	70	5
Transatlantic Holdings	0.80	2	100	35
21st Century Insurance	0.85	3	75	45
United Fire & Casualty	0.70	3	70	45
XL Capital Ltd.	1.05	3	65	5
Zenith National Ins. Corp	0.90	2	80	10
<b>Combined Average</b>	<b>0.88</b>	<b>2.6</b>	<b>74</b>	<b>31</b>

Source: Value Lines dated June 24, 2005 and June 17, 2005

**NORTH CAROLINA RATE BUREAU  
PRIVATE PASSENGER AUTOMOBILE  
2/1/2005 Rate Filing**

**Cost of Capital Analysis**

**Comparison of Betas from Different Sources**

<u>Company Name</u>	<u>Value Line 06/24/2005</u>	<u>Standard &amp; Poors 05/21/2005</u>	<u>Weiss Ratings 04/19/2005</u>	<u>Yahoo! Finance 07/27/2005</u>
ACE Limited	1.45	0.58	0.58	0.63
Alleghany Corp.	0.55		0.14	
Allmerica Financial	1.50	1.09	1.06	1.15
Allstate	0.90	0.18	0.19	0.24
American Financial Group	0.95	0.85	0.88	0.91
American International Group		0.69	0.67	0.73
Argonaut Group	0.75			
Baldwin & Lyons	0.55			
Berkley (W.R.)	0.80	(0.26)	(0.24)	(0.24)
Berkshire Hathaway	0.75	0.14	0.12	0.15
Chubb	1.05	0.42	0.43	0.49
Cincinnati Financial	0.85	0.31		0.35
CNA Financial	1.05	0.49	0.49	0.53
CNA Surety Corp	0.80			
Direct General	NMF			
Donegal Group	0.65			
EMC Insurance	0.75			
Erie Indemnity	0.70			
Everest Re Group	1.10		0.21	0.27
Fidelity National Finan.	NMF	0.21	0.19	0.21
Harleysville Group	1.00			
Hartford Financial Services Group		0.93	0.94	0.98
HCC	0.95	(0.07)	(0.04)	0.02
Infinity Prop & Cas.	0.85			
Markel Corp	0.80		(0.05)	(0.05)
Meadowbrook Insurance	0.95			
Merchants Group	0.40			
Mercury General	0.85		0.34	0.34
Midland Co	0.70			
Montpeiler Re	1.15			
Odyssey Re Holdings	1.05			
Ohio Casualty	0.85	0.10	0.12	0.06
Old Republic	1.05		0.37	0.44
PartnerRe Ltd.	1.10	0.13	0.12	0.18
Philadelphia Consolidated	0.95			
Progressive (Ohio)	0.95	0.58	0.61	0.69
PMI Group	1.05	0.72	0.70	0.75
PXRE Group	0.90			
RLI Corp	0.70	0.15	0.17	NA
RenaissanceRe Holdings	0.65			
SAFECO Corp	0.85	0.05	0.11	0.12
Safety Insurance	0.70			
Selective Insurance	0.85	0.44	0.41	0.46
State Auto Financial	0.75			
St. Paul Travelers	1.20	NA	1.03	1.12
Transatlantic Holdings	0.80	0.30	0.29	0.31
21st Century Insurance	0.85	1.00	0.99	1.08
United Fire & Casualty	0.70			
Unitrin		0.41	0.44	0.44
XL Capital Ltd.	1.05	0.18	0.21	0.27
Zenith National Ins. Corp	0.90			
<b>Combined Average</b>	<b>0.88</b>	<b>0.39</b>	<b>0.40</b>	<b>0.44</b>

NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005

Countrywide Operating Ratios

LINE OF INSURANCE	CALENDAR YEAR																							AVERAGE	STANDARD DEVIATION	ANNUAL TREND					
	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998				1999	2000	2001	2002	2003
OTHER ACCIDENT AND HEALTH	95.8	98.0	96.2	95.9	98.2	98.7	96.7	98.1	91.9	90.6	93.2	100.1	98.1	97.3	99.2	101.0	98.5	95.3	93.3	90.9	85.7	93.6	95.6	101.6	95.0	102.2	92.0	103.0	96.3	3.9	-0.0
GROUP ACCIDENT AND HEALTH	96.7	95.0	91.0	95.9	97.5	99.4	98.1	98.2	92.6	97.7	110.6	106.8	102.5	97.0	93.3	95.4	96.8	95.9	96.6	99.8	97.0	105.2	102.6	104.5	101.4	98.9	97.1	91.2	98.4	4.5	0.1
PRIVATE PASS. AUTO PHYSICAL DAMAGE	103.5	90.9	95.3	98.6	95.1	97.0	99.8	94.9	98.9	97.1	91.8	88.3	90.5	93.7	92.2	87.1	86.8	88.1	91.7	96.6	100.6	97.5	98.0	97.7	102.3	100.3	94.9	90.9	95.0	4.5	-0.0
PRIVATE PASSENGER AUTO LIABILITY	99.3	93.7	93.8	94.8	96.1	101.4	102.1	102.9	103.9	109.5	109.2	107.7	107.1	107.5	108.2	103.8	99.6	99.2	97.3	93.9	91.5	91.1	93.5	98.8	105.3	105.1	105.2	96.8	100.7	5.6	-0.0
OCEAN MARINE	92.9	95.1	94.1	101.1	106.9	101.6	103.3	102.4	102.4	94.5	91.5	90.6	97.4	104.2	108.9	105.1	110.9	101.6	101.7	86.2	83.1	94.9	102.7	107.0	99.1	95.8	97.3	98.7	99.0	6.5	-0.0
INLAND MARINE	87.0	83.0	83.9	91.8	98.8	98.5	98.5	99.1	101.8	92.6	78.2	77.9	82.0	90.0	93.4	93.6	98.1	97.3	97.8	88.7	94.5	93.0	94.4	99.6	90.4	96.6	83.0	79.8	91.5	7.0	0.0
FARMOWNERS MULTIPLE PERIL	100.7	94.8	93.8	90.5	109.1	107.9	116.3	107.3	114.8	107.4	104.3	91.4	95.1	104.1	103.7	106.7	97.8	107.8	104.0	106.0	117.7	102.7	111.4	107.3	105.2	109.9	110.0	96.4	104.4	7.1	0.2
WORKERS' COMPENSATION	102.6	101.2	97.2	93.7	90.7	89.8	88.9	96.3	105.2	103.8	107.4	104.8	105.7	104.8	104.4	108.7	103.4	92.4	86.4	81.8	83.8	81.8	92.6	96.1	99.8	108.1	100.4	97.8	97.5	8.0	-0.1
FIRE	90.3	88.0	86.9	91.8	94.9	94.4	94.4	100.6	106.6	91.2	87.3	82.8	87.7	98.6	94.4	96.0	109.7	100.3	102.8	100.3	89.8	92.3	101.6	104.4	107.9	115.3	85.2	75.8	95.4	8.7	0.3
COMMERCIAL AUTO LIABILITY	97.4	92.7	93.7	97.6	101.1	108.4	115.3	121.3	130.8	116.4	103.6	99.0	97.7	101.0	102.4	100.2	96.1	93.7	98.2	99.7	100.3	100.0	103.4	108.2	107.6	111.6	98.6	92.2	103.2	8.9	-0.1
COMMERCIAL AUTO PHYSICAL DAMAGE	94.8	86.5	88.1	91.8	94.1	97.9	104.2	104.0	108.5	94.5	80.1	77.3	77.6	82.9	87.8	84.5	87.7	85.7	91.5	95.8	103.5	103.7	107.0	110.2	103.9	99.9	93.3	83.5	93.6	9.4	0.2
BURGLARY AND THEFT	75.9	69.7	69.0	76.0	86.5	90.4	91.8	84.1	76.5	69.5	65.2	58.7	60.5	62.9	61.9	62.9	61.7	65.0	57.7	57.3	63.0	61.5	59.1	81.8	69.4	67.7	51.3	64.8	68.6	10.4	-0.7
BOILER AND MACHINERY	90.9	84.8	82.0	84.4	86.9	88.8	96.5	103.7	110.6	75.9	88.2	81.9	95.2	102.2	109.9	100.5	100.0	94.6	90.0	88.4	86.4	87.1	92.9	113.5	88.4	84.9	76.8	66.1	91.1	10.7	-0.1
COMMERCIAL MULTIPLE PERIL	89.8	82.8	80.7	88.6	93.4	100.5	109.1	114.8	125.1	112.2	88.9	83.5	86.9	96.6	98.1	100.4	113.9	102.4	107.4	102.3	108.0	99.8	108.6	107.3	103.5	110.3	98.4	95.1	100.3	10.7	0.5
HOMEOWNERS MULTIPLE PERIL	94.8	89.2	89.8	96.0	102.0	98.2	100.1	99.5	101.8	106.6	98.4	92.0	95.2	108.8	107.8	112.3	151.8	107.3	113.5	107.4	116.8	96.4	104.8	103.7	107.0	118.4	105.6	94.9	104.3	11.9	0.6
OTHER LIABILITY	96.7	90.4	87.5	86.0	92.7	96.5	106.4	113.8	125.1	125.8	102.5	96.3	91.5	88.0	86.7	85.9	103.3	103.6	102.6	113.0	91.6	80.5	84.6	76.4	83.8	101.1	108.5	100.9	97.2	12.3	-0.2
REINSURANCE	96.4	98.9	94.0	93.4	94.1	95.5	101.3	106.4	122.2	107.0	99.6	102.6	90.0	98.7	95.4	89.9	101.6	87.4	99.5	99.7	86.3	79.5	68.8	103.4	95.6	144.2	112.1	96.2	98.6	13.1	0.1
AIRCRAFT	93.8	107.2	97.3	103.1	95.4	92.4	90.0	94.4	95.4	93.3	83.6	82.2	90.8	90.7	108.3	104.0	128.0	118.6	106.6	91.3	104.7	93.8	112.0	110.6	112.2	63.3	72.7	70.2	96.6	14.1	-0.2
FIDELITY	97.1	102.9	98.1	78.9	84.6	89.4	103.2	111.9	106.2	83.9	68.0	63.9	64.1	61.1	83.8	66.8	66.8	66.3	67.8	65.3	80.3	90.1	102.8	87.6	85.3	84.9	100.9	66.6	83.2	15.2	-0.5
SURETY	98.3	92.4	93.5	86.8	101.2	81.7	84.6	81.6	87.7	102.2	107.6	100.6	82.8	79.3	72.4	62.1	69.5	55.5	86.9	83.3	80.1	77.2	78.1	77.8	81.5	117.5	117.4	118.1	87.8	15.4	0.1
OTHER LINES	87.8	90.0	98.9	112.7	101.5	101.4	116.3	97.1	93.3	84.3	114.3	108.8	112.3	88.6	89.7	85.1	89.0	98.0	98.3	88.0	87.2	73.4	80.0	80.3	77.7	24.5	71.9	70.1	90.0	17.8	-1.4
MEDICAL MALPRACTICE	99.4	79.6	87.3	92.0	99.8	101.4	109.8	108.9	118.3	129.5	108.7	91.9	84.0	61.1	68.8	66.5	76.4	65.4	68.7	70.4	76.1	77.9	87.7	106.0	105.9	136.0	129.6	121.3	93.9	21.1	0.2
ALLIED LINES (INCLUDES EARTHQUAKES)	82.9	76.9	88.2	98.5	101.4	92.2	96.8	105.6	99.9	98.0	77.3	76.0	77.5	122.0	91.3	86.3	116.3	93.6	258.3	104.4	106.0	88.8	105.1	105.1	110.3	138.3	76.5	72.2	101.6	33.7	0.8
TOTAL ALL LINES	97.3	91.8	91.8	94.1	95.9	97.6	100.5	102.3	107.4	106.3	99.1	95.6	95.7	99.0	99.0	97.9	103.3	95.7	98.9	96.1	95.8	91.1	95.3	98.6	100.0	106.9	101.2	93.9	98.1	9.1	0.1

SOURCE: 1986 - 2004 Best's Aggregates & Averages - Property / Casualty

Operating Ratio = Losses + Loss Expenses + Underwriting Expenses + Dividends - Investment Income in Relation to Premium

The standard deviation is a measure of risk. The higher the figure, the more risky.

The annual trend measures whether the business is improving or worsening. A value less than 0 indicates improvement.

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**INSURANCE OPERATING PROFIT - PRIVATE PASSENGER AUTO**

ABBREV	STATE	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Average	Standard Deviation	Annual Trend	
AL	Alabama	6.4	8.3	5.8	1.9	7.8	9.0	5.5	5.0	4.4	0.3	0.9	4.0	0.6	0.6	2.0	4.3	7.5	6.6	3.1	1.1	2.2	1.9	3.2	4.8	0.5	3.9	2.8	3.6	3.9	2.5	-0.1	
AK	Alaska	-2.7	11.0	13.5	15.6	12.2	10.1	5.5	3.2	6.3	-1.4	7.4	11.0	9.7	5.4	0.1	2.1	7.9	5.1	6.9	2.3	11.8	10.0	-10.5	1.2	-5.3	-8.0	-0.3	4.0	4.8	6.4	-0.4	
AZ	Arizona	2.7	4.7	1.1	3.4	7.2	6.1	3.7	1.0	-3.2	-7.2	-3.8	-1.0	-1.6	-2.0	-5.0	2.0	4.4	4.7	0.4	3.4	6.2	6.9	3.1	-1.3	0.6	0.4	6.6	1.6	3.7	0.0		
AR	Arkansas	4.0	8.0	3.8	6.8	8.8	6.1	0.5	0.5	-4.0	-1.7	1.3	3.4	1.3	-7.0	-5.9	-0.8	2.9	3.1	1.3	0.5	-1.7	0.1	1.8	-1.2	-4.2	-1.6	0.5	5.0	1.1	3.8	-0.2	
CA	California	4.1	8.3	5.0	4.8	4.5	2.8	1.4	-0.5	-1.9	-0.8	-1.7	-0.8	-1.7	-0.8	2.1	2.0	6.9	9.6	8.9	8.4	9.7	10.7	11.0	6.2	3.9	-4.4	-2.0	0.1	4.3	3.6	4.3	0.0
CO	Colorado	2.1	5.5	0.1	0.4	1.9	3.9	-1.4	-1.6	-6.5	-2.2	-0.2	0.8	2.2	-3.6	-19.8	-6.3	4.8	8.8	4.5	5.5	6.3	5.5	2.0	2.0	-1.7	-5.6	-4.4	3.2	0.2	5.5	0.0	
CT	Connecticut	-2.3	3.1	2.9	1.1	-0.4	-4.8	-4.1	2.1	1.3	1.1	1.9	1.7	-0.5	-1.5	-0.4	1.1	3.9	7.6	7.7	6.0	11.2	12.1	11.9	9.9	4.2	5.1	6.0	7.5	3.4	4.5	0.4	
DE	Delaware	0.2	4.5	-2.1	2.1	2.0	-0.9	-1.2	0.3	-6.9	-8.7	-8.6	-6.3	-7.4	-8.8	-5.3	-0.1	5.3	8.3	6.6	1.9	3.0	-0.7	2.2	4.2	-3.2	-0.7	0.2	0.2	-0.7	4.7	0.1	
DC	DC	7.3	10.7	9.2	9.0	8.7	4.9	2.8	3.9	0.1	-3.0	-4.1	1.1	2.5	-2.3	1.2	3.4	9.6	5.6	5.1	0.4	4.9	9.3	12.1	9.5	4.0	5.7	4.1	5.5	4.7	4.2	0.0	
FL	Florida	1.6	11.6	11.1	7.3	3.5	-3.8	-5.0	-1.6	-0.1	-3.0	-0.7	2.8	2.6	2.8	3.9	4.1	-2.3	1.3	2.5	2.4	6.1	6.1	4.3	-0.1	-8.2	-6.2	-3.2	4.4	1.6	4.7	-0.2	
GA	Georgia	2.3	6.5	6.5	4.8	6.0	2.7	0.6	-1.1	-3.0	-3.8	0.0	1.9	2.2	0.7	1.4	5.2	3.8	2.7	0.9	1.3	2.6	3.2	2.2	2.5	0.4	-2.4	4.8	2.2	2.0	2.6	-0.1	
HI	Hawaii	-4.2	-0.2	-0.6	-1.8	-0.6	5.4	7.9	3.4	6.3	2.1	7.1	3.2	-1.7	-3.7	-15.1	-2.4	4.1	9.0	7.6	14.2	19.8	21.1	15.9	21.5	11.3	12.2	5.2	8.9	5.6	8.2	0.6	
ID	Idaho	1.3	8.9	6.8	8.2	10.8	9.5	4.5	4.5	1.4	-4.4	1.9	6.2	6.9	6.0	1.4	4.2	5.0	5.4	4.9	4.5	6.5	5.7	1.6	3.7	-2.4	3.2	5.3	6.8	4.6	3.3	-0.1	
IL	Illinois	3.3	5.3	2.5	3.8	8.0	4.6	2.4	2.4	-2.1	-1.6	4.5	7.4	4.4	1.1	1.7	4.2	6.6	3.9	3.6	4.5	3.9	7.0	4.1	3.8	-3.5	0.0	2.2	3.3	3.3	2.7	-0.0	
IN	Indiana	4.8	6.7	3.1	4.8	7.9	6.3	3.1	3.8	-2.2	-3.7	0.4	0.7	1.8	-7.2	-0.4	1.8	6.0	5.5	4.1	2.8	-0.3	4.0	3.1	1.3	-3.5	2.3	4.0	6.6	2.4	3.5	-0.1	
IA	Iowa	1.6	4.6	2.1	5.2	2.6	6.6	6.2	4.7	2.7	1.6	3.1	5.5	1.3	0.3	-1.3	1.3	5.6	5.3	0.9	4.5	1.4	2.1	-0.9	2.3	-1.8	-4.9	3.4	6.2	2.6	2.7	-0.1	
KS	Kansas	0.2	3.7	2.8	0.1	4.7	3.1	3.1	5.7	1.5	-0.5	3.2	2.3	5.3	1.6	-3.0	-10.2	-25.5	-2.1	5.6	3.0	4.4	3.7	0.5	1.4	-0.7	1.9	5.3	7.7	1.0	6.1	-0.0	
KY	Kentucky	-0.6	1.2	4.4	4.4	6.8	6.3	0.2	2.0	-3.1	-2.1	-0.4	2.7	-1.1	-4.3	-6.3	-1.2	2.9	-1.4	-2.3	-1.2	-3.2	-1.3	-3.1	1.7	-3.9	-2.8	-3.9	1.9	-0.3	3.2	-0.2	
LA	Louisiana	0.8	5.7	5.4	4.0	2.6	2.9	2.5	1.6	-0.2	-4.9	-1.8	-0.5	3.0	-6.2	-3.5	-1.9	3.6	6.8	8.0	-1.1	0.3	1.5	0.8	0.2	-14.6	-7.3	-4.0	0.3	0.1	4.6	-0.2	
ME	Maine	-2.2	1.1	1.1	5.8	5.2	4.3	4.4	4.7	1.6	1.1	-0.1	1.0	2.5	2.3	8.8	11.9	12.6	8.3	8.0	5.1	5.6	2.3	2.1	5.0	2.3	2.3	4.3	8.2	4.3	3.4	0.1	
MD	Maryland	3.2	7.2	3.0	1.1	1.3	0.6	-1.5	0.4	-3.9	-5.4	-1.5	-1.3	2.6	1.2	2.8	7.8	10.1	8.2	6.0	6.6	6.3	6.3	7.5	4.8	-2.2	-1.1	-0.2	2.4	2.6	3.9	0.1	
MA	Mass.	6.3	8.1	1.0	-3.6	-2.4	-2.0	0.9	2.2	1.6	-4.5	-6.7	-3.8	-0.9	-0.3	-0.2	3.0	8.5	9.9	9.2	9.2	2.8	1.6	0.0	-2.2	0.3	-1.6	-5.2	-0.6	1.1	4.5	-0.0	
MI	Michigan	-3.7	3.5	3.2	2.0	1.2	0.4	-6.2	-7.7	-6.9	-1.7	0.1	-2.1	5.2	0.1	-2.2	7.3	16.0	21.8	6.8	8.8	6.1	4.5	2.6	-0.3	-3.9	-13.1	-8.6	-8.9	0.9	7.4	-0.0	
MN	Minnesota	1.3	4.0	0.5	-1.2	1.1	3.5	3.8	1.3	-3.6	-1.3	3.5	7.6	6.8	-3.1	-0.2	0.5	3.2	3.9	3.9	6.6	4.3	3.8	8.5	4.2	-2.3	-1.3	5.6	10.0	2.1	3.9	0.1	
MS	Mississippi	2.5	6.1	3.3	-0.5	5.7	4.9	0.8	0.9	0.0	-6.9	-1.2	-0.2	2.1	0.6	0.2	-3.1	6.6	5.9	3.9	1.4	0.0	2.3	-1.9	0.0	-3.1	-0.7	-0.1	2.1	1.1	3.0	-0.1	
MO	Missouri	5.8	6.8	3.4	3.7	6.5	3.8	0.3	1.6	-4.4	-4.3	4.1	6.6	3.9	0.9	-1.4	1.6	5.0	3.7	3.7	3.8	5.7	5.4	3.6	2.3	0.0	-6.4	3.9	4.0	2.6	3.3	-0.1	
MT	Montana	2.7	7.8	5.1	6.5	4.9	2.9	-4.0	1.6	-0.8	-3.6	1.9	7.9	7.7	6.9	3.9	-8.1	2.1	0.0	3.6	2.7	2.9	-1.0	-2.0	-1.1	-8.1	-0.2	-0.3	2.3	1.6	4.2	-0.2	
NE	Nebraska	4.4	7.4	-1.8	5.2	-1.4	5.9	2.6	4.0	1.5	-0.3	-3.2	4.0	2.2	-1.9	-0.7	-8.6	2.9	5.0	3.5	-1.2	-7.7	4.1	3.5	0.7	-0.8	-11.9	0.3	5.4	0.8	4.5	-0.2	
NV	Nevada	-6.7	2.3	1.1	-1.3	-0.4	3.3	2.1	1.9	2.2	-2.0	-0.5	-2.9	-0.5	-4.6	-7.7	-4.1	-0.7	-1.6	0.6	-0.5	2.0	0.5	1.5	-0.7	-1.0	4.1	0.2	-1.3	-0.5	2.7	0.0	
NH	New Hampshire	-3.9	-2.7	-7.3	-7.5	-4.6	-3.7	4.3	4.0	1.3	-0.7	-2.2	-2.2	-1.8	-2.8	2.8	8.0	11.7	11.8	9.4	7.5	6.2	6.8	10.7	7.3	2.0	4.4	2.8	5.9	2.4	5.6	0.5	
NJ	New Jersey	-8.6	-4.1	-5.9	-4.9	-5.5	-8.0	-3.9	1.9	4.5	9.0	3.6	1.8	-2.1	-2.6	-3.3	-4.4	-8.2	-2.0	0.3	3.0	2.5	2.5	6.6	4.6	1.0	1.9	4.7	8.8	-0.2	4.9	0.4	
NM	New Mexico	2.2	3.8	4.5	7.0	10.6	8.7	4.0	3.2	4.4	-4.0	0.4	-2.7	-6.1	-13.3	-4.3	0.5	-2.1	2.4	3.7	7.3	5.8	7.4	7.6	8.5	2.3	4.8	4.1	8.3	2.8	5.2	0.1	
NY	New York	-5.6	2.0	7.5	6.6	4.1	-0.2	1.0	5.2	4.5	6.4	5.5	7.5	5.7	1.1	-0.4	1.4	1.6	1.6	5.1	7.3	10.2	8.9	4.9	1.5	-7.3	-3.2	-2.4	7.5	3.1	4.3	-0.0	
NC	<b>North Carolina</b>	<b>1.5</b>	<b>2.6</b>	<b>-0.1</b>	<b>1.1</b>	<b>3.3</b>	<b>3.7</b>	<b>2.4</b>	<b>6.1</b>	<b>0.2</b>	<b>-4.0</b>	<b>0.4</b>	<b>0.4</b>	<b>-0.7</b>	<b>-2.1</b>	<b>-2.2</b>	<b>3.5</b>	<b>4.9</b>	<b>2.8</b>	<b>0.9</b>	<b>0.6</b>	<b>-5.4</b>	<b>1.8</b>	<b>2.6</b>	<b>0.1</b>	<b>-1.7</b>	<b>1.9</b>	<b>3.3</b>	<b>1.8</b>	<b>1.1</b>	<b>2.5</b>	<b>-0.0</b>	
ND	North Dakota	-2.9	-1.5	3.5	3.7	4.3	3.9	4.5	4.2	3.8	-1.5	-3.2	3.1	6.1	4.9	2.4	2.7	4.9	0.7	-3.6	-7.2	-6.0	-8.7	6.6	1.6	-9.8	-12.4	5.3	9.8	0.7	5.4	-0.2	
OH	Ohio	3.5	8.7	6.8	5.3	7.0	5.6	4.9	5.6	0.2	-1.7	1.4	3.5	3.7	2.6	2.4	8.3	6.7	5.8	2.7	4.6	4.7	2.6	5.0	3.8	0.4	1.5	4.6	6.3	4.2	2.4	-0.1	
OK	Oklahoma	1.8	6.2	2.5	0.4	2.6	0.1	-2.3	-0.1	-3.1	-6.2	-0.9	5.2	-1.4	2.3	-1.1	0.4	-1.3	2.0	4.4	3.3	2.2	5.1	1.6	-5.7	-2.1	1.5	3.0	4.5	0.9	3.1	0.0	
OR	Oregon	3.7	8.8	6.9	5.1	6.9	3.9	4.4	2.5	-0.9	-4.1	1.5	4.4	4.2	2.8	6.6	10.4	8.8	9.4	6.8	1.0	2.2	3.7	3.1	5.3	-0.3	3.7	1.2	6.7	4.2	3.3	-0.0	
PA	Penn	-5.4	-0.9	0.5	1.1	1.0	0.2	-4.1	-2.6	-2.7	-1.1	-1.3	-2.3	-2.7	-5.8	-1.7	5.3	7.1	7.0	6.7	6.2	4.9	5.7	7.0	-0.3	-1.1	-0.3	-0.3	1.4	0.9	3.8	0.2	
RI	Rhode Island	-6.8	-1.5	0.0	-3.7	1.0	-3.5	-1.3	1.0	-0.2	-1.8	-3.6	-1.4	-2.3	-4.4	-1.8	-4.3	7.8	15.6	13.7	14.7	13.6	7.6	11.2	5.9	1.5	1.5	0.9	4.4	2.3	6.4	0.4	
SC	South Carolina	-3.2	0.3	0.3	-0.1	6.2	3.9	2.3	4.0	-2.3	-5.9	-3.8	-1.7	-4.0	-23.3	-12.3	-7.8	1.5	0.1	-4.8	-5.9	-7.4	-7.5	-6.0	-5.3	-8.7	-0.4	1.7	4.9	-3.0	6.0	-0.2	
SD	South Dakota	2.1	5.0	4.0	1.0	3.5	5.2	2.6	5.4	-1.4	-0.2	-3.5	6.1	5.5	3.8	-6.5	-8.9	-6.0	-6.9	-0.9	3.0	-0.2	4.8	2.9	3.4	-1.4	-0.7	3.6	7.1	1.2	4.2	-0.1	
TN	Tennessee	2.4	5.5	5.6	4.4	6.6	6.0	2.4	2.6	-1.9	-4.3	-1.6	0.2	-0.1	1.6	3.2	6.5	7.4	6.1	2.2	-1.7	0.6	2.5	-0.8	1.8	-1.7	2.2	2.2	0.6	2.2	3.0	-0.1	
TX	Texas	2.1	9.1	5.4	1.7	7.0	-1.6	-0.2	3.9	5.3	1.2	1.3	1.5	0.3	-7.6	-8.2	-3.0	-0.7	2.4	1.5	0.2	6.5	7.0	2.9	0.8	-7.0	-6.6	0.9	2.6	1.0	4.4	-0.2	
UT	Utah	1.8	9.3	5.9	8.6	9.																											

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Determination of Premium to Surplus Adjustment Factor**

**2000 Experience (Amounts in Millions)**

<u>Type of Company Predominating</u>	<u>Earned Premium</u>		<u>Loss &amp; LAE &amp; UPR Reserves</u>		<u>Relative Reserve to Premium Ratio</u>
	<u>Dollar</u>	<u>% of Total</u>	<u>Dollar</u>	<u>% of Total</u>	
Personal Lines	\$162,052	54.54%	\$180,974	36.55%	0.67
Private Passenger Automobile	\$18,097	6.09%	\$21,888	4.42%	0.73
Total P/C Insurance Industry	\$297,122		\$495,075		

**2001 Experience (Amounts in Millions)**

<u>Type of Company Predominating</u>	<u>Earned Premium</u>		<u>Loss &amp; LAE &amp; UPR Reserves</u>		<u>Relative Reserve to Premium Ratio</u>
	<u>Dollar</u>	<u>% of Total</u>	<u>Dollar</u>	<u>% of Total</u>	
Personal Lines	\$167,285	52.81%	\$183,079	35.01%	0.66
Private Passenger Automobile	\$27,133	8.57%	\$29,584	5.66%	0.66
Total P/C Insurance Industry	\$316,742		\$522,937		

**2002 Experience (Amounts in Millions)**

<u>Type of Company Predominating</u>	<u>Earned Premium</u>		<u>Loss &amp; LAE &amp; UPR Reserves</u>		<u>Relative Reserve to Premium Ratio</u>
	<u>Dollar</u>	<u>% of Total</u>	<u>Dollar</u>	<u>% of Total</u>	
Personal Lines	\$181,568	50.75%	\$193,653	33.91%	0.67
Private Passenger Automobile	\$30,233	8.45%	\$31,281	5.48%	0.65
Total P/C Insurance Industry	\$357,785		\$571,109		

**2003 Experience (Amounts in Millions)**

<u>Type of Company Predominating</u>	<u>Earned Premium</u>		<u>Loss &amp; LAE &amp; UPR Reserves</u>		<u>Relative Reserve to Premium Ratio</u>
	<u>Dollar</u>	<u>% of Total</u>	<u>Dollar</u>	<u>% of Total</u>	
Personal Lines	\$196,305	49.44%	\$202,512	32.57%	0.66
Private Passenger Automobile	\$34,602	8.71%	\$33,599	5.40%	0.62
Total P/C Insurance Industry	\$397,069		\$621,733		

<b>Average Relative Reserve to Premium Risk Factor</b>	<b>0.665</b>
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Source: Best's Aggregates & Averages, P/C, 1991 to 2004 Editions

<p><b>CONCLUSION :</b>  <b>Private passenger automobile insurance is a LOWER than average risk line of insurance.</b></p>
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**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Determination of Premium to Surplus Adjustment Factor**

**1995 Experience (Amounts in Millions)**

<u>Type of Company Predominating</u>	<u>Earned Premium</u>		<u>Loss &amp; LAE &amp; UPR Reserves</u>		<u>Relative Reserve to Premium Ratio</u>
	<u>Dollar</u>	<u>% of Total</u>	<u>Dollar</u>	<u>% of Total</u>	
Private Passenger Auto & Homeowners	\$126,978	49.96%	\$157,069	33.79%	0.68
Automobile Physical Damage	\$2,163	0.85%	\$2,565	0.55%	0.65
Total P/C Insurance Industry	\$254,172		\$464,792		

**1996 Experience (Amounts in Millions)**

<u>Type of Company Predominating</u>	<u>Earned Premium</u>		<u>Loss &amp; LAE &amp; UPR Reserves</u>		<u>Relative Reserve to Premium Ratio</u>
	<u>Dollar</u>	<u>% of Total</u>	<u>Dollar</u>	<u>% of Total</u>	
Personal Lines	\$131,037	49.76%	\$151,338	31.94%	0.64
Private Passenger Automobile	\$14,896	5.66%	\$17,845	3.77%	0.67
Total P/C Insurance Industry	\$263,351		\$473,854		

**1997 Experience (Amounts in Millions)**

<u>Type of Company Predominating</u>	<u>Earned Premium</u>		<u>Loss &amp; LAE &amp; UPR Reserves</u>		<u>Relative Reserve to Premium Ratio</u>
	<u>Dollar</u>	<u>% of Total</u>	<u>Dollar</u>	<u>% of Total</u>	
Personal Lines	\$142,446	52.47%	\$162,756	34.18%	0.65
Private Passenger Automobile	\$18,690	6.88%	\$23,873	5.01%	0.73
Total P/C Insurance Industry	\$271,502		\$476,153		

**1998 Experience (Amounts in Millions)**

<u>Type of Company Predominating</u>	<u>Earned Premium</u>		<u>Loss &amp; LAE &amp; UPR Reserves</u>		<u>Relative Reserve to Premium Ratio</u>
	<u>Dollar</u>	<u>% of Total</u>	<u>Dollar</u>	<u>% of Total</u>	
Personal Lines	\$146,188	52.21%	\$164,239	33.27%	0.64
Private Passenger Automobile	\$17,850	6.37%	\$22,961	4.65%	0.73
Total P/C Insurance Industry	\$280,008		\$493,638		

**1999 Experience (Amounts in Millions)**

<u>Type of Company Predominating</u>	<u>Earned Premium</u>		<u>Loss &amp; LAE &amp; UPR Reserves</u>		<u>Relative Reserve to Premium Ratio</u>
	<u>Dollar</u>	<u>% of Total</u>	<u>Dollar</u>	<u>% of Total</u>	
Personal Lines	\$149,964	52.58%	\$167,682	33.94%	0.65
Private Passenger Automobile	\$18,596	6.52%	\$23,092	4.67%	0.72
Total P/C Insurance Industry	\$285,209		\$494,061		

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Determination of Premium to Surplus Adjustment Factor**

**1990 Experience (Amounts in Millions)**

<u>Type of Company Predominating</u>	<u>Earned Premium</u>		<u>Loss &amp; LAE &amp; UPR Reserves</u>		<u>Relative Reserve to Premium Ratio</u>
	<u>Dollar</u>	<u>% of Total</u>	<u>Dollar</u>	<u>% of Total</u>	
Private Passenger Auto & Homeowners	\$88,555	41.01%	\$105,088	28.22%	0.69
Automobile Physical Damage	\$2,306	1.07%	\$2,768	0.74%	0.70
Total P/C Insurance Industry	\$215,953		\$372,438		

**1991 Experience (Amounts in Millions)**

<u>Type of Company Predominating</u>	<u>Earned Premium</u>		<u>Loss &amp; LAE &amp; UPR Reserves</u>		<u>Relative Reserve to Premium Ratio</u>
	<u>Dollar</u>	<u>% of Total</u>	<u>Dollar</u>	<u>% of Total</u>	
Private Passenger Auto & Homeowners	\$94,575	42.57%	\$112,600	28.75%	0.68
Automobile Physical Damage	\$2,294	1.03%	\$2,569	0.66%	0.64
Total P/C Insurance Industry	\$222,151		\$391,713		

**1992 Experience (Amounts in Millions)**

<u>Type of Company Predominating</u>	<u>Earned Premium</u>		<u>Loss &amp; LAE &amp; UPR Reserves</u>		<u>Relative Reserve to Premium Ratio</u>
	<u>Dollar</u>	<u>% of Total</u>	<u>Dollar</u>	<u>% of Total</u>	
Private Passenger Auto & Homeowners	\$105,065	46.48%	\$128,076	30.92%	0.67
Automobile Physical Damage	\$2,128	0.94%	\$2,364	0.57%	0.61
Total P/C Insurance Industry	\$226,040		\$414,265		

**1993 Experience (Amounts in Millions)**

<u>Type of Company Predominating</u>	<u>Earned Premium</u>		<u>Loss &amp; LAE &amp; UPR Reserves</u>		<u>Relative Reserve to Premium Ratio</u>
	<u>Dollar</u>	<u>% of Total</u>	<u>Dollar</u>	<u>% of Total</u>	
Private Passenger Auto & Homeowners	\$107,640	45.68%	\$128,834	30.00%	0.66
Automobile Physical Damage	\$2,043	0.87%	\$2,492	0.58%	0.67
Total P/C Insurance Industry	\$235,643		\$429,444		

**1994 Experience (Amounts in Millions)**

<u>Type of Company Predominating</u>	<u>Earned Premium</u>		<u>Loss &amp; LAE &amp; UPR Reserves</u>		<u>Relative Reserve to Premium Ratio</u>
	<u>Dollar</u>	<u>% of Total</u>	<u>Dollar</u>	<u>% of Total</u>	
Private Passenger Auto & Homeowners	\$114,014	46.67%	\$137,449	30.73%	0.66
Automobile Physical Damage	\$1,956	0.80%	\$2,233	0.50%	0.62
Total P/C Insurance Industry	\$244,316		\$447,239		

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Summary of Reserve Runoff for Various Property Casualty Lines of Insurance \***  
**(AMOUNTS IN 000'S)**

Calendar Year	(1) <u>PPA Liability</u>	(2) <u>Auto Physical Damage</u>	(3) <u>All P/C Lines of Insurance</u>	(4) <u>P/C Other Than PPAL and APD</u>
1991	(828,515)	(2,088,739)	(245,601)	2,671,653
1992	(2,585,103)	(1,513,011)	2,423,321	6,521,435
1993	(3,230,856)	(1,144,313)	(2,027,597)	2,347,572
1994	(4,297,822)	(1,051,111)	(8,316,465)	(2,967,532)
1995	(4,713,385)	(1,042,834)	(2,566,353)	3,189,866
1996	(5,340,554)	(774,004)	(6,556,764)	(442,206)
1997	(4,804,281)	(886,842)	(9,923,895)	(4,232,772)
1998	(3,692,472)	(1,174,748)	(9,783,687)	(4,916,467)
1999	(2,442,001)	(1,393,896)	(3,684,066)	151,831
2000	(822,174)	(1,338,007)	362,973	2,523,154
2001	(155,976)	(888,085)	10,964,344	12,008,405
2002	164,194	(1,108,677)	22,731,170	23,675,653
2003	(852,371)	(1,482,692)	13,881,077	16,216,140
Average	(2,584,717)	(1,222,074)	558,343	4,365,133

Notes:

(1) to (3) : Best's Aggregates and Averages 1992 - 2004

(4):(3)-(1)-(2)

\* A negative number means more than adequate reserves.  
A positive number means deficient reserves.

**CONCLUSION :**

**Private passenger automobile insurance is a  
LOWER than average risk line of insurance.**

**North Carolina**  
2005 Private Passenger Automobile

Overfunding / Double Counting Example #1

Inclusion of Ceded Clean and O/T Clean Drivers

	(a)	(b)	(c)	(d)	(e)	(f)
	<u>Voluntary Market</u>			Ceded Clean Risk	Ceded O/T Clean Risk	<u>Combined</u>
	Driver #1	Driver #2	Driver #3	Driver #4	Driver #5	<u>Total</u>
(1) Indicated Rate	\$100.00	\$100.00	\$100.00	\$150.00	\$175.00	\$625.00
(2) Manual Rate* =[ (1a) + (1b) + (1c) ] / 3	\$100.00	\$100.00	\$100.00	\$100.00	\$175.00 *	\$575.00
(3) Clean Risk Surcharge = (1) X [ (1d) - (2d) ] / (2f)	\$8.70	\$8.70	\$8.70	\$8.70	\$15.22	\$50.00
(4) Manual Rate + Surcharge = (2) + (3)	\$108.70	\$108.70	\$108.70	\$108.70	\$190.22	\$625.00
(5) Combined Funding Level Percentage = (4f) / (1f)						100.0%
(6) Dollar Overfunded = (4f) - (1f)						\$0.00
(7) Percent Overfunded = (6f) / (1f)						0.0%
(8) Effective Voluntary Market Surcharge Per Car Total:						\$8.70
						Amount To Fund Ceded Clean Risk Rate
						8.70
						Amount To Fund Increased Insurance Company Profits
						0.00

	(a)	(b)	(c)	(d)	(e)	(f)
	<u>Voluntary Market</u>			Ceded Clean Risk	Ceded O/T Clean Risk	<u>Combined</u>
	Driver #1	Driver #2	Driver #3	Driver #4	Driver #5	<u>Total</u>
(1) Indicated Rate	\$100.00	\$100.00	\$100.00	\$150.00	\$175.00	\$625.00
(2) Manual Rate* =[ (1a) + (1b) + (1c) ] / 3	\$125.00	\$125.00	\$125.00	\$125.00	\$175.00 *	\$675.00
(3) Clean Risk Surcharge = (1) X [ (1d) - (2d) ] / (2f)	\$4.63	\$4.63	\$4.63	\$4.63	\$6.48	\$25.00
(4) Manual Rate + Surcharge = (2) + (3)	\$129.63	\$129.63	\$129.63	\$129.63	\$181.48	\$700.00
(5) Combined Funding Level Percentage = (4f) / (1f)						112.0%
(6) Dollar Overfunded = (4f) - (1f)						\$75.00
(7) Percent Overfunded = (6f) / (1f)						12.0%
(8) Effective Voluntary Market Surcharge Per Car Total:						\$29.63
						Amount To Fund Ceded Clean Risk Rate
						\$4.63
						Amount To Fund Increased Insurance Company Profits
						\$25.00

\* Ceded O/T Clean are determined in the NCRF rate filing, not in connection with the NCRB filing.

North Carolina  
2005 Private Passenger Automobile

Overfunding / Double Counting Example #2

Inclusion of Consent to Rate Drivers

	(a)	(b)	(c)	(d)	(f)
	<u>Voluntary Market</u>			Consent to <u>Rate</u>	<u>Combined</u>
	Driver <u>#1</u>	Driver <u>#2</u>	Driver <u>#3</u>	Driver <u>#4</u>	<u>Total</u>
<b>Current Process</b>					
(1) Indicated Rate	\$100.00	\$100.00	\$100.00	\$180.00	\$480.00
(2) Manual Rate* =[ (1a) + (1b) + (1c) ] / 3	\$100.00	\$100.00	\$100.00	\$180.00	\$480.00
(3) Combined Funding Level Percentage = (4f) / (1f)					100%
(4) Dollar Overfunded = (4f) - (1f)					\$0.00
(5) Percent Overfunded = (4f) / (1f)					0.0%
(6) Effective Voluntary Market Surcharge Per Car Total:					\$0.00
Amount To Fund Increased Insurance Company Profits					\$0.00

	(a)	(b)	(c)	(d)	(f)
	<u>Voluntary Market</u>			Consent to <u>Rate</u>	<u>Combined</u>
	Driver <u>#1</u>	Driver <u>#2</u>	Driver <u>#3</u>	Driver <u>#4</u>	<u>Total</u>
<b>NCRB Proposed Process</b>					
(1) Indicated Rate	\$100.00	\$100.00	\$100.00	\$180.00	\$480.00
(2) Manual Rate* =[ (1a) + (1b) + (1c) + (1d) ] / 4	\$120.00	\$120.00	\$120.00	\$180.00	\$540.00
(3) Combined Funding Level = (2f) / (1f)					112.5%
(4) Dollar Overfunded = (4f) - (1f)					\$60.00
(5) Percent Overfunded = (4f) / (1f)					12.5%
(6) Effective Voluntary Market Surcharge Per Car Total:					\$20.00
Amount To Fund Increased Insurance Company Profits					\$20.00

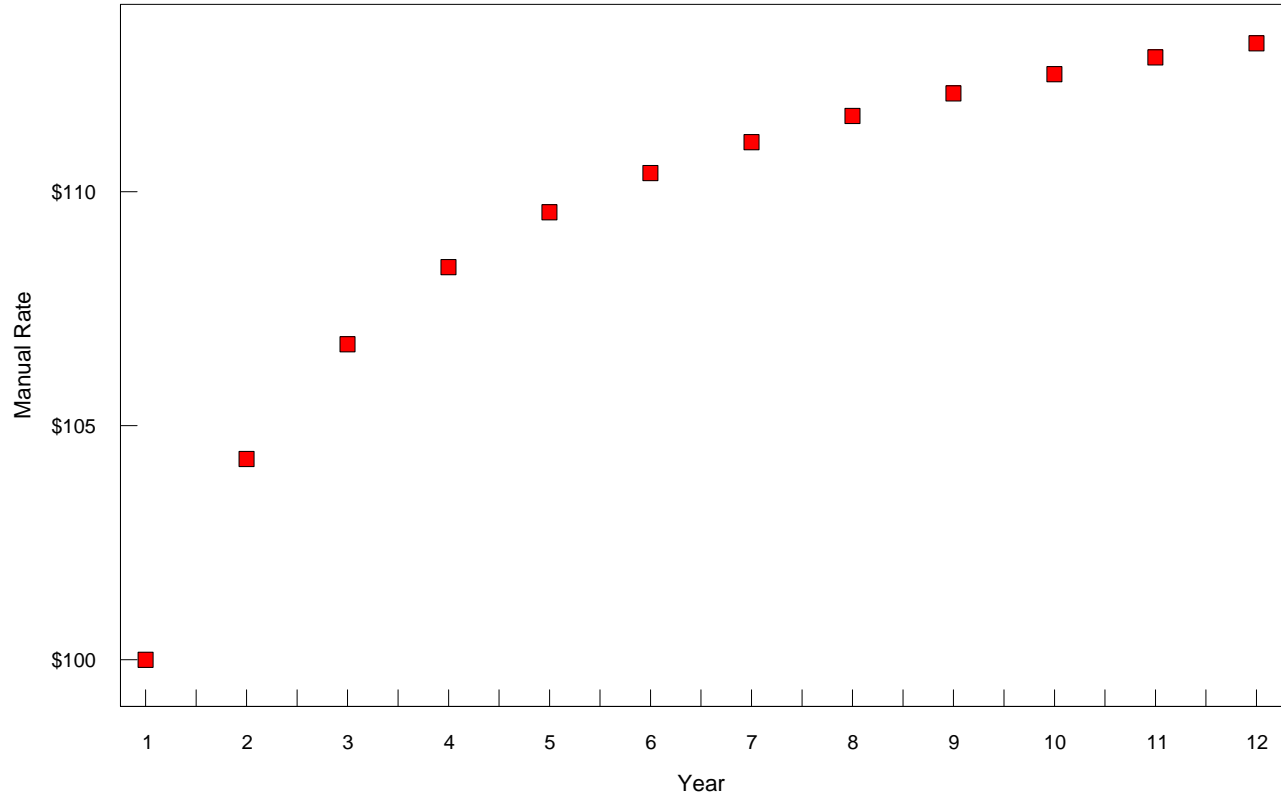
Notes:

\* Consent to Rate drivers are not subject to NCRB Voluntary Manual Rates.  
For Consent to Rate "Manual" and Indicated rates are equal.

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**Illustrative Impact of North Carolina Rate Bureau's Treatment of Deviations on Manual Rate**

<u>Year</u>	<u>Manual Rate</u>
1	\$100.00
2	\$104.29
3	\$106.74
4	\$108.39
5	\$109.56
6	\$110.40
7	\$111.06
8	\$111.62
9	\$112.10
10	\$112.51
11	\$112.87
12	\$113.17



*Note that the NRCB's treatment of deviations will push manual rate level towards the experience generated by the highest cost companies.*

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

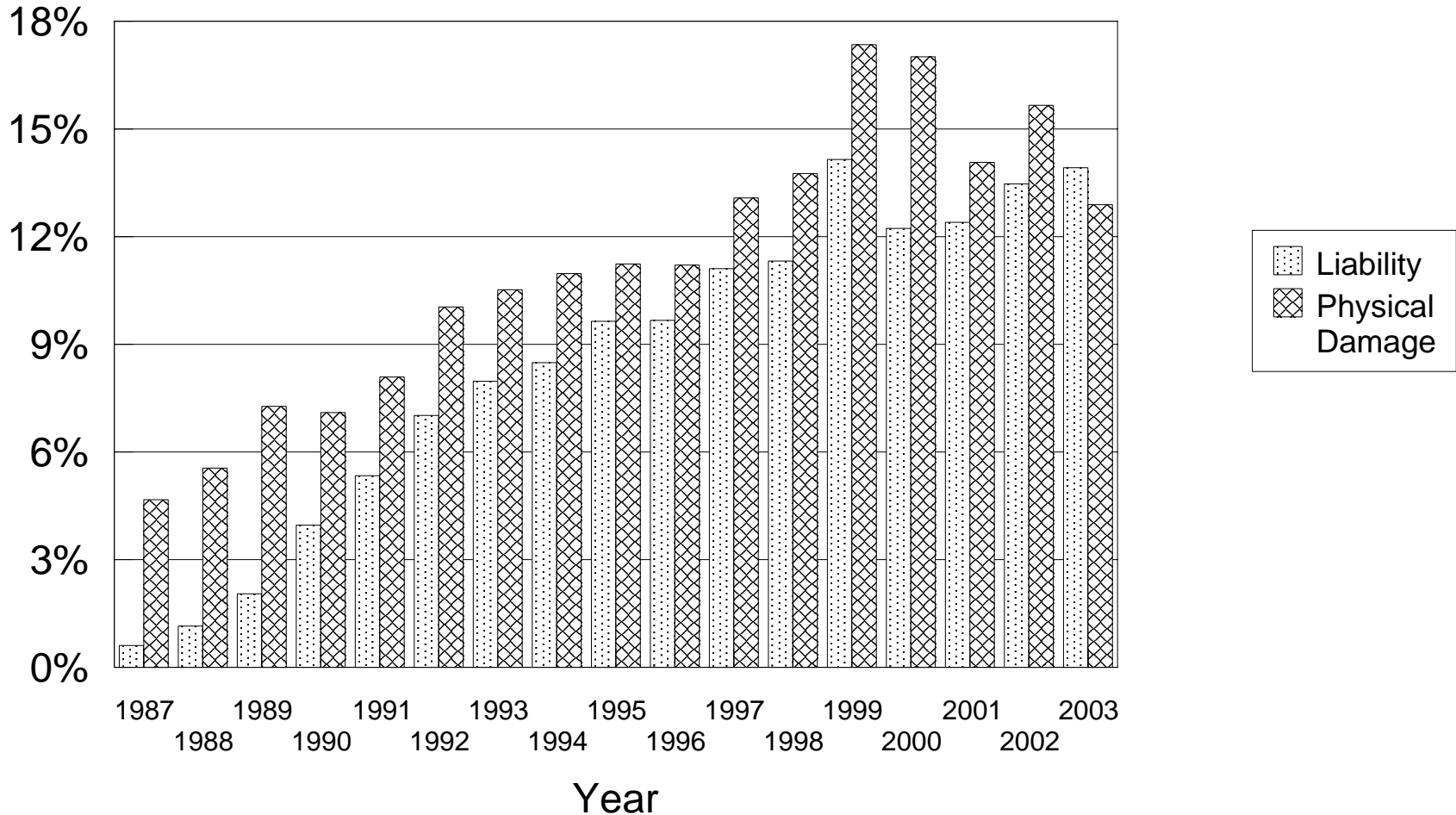
**Illustrative Impact of North Carolina Rate Bureau's Treatment of Deviations on Manual Rate**

Company Number	Expected Losses & Expenses & Profit	Year Number 1		Year Number 2		Year Number 3		Year Number 4		Year Number 5		Year Number 6	
		Manual Rate	Deviation	Manual Rate	Deviation	Manual Rate	Deviation	Manual Rate	Deviation	Manual Rate	Deviation	Manual Rate	Deviation
1	\$115.00	\$100.00	\$0.00	\$104.29	\$0.00	\$106.74	\$0.00	\$108.39	\$0.00	\$109.56	\$0.00	\$110.40	\$0.00
2	\$110.00	\$100.00	\$0.00	\$104.29	\$0.00	\$106.74	\$0.00	\$108.39	\$0.00	\$109.56	\$0.00	\$110.40	\$0.40
3	\$105.00	\$100.00	\$0.00	\$104.29	\$0.00	\$106.74	\$1.74	\$108.39	\$3.39	\$109.56	\$4.56	\$110.40	\$5.40
4	\$100.00	\$100.00	\$0.00	\$104.29	\$4.29	\$106.74	\$6.74	\$108.39	\$8.39	\$109.56	\$9.56	\$110.40	\$10.40
5	\$95.00	\$100.00	\$5.00	\$104.29	\$9.29	\$106.74	\$11.74	\$108.39	\$13.39	\$109.56	\$14.56	\$110.40	\$15.40
6	\$90.00	\$100.00	\$10.00	\$104.29	\$14.29	\$106.74	\$16.74	\$108.39	\$18.39	\$109.56	\$19.56	\$110.40	\$20.40
7	\$85.00	\$100.00	\$15.00	\$104.29	\$19.29	\$106.74	\$21.74	\$108.39	\$23.39	\$109.56	\$24.56	\$110.40	\$25.40
Average	\$100.00		\$4.29		\$6.74		\$8.39		\$9.56		\$10.40		\$11.06
Company Number	Expected Costs	Year Number 7		Year Number 8		Year Number 9		Year Number 10		Year Number 11		Year Number 12	
		Manual Rate	Deviation	Manual Rate	Deviation	Manual Rate	Deviation	Manual Rate	Deviation	Manual Rate	Deviation	Manual Rate	Deviation
1	\$115.00	\$111.06	\$0.00	\$111.62	\$0.00	\$112.10	\$0.00	\$112.51	\$0.00	\$112.87	\$0.00	\$113.17	\$0.00
2	\$110.00	\$111.06	\$1.06	\$111.62	\$1.62	\$112.10	\$2.10	\$112.51	\$2.51	\$112.87	\$2.87	\$113.17	\$3.17
3	\$105.00	\$111.06	\$6.06	\$111.62	\$6.62	\$112.10	\$7.10	\$112.51	\$7.51	\$112.87	\$7.87	\$113.17	\$8.17
4	\$100.00	\$111.06	\$11.06	\$111.62	\$11.62	\$112.10	\$12.10	\$112.51	\$12.51	\$112.87	\$12.87	\$113.17	\$13.17
5	\$95.00	\$111.06	\$16.06	\$111.62	\$16.62	\$112.10	\$17.10	\$112.51	\$17.51	\$112.87	\$17.87	\$113.17	\$18.17
6	\$90.00	\$111.06	\$21.06	\$111.62	\$21.62	\$112.10	\$22.10	\$112.51	\$22.51	\$112.87	\$22.87	\$113.17	\$23.17
7	\$85.00	\$111.06	\$26.06	\$111.62	\$26.62	\$112.10	\$27.10	\$112.51	\$27.51	\$112.87	\$27.87	\$113.17	\$28.17
Average	\$100.00		\$11.62		\$12.10		\$12.51		\$12.87		\$13.17		\$13.43

# NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES -2/1/2005

## Actual Upward Spiral of NC PPA Deviations

### All Company Deviation Percentage

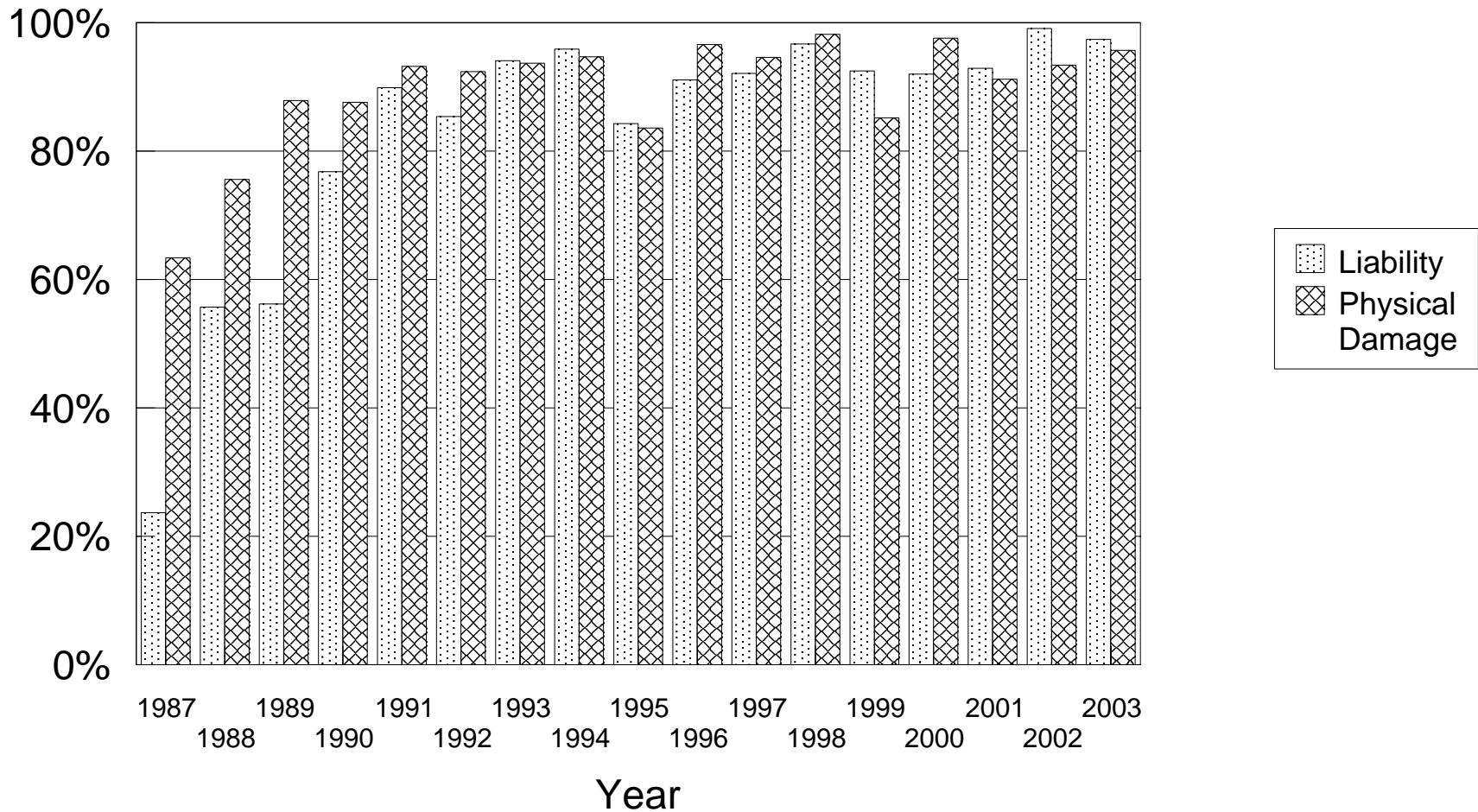


Source: Exhibit RB-5 of 2005 Hearing and similar exhibits from prior filings.

# NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES -2/1/2005

## Actual Upward Spiral of NC PPA Premiums Written With Deviations

Percent of Premiums Written By Companies With Deviations

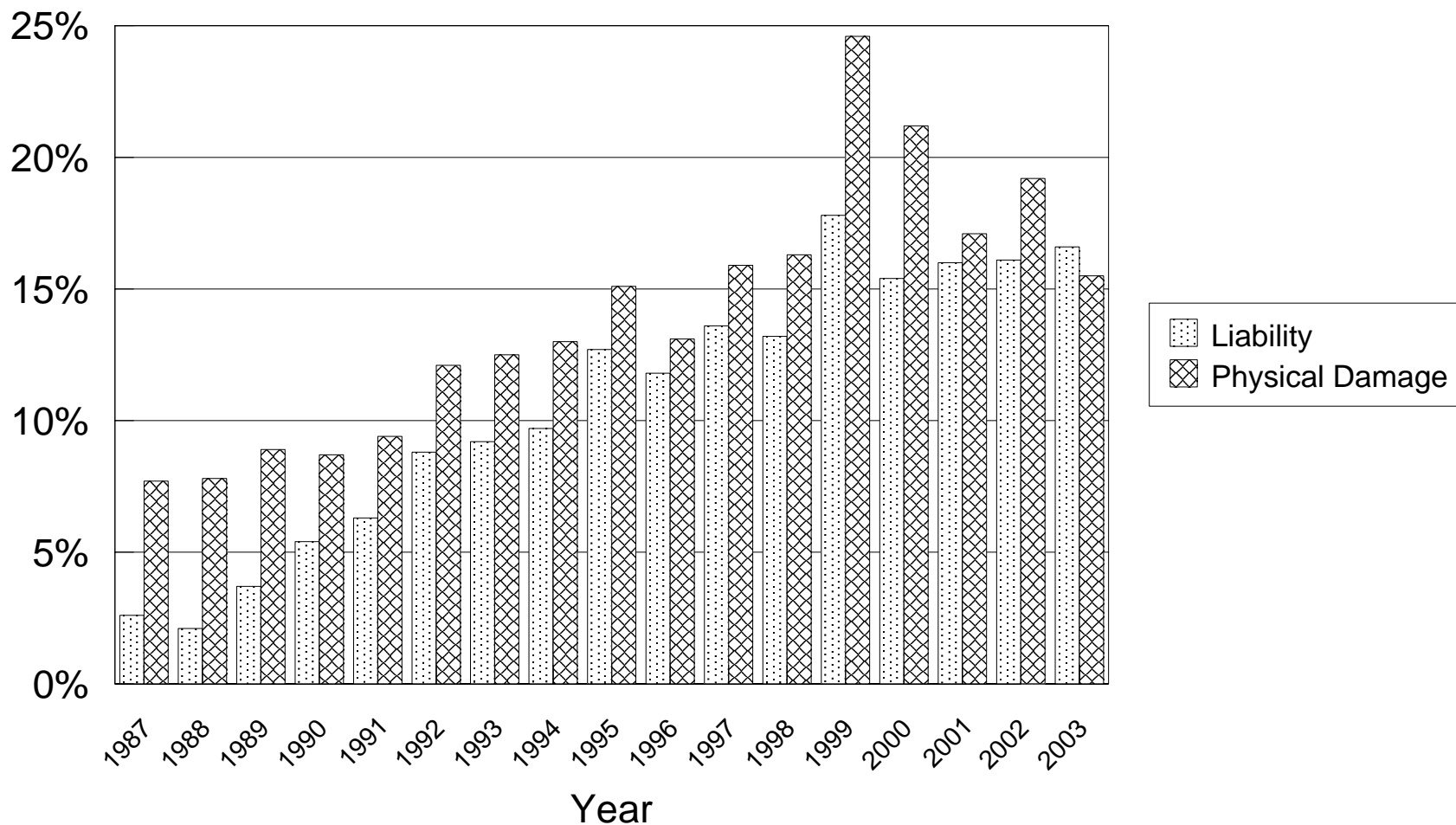


Source: Page H - 456 from filing and similar pages from earlier filings.

# NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES -2/1/2005

## Actual Upward Spiral of Average Deviation of Deviating Insurers

### Average Deviation of Deviating Insurers



Source: Page H - 456 from filing and similar pages from earlier filings.

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**SAVINGS FROM LOWER THAN AVERAGE COSTS**

Year	(1)	(2)	(3)	(4)	(5) = (2) / (1)	(6) = (4) / (3)	(7) = 0.53 X (5) + 0.47 X (6)
	Liability Premium	Savings \$	Physical Damage Premium	Savings \$	Liability	Phys Dam	Combined
1992	\$1,447,761,450	\$82,402,635	\$613,371,707	\$18,014,318	5.69%	2.94%	4.39%
1993	\$1,597,840,818	\$89,023,286	\$596,999,126	\$22,923,890	5.57%	3.84%	4.75%
1994	\$1,640,127,544	\$91,875,385	\$649,045,848	\$16,667,715	5.60%	2.57%	4.16%
1995	\$1,834,507,671	\$102,942,827	\$654,974,492	\$25,746,359	5.61%	3.93%	4.81%
1996	\$1,978,910,566	\$122,195,071	\$706,925,941	\$34,871,301	6.17%	4.93%	5.59%
1997	\$1,999,258,971	\$114,059,815	\$924,024,359	\$29,542,693	5.71%	3.20%	4.52%
2000	\$2,143,742,891	\$152,913,456	\$1,361,708,702	\$33,475,915	7.13%	2.46%	4.92%
2002	\$2,158,951,031	\$182,461,674	\$1,455,599,380	\$46,866,922	8.45%	3.22%	5.97%
2003	\$2,323,309,924	\$250,347,855	\$1,473,060,263	\$56,470,617	10.78%	3.83%	7.48%
Total	\$17,124,410,866	\$1,188,222,004	\$8,435,709,818	\$284,579,730	6.94%	3.37%	5.25%

<p><b><u>CONCLUSION :</u></b>  <b>The savings available for dividends and          deviations within the proposed average          manual rate is about 4.5% to 6.0% of premium.</b></p>
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Source : Analysis of Savings from Response to Data Request #1, Expense Calls  
 1999 Rate Proceeding, Expense Calls 2005 Rate Proceeding

**NORTH CAROLINA - PRIVATE PASSENGER AUTOMOBILE RATES - 2/1/2005**

**MOTORCYCLE INSURANCE - LIABILITY COVERAGES**

**STATEWIDE RATE LEVEL CHANGE**

(Amounts in 000's)

	Year Ended 12/31/		
	<u>2001</u>	<u>2002</u>	<u>2003</u>
( 1 ) Earned Premium at Present Rates	\$16,709	\$17,180	\$20,871
( 2 ) Incurred Losses	\$7,836	\$7,685	\$10,615
( 3 ) Loss Adjustment Expense	\$1,293	\$1,268	\$1,751
( 4 ) Factor to Adjust to Voluntary Business Only	0.836	0.824	0.818
( 5 ) Adjusted Incurred Losses	\$6,551	\$6,332	\$8,683
( 6 ) Adjusted Loss Adjustment Expense	\$1,081	\$1,045	\$1,433
( 7 ) General & Other Acquisition Expense	\$2,463	\$2,324	\$2,190
( 8 ) Average Annual Change in Losses	1.2%	1.2%	1.6%
( 9 ) Average Annual Change in Expenses	3.3%	3.3%	3.3%
( 10 ) Years of Trend - Losses	5.03	4.03	3.03
( 11 ) Years of Trend - LAE	5.03	4.03	3.03
( 12 ) Years of Trend - Gen & Other Acq Expense	4.75	3.75	2.75
( 13 ) Trended Losses	\$6,956	\$6,644	\$9,111
( 14 ) Trended Loss Adjustment Expense	\$1,273	\$1,191	\$1,581
( 15 ) Trended Gen & Other Acquisition Expense	\$2,874	\$2,625	\$2,395
( 16 ) Total Losses & Fixed Expenses	\$11,103	\$10,460	\$13,086
( 17 ) Projected Losses & Fixed Ratio	66.4%	60.9%	62.7%
( 18 ) Variable Cost Ratio	12.8%	13.4%	12.7%
( 19 ) Indicated Rate Level Change	-23.8%	-29.7%	-28.2%
( 20 ) Three Year Average Rate Change		-27.2%	
( 21 ) Selected Rate Level Change		-27.2%	