Commercial Lines Price Monitoring

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Abstract

This paper examines price monitoring techniques for the commercial lines of property/liability insurance. Section 1 discusses the rationale for commercial lines price monitoring. Next, Sections 2 and 3 cover the two major categories of price monitoring reports: renewal rate change reports and overall rate level change reports. Section 4 considers the subtle relationship between manual rate changes and experience rating factors. Section 5 includes a short note on the concept of insurance-to-value and increases in exposure units. Finally, Section 6 concludes with some brief comments on the importance and role of price monitoring in the property/liability industry.

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1. INTRODUCTION

Price monitoring techniques can be utilized for both major categories of property/liability insurance: personal lines and commercial lines. In general, however, price monitoring is a much more important and necessary tool for the commercial lines of business. This greater importance stems from the dichotomy between the personal and commercial rating mechanisms.

Specifically, personal lines rating plans contain numerous rating variables, but provide very little judgmental flexibility to the agent or underwriter. These rating plans often contain a tiered rate structure; for example, a personal automobile insurer may provide both a standard and a preferred program. Most state insurance departments, however, require well-defined and objective underwriting guidelines that specify which program applies to a given insured. After specifying the applicable program, the rate manual then determines a unique and fixed

premium for each potential insured on the basis of that insured's individual rating characteristics.

In contrast, commercial lines rating plans generally provide fewer rating variables and more judgmental flexibility. Several elements of commercial rating plans allow the agent or underwriter to judgmentally modify the premium for each individual insured. If properly utilized, these rating mechanisms allow the underwriter to properly match the insured's premium to the corresponding loss exposure. For instance, the following rating techniques are widely utilized in commercial insurance:

1. *Experience rating* utilizes the insured's own historical loss experience to calculate an experience modification factor. This factor is then applied to the manual rate. In theory, risks with better-than-average loss experience will obtain a lower rate. Section 4 of this paper will provide a numeric example of a typical experience rating calculation.

2. *Schedule rating* allows the underwriter to judgmentally adjust the manual rate on the basis of the individual insured's characteristics. In theory, the schedule rating modification only reflects characteristics of the risk that are not already reflected in the risk's historical loss experience. For instance, an insured may have recently implemented a comprehensive loss control program that was not in effect during the experience period.

The maximum schedule rating modification varies by state, but it can often be as great as plus or minus 40%. In general, the schedule rating rules allow for a great deal of subjective judgment on the part of the underwriter or agent. For instance, the underwriter may choose to apply an adjustment factor of plus or minus 10% to reflect the quality of the insured's management team. Appendix A provides an example of a hypothetical schedule rating plan.

3. *Multi-company tiering* establishes a different rate level for two or more distinct legal entities within the same insurance group. Some (but not all) state insurance departments require the filing of underwriting guidelines that describe the rationale for assigning business to companies with different rate levels. Even so, there is generally a certain degree of judgment or subjectivity allowed in these filed underwriting guidelines.

4. *(a)-rating* allows the underwriter to judgmentally select the rate for certain classes. (a)-rating is generally only permitted by regulators for certain commercial classes, such as classes with widely heterogeneous members, or classes with insufficient data to determine a manual rate. (a)-rating is most common in commercial general liability insurance, due to the heterogeneous nature of the general liability exposure in many classes. (a)-rating may also be utilized for smaller, miscellaneous classes and coverages in other commercial lines.

5. *Composite rating* plans facilitate the rating of large risks. These plans calculate the rate per some simplified, or proxy, exposure base. The final premium charged to the

insured then depends on the actual level of this proxy exposure base during the policy period. Composite rating plans simplify the rating and the premium audit process for large commercial accounts. Section 2 will provide more information about composite rating, including the similarity between the composite rating process and the techniques involved in renewal rate change reports.

6. In *retrospective rating*, the final premium depends on the insured's own loss experience during the policy period. Generally, the contract stipulates certain maximum and minimum premium amounts. Policies written under retrospective rating plans are sometimes called *loss-sensitive* contracts, since the insured's final premium depends on the actual losses incurred during the contract period. In contrast, contracts that are not retrospectively rated are called *guaranteed cost* policies, since the insured's final premium does not depend on the actual loss experience during the contract period. Due to the unique nature of retrospective rating, the pricing levels and underwriting results on these contracts are generally evaluated separately from the guaranteed cost policies. Thus, retrospectively-rated contracts are outside the scope of this article.

Unfortunately, these distinctive rating mechanisms also make it very difficult to determine the actual changes in the insurance company's overall commercial price level over a certain period of time. In fact, a manual rate change history alone often provides a misleading picture of the actual changes in overall price level, since the agent or underwriter can utilize the techniques described above to offset or reduce the impact of the manual change.

As an example, assume that the actuary of ABC Insurance Company has determined the need for a substantial rate level increase for commercial auto business in the state of Maine. ABC subsequently obtains approval for a 10% increase in commercial auto manual rates. Prior to the rate increase, ABC's underwriters provided, on average, a 10% schedule credit to this business. After the rate increase, competition forces the underwriters to offer a 15% average schedule credit to maintain the business. Thus, the net rate level increase is not the +10% change filed by the actuary, but only +3.9% [1.10 x (0.85/0.90) -1 = 0.039].

Thus, in order to obtain an accurate picture of the overall price level in commercial lines, we need to look at more than just manual rate changes; we also need to quantify the impact of these discretionary rating tools on the insured's revenue. In response to this challenge, insurance companies and managing general agencies have developed various price monitoring tools for the commercial lines. In general, there are two broad categories of price monitoring reports: renewal rate change reports and overall rate level change reports. Each of these categories will be described in more detail in the following two sections.

2. RENEWAL RATE CHANGE REPORTS

The first step in producing a renewal rate change report is to track the change in the average final rate per unit of exposure on each renewal policy during a given period of time. The second, and final, step is to determine the premium-weighted average of these changes across all renewal policies in the given time period. In order to more fully describe this process, we need to carefully define several terms.

For a given unit of exposure, the *final rate* is defined as the manual rate after all discretionary rating adjustments. As an example, let's assume that the rating manual for commercial auto liability provided a manual rate of $1,000 for a commercial vehicle with certain rating characteristics (for example, territory, gross vehicle weight, radius of use, etc.). In addition, the underwriter will apply a schedule credit of 10% and an experience debit of 5%. In this case, the final rate is given $945 (that is, $1,000 x 0.90 x 1.05 = $945).

Likewise, for policies with multiple exposures, we can distinguish between the *final premium* and the manual premium. For example, assume that the commercial auto policy in the example above also provides coverage for a second commercial vehicle with a manual rate of $2,000. The final premium is then equal to ($1,000 + $2,000) x 0.90 x 1.05 = $2,835, whereas the manual premium is equal to the full $3,000.[1]

The *average final rate per unit of exposure* is then equal to the final premium divided by the total number of exposures on the policy. In our simple example, the average final rate per unit of exposure is equal to the final premium of $2,835 divided by two the vehicles, or $1,417.50 per vehicle.[2] This average final rate would then be compared to the comparable rate on the expiring policy to determine the change in the average final rate on the renewal policy. Finally, these changes would be averaged across all renewal policies (using final premium per policy as the weight for the average) to produce a measure of the overall price change for policies renewing during the given period of time.

[1] This example assumes that both vehicles on the policy receive the same schedule and experience rating mod.

[2] In more precise terms, the exposure base in this example is "vehicle-years", or number of vehicles insured for a one-year period, assuming annual policies.

Varying Exposure Bases

In practice, the calculation of the average final rate per unit of exposure is often complicated by two factors. First, the exposure base on a given commercial policy may vary by class code. For instance, in commercial general liability insurance, the exposure base varies considerably by class code, and may even vary between premises/operations and products/completed operations for a given class code. Second, the underwriter may charge an additional policy premium for a unique endorsement, and this additional premium may not have an associated exposure base. For example, in commercial auto insurance, for an additional premium amount the underwriter may be willing to eliminate the fellow-employee exclusion.

For these reasons, it is often necessary to determine a "proxy exposure base" for each commercial line of business. The average final rate per unit of exposure is then determined in relation to this proxy exposure base. In order to illustrate the procedure, the following table provides a simple example from commercial general liability insurance.

Class Code	Exposure Base	Manual Rate	# of Exposures	Manual Premium
XX455	Area (in square feet)	$0.20	2,000	$400
XX567	# of watertowers	$500	1	$500
XX454	Gross Receipts (in 000's)	$0.10	$4,000	$400

In this example, there are three class codes on the policy, and the manual premium for the policy is $1,300. If we assume that there is no experience rating, schedule rating, or other discretionary rating modifications, then the final premium is also equal to $1,300. In addition, let's assume that we have selected gross receipts (in thousands) as the proxy exposure base for general liability. In this case, the average final rate per unit of exposure is

$1,300 / $4,000 = $0.325. This average final rate would then be compared to the comparable average final rate on the expiring policy to determine the overall rate change at renewal.

This procedure is, in fact, very similar to the procedure used in composite rating, one of the commercial lines rating tools listed in Section 1. In composite rating, which is generally utilized to facilitate the rating of large commercial accounts, the underwriter first determines the average rate per unit of some proxy exposure base. At the expiration of the policy term, the actual value of the proxy exposure base is then utilized to determine the final policy premium. In this manner, the premium audit process is greatly simplified by allowing the premium auditor to focus only on one primary exposure base.

Since composite rating begins by determining the average final rate per unit of exposure on the policy, this rating approach is well-suited to renewal rate change reports. Essentially, for composite rated policies, we have simply eliminated a step from the process of creating the renewal rate change report.

Of course, in order to determine a renewal rate change report for each line of business, the actuary must determine the necessary proxy exposure bases. Fortunately, there are obvious candidates for most major commercial lines. The following table provides a suggested list of proxy exposure bases by line of business.

Line of Business	Suggested Proxy Exposure Base
Commercial Auto	Vehicle-Years
General Liability	Gross Receipts
Workers Compensation	Payroll
Property	Insured Value

Advantages and Disadvantages of Renewal Rate Change Reports

Since the renewal rate change report begins by analyzing the rate by class on each individual commercial policy, all of the major discretionary rating components are monitored. That is, by directly analyzing the final rate on each policy, we necessarily include the impact of experience rating, schedule rating, (a)-rating, company shift, and composite rating.

On the other hand, there are several drawbacks associated with renewal rate change reports. For instance, the renewal rate change report does not monitor the price level changes associated with new-business policies. Potentially, pricing could remain strong on renewals, while underwriters are forced to aggressively cut rates to write new business; this troubling situation would not be detected by renewal rate change reports.

Moreover, extensive programming changes are generally required to implement renewal rate change reports. Specifically, the renewal report must analyze rates by class code at the renewal effective date for each commercial policy, which requires very detailed premium coding and thousands of records. Also, there is generally no easy way to handle changes in coverage or classification during the policy term. For instance, if a vehicle is added or deleted on a commercial auto policy mid-term, it may be very difficult to determine the impact of this change on the average final rate per vehicle, and then incorporate this information into the renewal report.

Lastly, and most importantly, renewal rate change reports often provide misleading indications of rate changes, due to changes in the underlying mix of business on each policy.

In other words, the change in the final rate per unit of exposure on a renewal policy may be distorted by changes in the exposure mix by class. As a simple example, consider a commercial auto liability policy that provides coverage for one vehicle, a heavy truck. At the time of renewal, the insured has replaced this heavy truck with an extra-heavy truck. Assume that there have been no changes in manual rates or any of the discretionary rating tools, but that the insurance company's rate manual requires a higher rate for extra-heavy trucks than for heavy trucks. In this case, the renewal rate change report will imply that there has been a rate increase on this renewal policy; in reality, however, the higher underlying rate merely reflects the greater loss exposure on the new vehicle.

3. OVERALL RATE LEVEL CHANGE REPORTS

Instead of drilling down to the final rate for each class code at the individual policy level, an overall rate level change report separately tackles each of the manual and discretionary pricing components. These separate pricing components are then combined multiplicatively to determine the overall rate level change for a given period of time. This procedure includes both new and renewal business. In general, there are three categories, or sources, of rate level changes that are considered in the report: (1) manual rate changes, (2) discretionary rating mods, and (3) company shift. Each of these sources will be discussed below, using a hypothetical example to illustrate the ideas.

Manual Rate Changes

The manual rate change reflects any changes to the manual rates during the period, including changes in the underlying loss costs, loss cost multipliers, and package mod factors. For most insurance companies, a manual rate change history is readily available, since it is a key component in the pricing indications procedure. For example, the table below provides an

illustrative manual rate change history for a given line of business, for the period from 1998 through 2003:

Effective Date	Rate Change
1-1-98	+10.0%
7-15-98	-6.4%
8-1-99	+5.6%
5-1-00	+4.3%
12-15-01	+6.5%
7-1-02	+5.5%
11-1-03	+1.0%

If the rate changes result from a change in the rating bureau's underlying loss costs, then the impact should be calculated on the basis of the individual company's premium distribution by class, territory, etc. This impact is generally completed as part of the rate change procedure, and then recorded in the manual rate change history database.

In the overall rate level change report, the full impact of each rate level change is reflected in its effective year. For instance, in the example above, the impact of the 11-1-03 rate change on the 2003 overall rate level is +1.0%.

For workers compensation insurance, a portion of the manual rate change may be intended to offset a corresponding benefit level change. In the final price monitoring report, the actuary may choose to show the rate change *net* of benefit level changes, or the two impacts may be displayed separately.

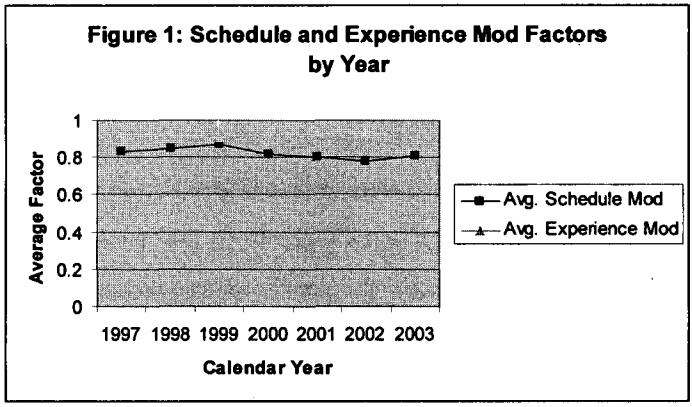
Discretionary Rating Mods

The second category of rate level change involves the change during the period in the average level of discretionary rating modification factors (or "mods"). Discretionary rating

mods may include both schedule and/or experience mods, depending on the line of business. The average modification factor for a given period is the premium-weighted average factor across all policies (new and renewal) with an effective date during that period. As an example, assume that we have determined the following average schedule and experience modification factors for the same period and line of insurance as our manual rate change example:

Calendar Year	Avg. Schedule Mod	Average Experience Mod
1997	0.83	0.92
1998	0.85	0.92
1999	0.87	0.91
2000	0.82	0.93
2001	0.80	0.92
2002	0.78	0.94
2003	0.81	0.90

Figure 1 provides a graphical display of the average schedule mod and experience mod by calendar year.



For each calendar year, we then determine the change in the average modification factor from the previous year. For instance, since the average schedule mod in our example

increased from 0.78 in 2002 to 0.81 in 2003, the impact on the 2003 overall rate level is +3.8% (that is 0.81 / 0.78 -1 = 0.038).

In theory, experience rating may or may not be properly regarded as a *discretionary* rating mod. In workers compensation insurance, for example, experience rating is generally required and strictly enforced on all eligible accounts. Consequently, a change in the average level of the experience rating mod for workers compensation may simply reflect a change in the quality and exposure of the book of business – as opposed to a change in the overall rate level. For other lines, the application of experience rating may be more lax, due to the difficulty of obtaining the necessary data for all eligible insureds. For some lines at certain companies, experience rating may only be applied if it is requested by the agent – often for the purpose of generating an additional credit. In this case, experience rating is more properly considered as a discretionary rating mod.

Moreover, there is a subtle connection between manual rate changes and experience mod factors; specifically, the presence of an experience rating plan may cause a tempering, or "watering down", of the filed manual rate change. This relationship between manual rate changes and experience mod factors will be discussed further in Section 5.

Lastly, some overall rate level change reports may also monitor changes in the average *premium discount* factor for each given period. Premium discount factors provide a rate credit for certain large policies; the amount of the credit typically increases as the size of the account increases. Premium discount factors are common in many workers compensation rate manuals.

In theory, premium discount factors reflect the economies of scale involved in writing and servicing large accounts; that is, the expense load (as a percentage of premium) often decreases as the size of the account increases, due to the presence of certain "fixed expenses" per policy. For this reason, the premium discount factor is generally not regarded as a *discretionary* rating mod. For instance, an increase in the average premium discount factor from 10% in one period to 15% in the following period may simply reflect a change in the mix of business by size of account – as opposed to a true decrease in price level.

Even so, changes in the average premium discount factor are worth noting, and may be included for informational purposes in the final report. Such changes, however, should not contribute to the measure of the overall rate level change for the period, with one caveat: if there are any changes to the premium discount factors themselves, or to the structure of the premium discount table, then these changes should be quantified and included in the manual rate change history for the line.

Company Shift

Company shift measures the rate impact produced by moving business between companies with different rate levels. In order to quantify the impact of company shift, we need to examine the change in the premium distribution between companies. As an illustration of the procedure, assume the following data for our hypothetical example:

Rating Company/Tier	Deviation	2002 WP Distribution	2003 WP Distribution
High	+40%	25%	50%
Medium	+20%	50%	25%
Low	0%	25%	25%

The "Deviation" column displays the rating relationship between tiers; in this example, the rates in the "High" company are 40% higher than the rates in the "Low" company. In the loss cost environment, this implies that the Loss Cost Multiplier (LCM) for the "High" company is 40% greater than the LCM for the "Low" company. On the basis of this data, the average deviation for 2002 is +20%, whereas the average deviation for 2003 has increased to +25%. Thus, the impact of company shift on the 2003 pricing level is +4.2% (that is, 1.25/1.20 -1 = 0.042).

Lastly, note that the deviation in this chart should apply to the deviation at the *beginning* of the 2003 year. Any change in deviations or LCM's that occurred during 2003 is reflected in the manual rate change for 2003. In this sense, the company shift item of the report is intended only to reflect pricing changes due to movement between companies. In the business world, this phenomenon is sometimes referred to as "up-tiering" or "down-tiering".

Continuing with our example, assume that the impact of company shift by calendar year is as shown in the following table.

Calendar Year	Company Shift
1998	-3.1%
1999	+2.3%
2000	+1.5%
2001	-0.5%
2002	+2.2%
2003	+4.2%

Total Pricing Change

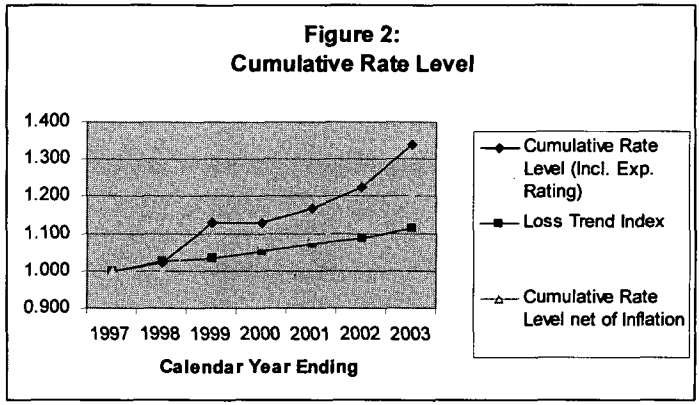
The overall rate change for a given year is then defined as the product of the manual rate change, the discretionary mod change, and the company shift change. For example, if there

was no manual rate change during a given year, but discretionary mods were down 10% and company shift was up 5%, then the overall rate change for the year would be -5.5% (1.00 x 0.90 x 1.05 = 0.945). Due to the theoretical considerations involved with experience rating, the overall rate change might be shown both including and excluding the change in experience rating mods.

For our example, the following chart summarizes the overall rate change by year, both by individual component and in total:

Calendar Yr.	Manual Rate Change	Company Shift	Schedule Mod Change	Exper. Mod Change	Total Change Incl. Exper. Rating	Total Change Excl. Exper. Rating
1998	+3.0%	-3.1%	+2.4%	0.0%	+2.2%	+2.2%
1999	+5.6%	+2.3%	+2.4%	-1.1%	+9.4%	+10.6%
2000	+4.3%	+1.5%	-5.7%	+2.2%	+2.0%	-0.2%
2001	+6.5%	-0.5%	-2.4%	-1.1%	+2.3%	+3.4%
2002	+5.5%	+2.2%	-2.5%	+2.2%	+7.4%	+5.1%
2003	+1.0%	+4.2%	+3.8%	-4.3%	+4.6%	+9.3%

In addition to the changes from year to year, we can also display the total accumulated rate level over the entire period. In our example, we set the rate level index as of 12/31/97 equal to 1.00. The rate level index (including experience rating) as of the end of calendar year 1998 (that is, 12/31/98) is then given by 1.022 (that is, 1.00 x (1 + 2.2%) = 1.022). As a final step, the actuary may incorporate some measure of the corresponding loss trend index over the same period; the total accumulated rate level can then be shown both gross and net of claim inflation. Figure 2 provides a graphical viewpoint of the total accumulated rate level over the period from 12/31/97 to 12/31/03.



Advantages and Disadvantages of Overall Rate Level Change Reports

The overall rate level change report offers the following key advantages over the renewal rate change report: (1) overall rate change reports include the pricing impact on both new and renewal policies; (2) overall rate change reports are not as impacted by distortions in the mix of business within a given policy; and (3) the report may be easier to program and implement than a renewal rate change report. On the other hand, because it does not focus on the individual rate by class for each policy, the overall rate level change may ignore the impact of certain discretionary pricing tools, such as (a)-rating or any judgmental over-rides in final rates.

4. RELATIONSHIP BETWEEN EXPERIENCE MOD FACTORS AND MANUAL RATE CHANGES

In the previous discussion, both the renewal rate change report and the overall rate level change report included experience rating changes as part of the overall price change. As noted in the previous section, however, a change in the average level of the experience modification factor may simply reflect a change in the quality or composition of the book of

business, as opposed to a true pricing change. On the other hand, the experience rating formula *itself* may serve to mitigate or "water down" the impact of any *manual* rate change; for this reason, it is important to monitor experience rating changes along with manual rate changes. In this section, we will use a simple example to demonstrate the relationship between experience rating and manual rate changes.

In general, experience rating plans compare the *actual loss ratio* (or "ALR") on a given policy or account to an *expected loss ratio* (or "ELR"). For the denominator in the actual loss ratio (the so-called *subject premium*), the plan typically will utilize the manual premium (that is, the premium prior to any discretionary or experience modifications) for the upcoming policy period, with a *detrend* factor to adjust for premium and loss trend for each year of the experience period. As an example, let's assume that we are determining the experience mod factor for a policy with a 7/1/04 effective date. Assume the manual premium for the upcoming policy period is $10,000. The following table uses this manual premium, along with some hypothetical detrend factors, to determine the subject premium for the applicable experience period.

Policy Period	Manual Premium	Detrend	SubjectPremium
7/1/02-6/30/03	10,000	0.82	8,200
7/1/01-6/30/02	10,000	0.74	7,400
7/1/00-6/30/01	10,000	0.67	6,700
Total			22,300

For the numerator in the actual loss ratio (the so-called *subject losses*) the plan typically multiplies the case-incurred losses for each year of the experience period by an appropriate loss development factor. In our example, the following table demonstrates this calculation:

Policy Period	Case-Inc Loss	LDF	Subject Losses
7/1/02-6/30/03	4,000	1.20	4,800
7/1/01-6/30/02	4,500	1.10	4,950
7/1/00-6/30/01	5,500	1.05	5,775
Total			15,525

Thus, the actual loss ratio is the quotient of the subject losses and the subject premium, or 69.6% in our example (that is, 15,525 / 22,300 = 0.696). Let's assume that the expected loss ratio for the plan is 65%. The experience mod factor is generally given by the following formula:

Experience Mod Factor = 1.0 + (ALR / ELR – 1) x Credibility Factor

The *credibility factor* is defined in the plan, and generally is a function of the total subject premium for the policy. Let's assume that our plan indicates a credibility factor of 0.70 for a policy with a subject premium of $22,300. In this case, the experience mod factor equals 1.050 (that is, 1.0 + (0.696/0.650 -1) x 0.7 = 1.050). Assuming that there are no schedule credits, the final premium for the policy will be $10,500 (that is, the manual premium of $10,000 times the experience mod of 1.050).

However, let's now add a wrinkle to the story. Assume that the actuary for this company has implemented a 10% across-the-board manual rate change for this book of business – on the basis of some recent indications – and that this change is implemented prior to the effective date of our hypothetical policy. The manual rate for our policy increases to $11,000 – but, this new, larger manual premium will also impact the experience rating calculation. Specifically, the subject premium in the experience rating formula increases by 10%, as demonstrated in the following table:

Policy Period	Manual Premium	Detrend	Subject Premium
7/1/02-6/30/03	11,000	0.82	9,020
7/1/01-6/30/02	11,000	0.74	8,140
7/1/00-6/30/01	11,000	0.67	7,370
Total			24,530

As a result, the actual loss ratio decreases to 63.3%, reflecting the new, higher manual premium on the policy. As a result of the higher subject premium, the credibility factor may also increase. For simplicity, however, let's assume that the credibility factor stays at 0.70. The new experience mod factor is then 0.982, and the final premium on the policy is $10,802. Thus, while the manual premium on this policy increased by 10%, the final premium – after the application of experience rating – only increased by +2.9%. This is an example of the mitigating impact of experience rating on manual rate changes.

For this reason alone, it may be necessary to include experience rating changes in the price monitoring report. Even so, there are other potential methods for dealing with the issue. For instance, the actuary can adjust the manual rate change history to reflect the mitigating impact of experience rating. Alternatively, at the time of the manual rate change, the actuary may choose to adjust the expected loss ratio in the experience rating plan in order to offset the "watering down" phenomenon, and ensure that the desired manual rate change is realized. The details of such an adjustment depend on the premium distribution of the book of business, the credibility table in the plan, and several other factors. The exact calculation is beyond the scope of this article.

5. INSURANCE-TO-VALUE AND INCREASES IN EXPOSURE UNITS

For a given policy, an increase in the exposure units on the policy often indicates a true increase in that policy's exposure to loss; an example would be an increase in the number of

vehicles covered on a commercial auto liability policy. For this reason, the renewal rate change reports consider the change in the average final rate per unit of exposure, as opposed to simply considering the change in the final premium on the policy. Likewise, the overall rate level change reports do not consider changes in exposure units as one of the sources of rate change during the period.

There are, however, certain cases where an increase in exposure units may reflect – at least partially – an increase rate adequacy. In particular, this may be true for inflation-sensitive exposure bases, such as gross receipts, payroll, or insured value. For these types of exposure bases, the claims inflation rate may be at least partially offset by the inflation rate on the exposure base.

The overall goal of any price monitoring report is to measure the overall rate change during a given period. This result can then be compared to the corresponding loss trend, in order to determine the net change in rate during the period. If the line of business utilizes an inflation-sensitive exposure base, then the annual rate changes should be compared to a loss trend that is *net* of the exposure trend.

6. CONCLUSION

One of the primary responsibilities of an actuary is to ensure that the premiums collected by the insurance company are adequate to pay for future loss costs and expenses. In order to fulfill this responsibility, the actuary must monitor the impact of *all* rating variables on the insurance premium, including the discretionary rating tools that are inherent in commercial rating plans.

Moreover, commercial lines price monitoring tools, if effectively designed and produced, will alert company management to changes in the level of underwriting discipline. As a result, the proper usage of price monitoring tools may result in a mitigation of the underwriting cycle in the property/liability industry. Thus, actuaries should champion the cause of price monitoring, by producing timely reports and effectively communicating the results to senior management.

APPENDIX A -- HYPOTHETICAL SCHEDULE RATING PLAN FOR COMMERCIAL AUTOMOBILE

A schedule rating modification may also be applied to the otherwise chargeable premium in accordance with the following table, subject to a maximum credit or debit of 40%. The schedule rating modification is intended to reflect such characteristics of the risk as are not reflected in its experience.

Schedule Rating Modifications

Risk Characteristic	Description	Range of Modification Credit		Debit
Management	Cooperation with insurance company, interest in insurance program, quality of relationship with employees.	10%	to	10%
Employees	Selection, training, supervision, experience and basis of remuneration.	10%	to	10%
Equipment	Type, condition, servicing, risk's own repair facilities, establishment and maintenance of safety equipment.	10%	to	10%
Safety Organization	Periodic meetings, distribution of safety literature, award and penalty system, review of accidents with drivers, quality of accident reports.	10%	to	10%