NO-CLAIM DISCOUNT OR BONUS/MALUS SYSTEMS IN EUROPE

BY GUY H WHITEHEAD

BIOGRAPHY

Mr Whitehead is a consultant in the Paris, France. He has previously worked as a consultant in Bermuda and in London. He holds an MBA from the IMI in Geneva and a BA in Actuarial Studies from Macquarie University in Sydney, Australia. Mr Whitehead's consulting experience has concentrated on loss reserve reviews, particularly for reinsurance and captive insurance companies, and on appraisal valuations for property and casualty insurance companies subject to merger or acquisition. Mr Whitehead is a Fellow of the Institutes of Actuaries (London) and of Australia, a Fellow of the Casualty Actuarial Society and a Member of the American Academy of Actuaries.

ABSTRACT

The paper introduces bonus/malus systems by briefly describing six of the systems which currently operate in Europe. The systems and their basis of operation vary widely among the six examples given.

Simple spreadsheet models of these six systems are used to illustrate the workings of these systems and the results are compared. It is evident that in some markets, the bonus/malus system is more of a marketing than a rating tool, while in others the premium rating basis relies heavily on the bonus/malus system for the determination of appropriate rates. The more "efficient" systems (e.g., the Swiss system) which produce premiums for each risk group more in line with the exposure of that risk group tend to be those in which the premium paid by an individual is more affected by the random timing of claims over say a 10 year experience period. The equity of the risk group is traded off against the equity of the individual.

In the context of a common market in Europe which will affect five of the six systems reviewed, the question of the implications of such market harmonization is raised.

WHAT ARE THEY

The "No-Claims Discount System" (in the UK, Australia*, etc.) and the "Bonus/Malus Systems" (continental Europe) refer to methods used to determine premium reductions or loadings on individual private passenger automobile policies based on the claims experience of the individual insured.

For simplicity, the systems will be described as "Bonus/Malus Systems" in this paper.

WHAT THIS PAPER IS NOT

This paper in NOT intended to present a rigorous mathematical analysis of the theoretical validity of the various bonus/malus systems in use in Europe.

The methods of analysis avoid complications and subtleties which, although perhaps theoretically justified, would add little to this paper.

WHAT THIS PAPER IS

The paper first briefly describes the various systems in use in various European countries.

The paper is intended to be simple, direct and concise. Analysis focusses on the broader implications of the use of such systems - for example, in modelling the experience of a portfolio of policies, each policy in a class is assumed to be subject to the same claims frequency, and a binomial distribution (i.e.,

---

* I do realise that, except within Tillinghast's management structure, Australia is generally NOT considered part of Europe.

either there is no claim or there is one claim in a given year for each policy) is used whereas a Poisson distribution would probably be more "correct" in allowing for the possibility of more than one claim on a single policy in a given year. For the purposes of this paper, the impact of the simplifying assumption is not great and would only serve to distract the reader from the intended purpose of the analysis.

WHAT DOES THE PAPER ADDRESS?

THE NATURE OF THE VARIOUS SYSTEMS IN USE

The paper describes and analyses six systems of premium loading and/or discount applied to private automobile premiums based on the individual insured's claims experience

There are various "dimensions" of the bonus/malus systems which need to be recognised in order to appreciate the functioning and impact of the systems. These dimensions include the following:-

1. The system applies to claims reported to the insurer and not accidents per se - in effect, the potential penalty (loss of bonus or increased malus, often over several years in the future) acts as a deductible since the insured often has control as to whether to pay for the damages directly or to declare the claim and suffer the penalty. This applies essentially to the less severe accidents.

2. The systems relate to the experience of the insured vehicle on the individual's automobile policy, but the accrued bonus "belongs" to the policyholder! In Europe, multiple-vehicle insurance polices are almost

unknown in the private passengers automobile insurance markets. Typically, an insurance policy issued in the name of the insured will pertain to an identified vehicle. Depending on the country, the policy MAY also cover:-

- Other (named) drivers on the same policy for the "insured vehicle" only. Coverage may be limited to the insured's spouse, the insured's immediate family, or to drivers specifically listed on the policy.

- Other vehicles, including rental vehicles, for the named insured(s) only. The policy of the owner of a borrowed vehicle would generally be the primary policy.

3. The systems generally apply only to the <u>private</u> passenger automobile markets. Rates for commercial vehicles and for fleets tend to be more flexible and subject to negotiation, often with more complicated experience rating plans available.

4. The discount (bonus) or loading (malus) resulting from the system may be applied to:

- the total premium

- only the Third Party Liability component of the premium

- only the Physical Damage component of the premium

In some countries, specific elements of premium are not subject to the discount/loading because claims arising from the corresponding insured peril do not lead to any penalty (for example, claims for windscreen damage often do not affect the accrued bonus, and the corresponding premium is not adjusted under the bonus/malus system).

- Generally, the discount or loading is applied after other relevant rating factors have been taken into account - i.e., after age and sex of driver, geographical location, type and age of vehicle, etc. have been taken into account. However, some of the systems are applied to a relatively unsophisticated premium rating base.

- The discount or loading is generally expressed as a percentage of the full "standard" premium. No attempt is made, for example, to identify the underlying risk premium and to apply the premium modification to that component only.

- Insured's on the highest level of bonus may have the option, after a set number of years in that class, to "protect" their level of bonus by paying an additional premium. Under such systems, a limited number of claims can be made against the "protected" policy without prejudicing the insured's bonus level. Effectively, the additional premium is being used to "buy out" the implicit deductible imposed by the application of the standard bonus/malus system.

5. The question as to whether the system is required to be applied under the relevant laws or regulations; whether it is applied universally on a

voluntary basis by insurers; or whether it is applied on an ad hoc basis by individual insurers.

EQUITY REGARDING POLICYHOLDERS

Equity, in the sense of "fairness", with regard to the various policyholders within the system can be considered at various levels:-

1. For the individual insured

- credibility - a bonus/malus system is an experience rating system based on the individual insured's claims experience (frequency, not severity). In the paper by Bailey and Simon[1] which studied the experience of the Canadian Merit Rating Plan, the authors concluded that "experience for one car for one year has significant and measurable credibility for experience rating", however, that "in a highly refined private passenger rating classification system which reflects the inherent hazard, there would not be much accuracy in an individual risk merit rating plan".

  Indeed, if the risk classification plan were perfect in allocating insureds into classes with homogeneous inherent risk levels, there would be no theoretical justification for a bonus/malus system.

  Two (UK, French) of the plans reviewed in this paper are applied to a premium which reflects many other rating factors (age and sex of driver, type and age of vehicle, geographical location, nature of use, etc.) and two others (Dutch, Italian) use premiums reflecting four rating factors. It is questionable whether these systems (particularly the French and UK ones) are really intended to

differentiate among insureds with inherently different risk levels as opposed to serving a primarily marketing or political need of appearing to give the individual insured credit for his own driving experience in an equitable manner, and introducing a hidden deductible.

- control - when the underlying risk is such that the average annual frequency of claim for a unit of exposure is of the order of 10% to 15% (the typical annual claims frequency on private passenger automobile policies in Europe where bonus/malus systems operate), it is evident that the actual timing of a claim for an individual is largely determined by chance. Whether the first (if any) claim occurs in the first year or the fifth or the tenth year of driving (assuming that the inherent risk of a claim remains level) is largely out of the individual's control. This being the case, it would appear unfair to penalise an individual severely based on the fortuitous timing of a claim. This argument can be extended to ask whether it is "fair" to penalise a driver due to the chance happening of zero, or one, or two, ... claims in a given experience period.

For example, consider the percentage of insureds in four sub-classes (each with constant claim frequencies of 5%, 10%, 15% and 30% respectively) who are expected to have zero, one, two, ... claims over a ten year period. The table below shows the values for up to three claims:

PERCENTAGE OF INSUREDS WITH EXACTLY N CLAIMS IN 10 YEARS

Number of Claims, N	Annual Frequency of Claim 5%	10%	15%	30%
0	60%	35%	20%	3%
1	32%	39%	35%	12%
2	7%	19%	28%	23%
3	1%	6%	13%	27%
3+	-	1%	4%	35%

From this table, over the range of claim frequency within which most insureds would fall, the dominance of the "chance" element of having 0, 1, 2 or perhaps even 3 claims over a 10 year period is self-evident.

- changes in inherent risk over time - the typical "life-cycle" of an insured with respect of individual private passenger automobile insurance is for the level of inherent risk to decline as the age of the insured and his level of driving experience and competence increase (at least until a relatively advanced age). (An exception to this in terms of the exposure under an individual policy is the increase in inherent risk as the children of the insured reach driving age and use the parent's vehicle (and insurance coverage!).) Is it fair for an individual who has an accident while part of a high risk group (where, as a young, inexperienced driver he may be "expected" to make a claim, and is paying a premium to reflect this) to be penalised several years later when he has been re-classified into a lower risk group (by virtue of increased age, years of driving experience and, perhaps, marital status and type of vehicle)?

2. For a "cohort" of insureds

A "cohort" of insureds consists of a cross-section of the insured population at a given point in time (as contrasted with a "generation" as described below). For example, a cohort may consist of a rating class during a given period.

- credibility - if a cohort is sufficiently large, the credibility afforded the experience of the class will be relatively high. On a collective basis, it is possible to evaluate the responsiveness of the aggregate premiums charged to a cohort from one year to the next compared with the relative level of actual claims against expected claims.

- membership - over the past decade in the US, there has been much debate of rating factors used to determine automobile insurance rates. The debate usually is trying to identify "appropriate" rating factors, by balancing those indicated as statistically sound against those which are socially acceptable. Membership of a rating class (or cohort) is often beyond the insured's control (e.g., sex, age) and it has often been argued that it is unfair to rate on such uncontrollable factors. It is interesting to note that by denying the ability to use statistically sound rating factors which, a priori, are fair to members of the various classes, an action intended to reduce discrimination against the individual will only serve to increase the inequity of the resulting system when viewed from the individual's perspective. (The Belgian Controlling Authority's attitude noted below may fall into this category.)

3. For a "generation" of policyholders

In the previous section, a cohort was identified as a cross-section of the insured population at a given point in time. Another view of the population is to trace the premiums paid by a "generation" of policyholders, for example, by evaluating over an extended period (say 10 to 20 years) the experience of a group of policyholders who enter the system during a given year. Such analysis may be described as using a "generation" approach. A given system may have a very different level of equity when viewed from a generation perspective compared with that of a cohort.

4. The Test of Fairness for the Individual Insured

In order to consider the fairness of a system, the analysis has tried to identify how differently the same insured would be treated if his claims experience varies in a manner which is solely due to chance. Ideally, two identical risks should pay the same premium over an extended experience period during which the only factor affecting claims experience is the random timing of claims. Starting from a base year 0, the premiums paid by an individual over a 10 year period is calculated under six claims experience scenarios - no claims; one claim in the base year; and four different patterns of three claims in years 0 through 9. The difference in the premium paid for the first two scenarios is an estimate of the implicit deductible imposed by the system for an insured in the selected initial bonus grade. (Note that the level of the implicit deductible varies with the current bonus grade, usually decreasing as the initial level of bonus increases.) For the six scenarios in each system, the premium paid over the 10 years is standardised against the average premium paid for the six scenarios. The range of these six standardised premium amounts provides an indication of the degree of inequity imposed by the system on the individual due to chance variations in claims experience. The standard

deviation (using the population rather than the sample definition of standard deviation) also been calculated as an indicator of this inequity. In a perfectly equitable system, the premium paid in each scenario would be identical and the standard deviation zero. As the standard deviation increases, the degree of sensitivity of premiums paid to the chance variation in claims experience (in number and/or timing) increases, and hence so does the level of inequity from the individual's point of view.

5. The Concept of "Efficiency"

Lemaire[2] defines the "efficiency" of a bonus/malus system as the elasticity of the discounted expectation of all (future premium) payments with respect to the claim frequency. This definition needs to be measured separately for policy-holders in each starting bonus grade in the system. Note that this definition is a "generation" approach (looking at the average premiums paid by a group of insureds over an extended period of time) and introduces present values into the calculation.

As a simplified measure of the average (over all the bonus grades) efficiency of a bonus/malus system, we have used the following formula:

$$\frac{[\{\text{Av Prem (Prob Claim x) Year 50} - \text{Av Prem (All Insureds) Year 50}\} / \text{Av Prem (All)}]}{[\text{Prob Claim x} - \text{Av Prob Claim All Insureds}] / \text{Av Prob}}$$

The same approach has also been applied to the values at 10 and 30 years. (Note that the values at 30 and 50 years are to some extent artificial in that they show the results assuming the system is permitted to operate unchanged over an extended period of time. As Gerber[3] noted, "even in a country like Switzerland (where things move slowly) the bonus/malus system is modified once in a while!" However, the values at 30 and 50 years are a valid indicator of the longer term impact of the various systems.

As an example of the calculation, in the Swiss system, the average premium estimated for year 50 for the insureds in the sub-class with a claim frequency of 30% is 2.0409 x Std Prem.

The overall claim frequency for all sub-classes combined is 10%: the average premium for all insureds is 0.6265 x Std Prem.

Hence the "efficiency" of the Swiss system, in adjusting the average premium for the higher than average claim frequency in the 30% claim frequency sub-class is measured as:

$$\frac{[2.0409 - 0.6265] / .6265}{[0.30 - 0.10] / 0.10} = 113\%.$$

That is, the bonus/malus system slightly more than compensates for the increased frequency in the 30% sub-class. This is actually a very good score - for the other systems, the value is generally of the order of 30% to 60%, indicating that the other systems do not (even approximately) lead to sufficiently higher average premiums to offset the higher frequency, even in the longer term.

Note that except for the value at 10 years (when the model presents the situation for a group of insureds who have entered the system evenly over the immediate past 10 years), the model does not really reflect the premiums paid over time in arriving at the current situation. The values in the model at 10 years can be regarded as the indication of the total of the premiums paid over 10 years by a group of insureds who entered the system over a one year period 10 years ago. In this way, the measure of efficiency at 10 years gives a feel for the equity of the various systems over the shorter term in reflecting the premium history of the group of insureds (i.e., on a generation basis).

Efficiency, as measured using the formula shown above from the values in the model shown at development years 30 and 50, is a measure of the equity of the system when considering the impact of the bonus/malus system on sub-classes or cohorts of insureds.

EQUITY REGARDING INSURERS

Equity among insurers may be affected by factors such as the following:

1. The freedom of the individual insurer to define and implement the system.

2. The ability of the insurer to select (or reject!) policyholders without restriction.

3. The ability of the insurer to determine rates for each class of insured without restriction on the factors used to define the classes and on the relative loadings applied for each class.

DIMENSIONS IGNORED

The analysis in the paper ignores:-

1. The other rating factors such as age and sex of the insured, age and type of the insured vehicle, geographical location which are intended to allocate policyholder to "correct" class. It is assumed that the loadings for these factors are unbiased. In the Dutch system, the initial allocation to a grade within the bonus/malus system is adjusted for age (<24, 24-25, 26-27, >27) and for mileage (<12,000 km; 12,000-20,000km; >

20,000km), with subsequent adjustments if the insured changes class. In the analysis, only the impact of claims has been taken into account.

2. Any changes in inherent risk/frequency over time. In modelling the experience of an individual insured or class of insureds, the models used do not reflect the fact that over the lifetime of the insured or the class, the inherent risk may change. These simplified models can still identify the inherent impact of the various bonus/malus systems on the individual insured or class of insureds. For those systems in which the other rating factors used in determining the standard rates already broadly reflect such changes in inherent risk, the models present a more realistic analysis.

SYSTEMS IN USE IN EUROPE

The table overleaf summarises the main characteristics of 6 of the systems in use in Europe, and compares two of these with the system which preceded the current one. The first four pages of the exhibits provide more details of the individual plans and summarise the main results of the analysis. Below are noted certain features of each system which are not included in the summary tables.

1. <u>French System</u>

Companies are free to determine the underlying standard premium to which the bonus/malus system (defined in the insurance law) is applied. Administratively, the system is awkward since the coefficient is the cumulative result of each year's insurance experience - in theory, there are 301 separate grades, since the coefficient is rounded to the nearest whole percentage point, subject to a minimum of 50% and a maximum of 350%. It is necessary to record the date of the

last claim since there is an over-riding rule which requires the coefficient to be subject to a maximum of 100% after two claim-free years. When underwriting a new insured with previous insurance experience, it can be very difficult to reconstruct the coefficient applicable.

Due to the relatively slow rate of decrease in the coefficient (5% for each claim-free year), and the companies' freedom in setting the underlying standard premium rate, the major impact of the system is likely to be the reduction in claims frequency due to the implicit deductible introduced by the system.

SUMMARY OF BONUS/MALUS SYSTEMS IN USE IN EUROPE

Country	Basis/ Adoption	Number of Grades	Premium in Grade as % of Std Prem Minimum	Standard	Maximum	Applied to	Protection Available?	Rules if: No Claim (Change in Grade) (% loading)	Per Claim
UK	Voluntary	5 to 7	Grade 5/7	Grade 1	Grade 1	Total Prem	Yes after 3	+1	+2
	Ad hoc		35 to 40	100	100		yrs Grade 5/7	na	na
FRANCE	BY LAW/	301	Grade 301	Grade 251	Grade 1	Total Prem	NO	na	na
	Obligatory		50	100	350			-5%	25%
SWISS	"TARIFF"	22	Grade 22	Grade 13	Grade 1	TPL	NO	+1	-3
"old"	Universal		45	100	270			na	na
SWISS	"TARIFF"	22	Grade 22	Grade 13	Grade 1	TPL	NO	+1	-4
"new"	Universal		45	100	270			na	na
ITALY	BY LAW	13	Grade 13	Grade 6	Grade 1	TPL Premium	NO	+1	-1(Max4)
"old"	Obligatory		70	100	200			na	na
ITALY	BY LAW	18	Grade 18	Grade 6	Grade 1	TPL Premium	NO	+1	-2 to -3
"new"	Obligatory		50	100	200			na	na (Max4)
DUTCH	VOLUNTARY	14	Grade 14	Grade 2	Grade 1	TPL +	NO	+1	-4 to -5
1989	Agreement		30	100	120	Accident Damage		na	na
BELGIAN	BY LAW	21	Grade 21	Grade 9	Grade 1	TPL Premium	NO	+1	-4 to -5
1990	Obligatory		50	100	200			na	na

2. UK System

Both the structure of the bonus/malus system and the underlying standard premiums are determined by the individual insurer. Hence the bonus/malus system is being applied to a premium determined within a detailed risk classification plan which should undermine the potential experience rating impact of the bonus/malus system. The inefficiency of the system, and the fact that the average bonus produced under the typical system is too high, are widely recognised in the industry. The introduction of bonus protection (which effectively removes the implicit deductible element of the system) has only exacerbated the situation. In recent years, several niche players have entered the market without a bonus/malus system in order to try to profit from those sectors of the market for which the usual bonus/malus systems result in excessive premiums (typically in the low bonus classes). Some of the major companies have introduced special rating plans for favoured groups of insureds (for example, the over 50 year-old drivers with a good driving record) which are outside the usual bonus/malus systems. To some extent, such plans are merely removing groups of insured who would otherwise be part of the protected bonus class of insureds. The special plans often re-introduce a deductible!

3. Swiss System

The Swiss system has recently been changed to increase the penalty on making a claims from 3 to 4 bonus grades. This was done essentially to increase the technical efficiency of the system (i.e., so that the average premium for poor risks is increased sufficiently). The standard premium is determined on only two rating factors - the type of vehicle (e.g., private passenger vehicle) and the engines cubic capacity). Given such a simple rating base, there is evidently scope for the experience rating effect of the bonus/malus system to come into play.

4. Italian System

The Italian system has been recently extensively overhauled, with the extension of the number of classes from 13 to 18 - the new classes effectively extend the bonus scale to provide for higher bonuses. This has been countered by increasing the penalty for a claim from 1 grade under the former system to 2 to 3 grades under the new system. These changes will make the system more discriminatory - in favour of the "good" risk and against the "poor" risk, hence increasing the system's efficiency.

5. Dutch System

Companies are free to set their rates and to define the bonus/malus system they use, however, any changes which lead to increases in premiums for individual insureds need to be approved by the Ministry of Economic Affairs under price control legislation.

The system described has been developed by a working party formed by a number of large Dutch insurers which felt that a thorough review of the existing system was due. The resulting system is a modification of the system recommended by the working party after discussions with management which brought certain commercial pressures to bear. The bonus/malus system is seen as an integral part of the whole rating structure which was under review.

The basic premium is calculated as a function of the vehicle weight for Third Party Liability cover and a function of the car's original catalogue value for Accidental Damage cover. A percentage loading is applied depending on the geographical location of the insured- there are 3 rating zones. In addition to the impact of claims on the progression through the bonus/malus grades, there

are three classes of mileage (less than 7,000 miles pa, 7,000 - 12,000 miles pa and over 12,000 miles pa) and 4 age groups (less than 24, 24-25, 26-27, and over 27) which are used to adjust the initial bonus grade allocated to a new insured. Changes in age and/or mileage on renewal will be reflected in an adjustment to bonus/malus grade in addition to the impact of the relevant claims experience.

6. Belgian System

The premium rating base and bonus/malus systems are both written into the law in Belgium. The premium is based on a constant plus an amount determined as a function of the power rating of the car's engine. Hence, the bonus/malus system is being heavily relied upon to provide appropriate premiums for individual insureds. Lemaire[4], when introducing the background to the development of the new Belgian rating system, notes that "...the Control Authorities clearly hinted, during informal preliminary meetings, that they did not like the idea of a priori classification variables, their main argument being that the fact that a policyholder is young or lives in a densely populated area does not necessarily imply that he is more likely to cause accidents". Given this background, the almost total reliance on an a postiori rating system is understandable. It is, perhaps, not too late to start the educational process. Indeed, if reliance on an a postiori rating system is desired, then almost necessarily the equity of the system as regards the individual must suffer. Maybe it is politically more acceptable to have a relatively small subsidy paid by the majority of policyholders to keep the level of high risk group premiums "reasonable" rather than requiring each risk group to pay its way? The introduction and growth of the involuntary markets in the US may be seen as supportive evidence of the Belgian philosophy!

METHOD OF ANALYSIS

MODELING THE SYSTEM

For each bonus/malus system, a simple spreadsheet based model was built which projects the development over 50 years of the distribution by bonus grade assuming 10,000 new entrants to the base class (which pays 100% of the standard premium) for each of the first 10 years. The distribution obtained in the 50th year is taken as an approximation to the ultimate steady state which would be achieved if the system continued to operate without modification indefinitely.

Three "risk-types" of insureds were separately modelled by assuming three levels of claims frequency, viz., 5% per annum, 10% per annum and 30% per annum. The models assume that each insured has either zero or one claim each year - multiple claims are not modelled. This assumption will tend to underestimate slightly the numbers of insureds in the higher grades (high malus), especially in those systems which penalise claims relatively heavily (for example, the Swiss system which penalises the insured 4 bonus grades per claim). However, the distortion is minor and probably tends to decrease as the term of the projection is extended.

In addition to the "class" model, the impact of the system on an individual insured over a 10 year period was modelled assuming various patterns of claims over that 10 year period in order to determine the level of the implicit deductible imposed by the system and to illustrate the degree of fairness of the system when considered from the individual's perspective.

EVALUATION OF EFFECTS OF SYSTEMS

Given that each insured in a rating class pays a premium based on the same standard premium subject to the relevant bonus or malus, the impact of the

bonus/malus system can be evaluated by calculating the average premium paid by the group of insureds under consideration as a percentage of that standard premium. An index of the premium charged is thus obtained by determining the relative average premium paid by the sub-class of insureds compared with the average premium paid by the class in total (i.e., the sum of the three sub-classes).

As noted above, the "model" developed for each system traces the development of the "population" of insureds over a 50 year period with the following assumptions:

- 10 000 new entrants each year for 10 years in the "standard" class.

- the population consists of three sub-classes of insured as follows:
  20% of the population has a claim frequency of 5% per annum
  75% of the population has a claim frequency of 10% per annum
  5% of the population has a claim frequency of 30% per annum.
  Hence, the average claim frequency is 10% per annum.

- a binomial distribution of claims numbers is assumed for each insured - that is, multiple claims on an individual policy in a given year are not modelled. For example, with an assumed claims frequency of 10% per annum, 90% of policyholders are assumed not to claim during a given year and 10% of insured are assumed to have 1 claim.

- the claim frequency is not affected by the level of the implicit deductible.

- there are no exits from the system.

Thus the model shows the development over 50 years of the distribution of the population by bonus/malus grade for each sub-class for a "cohort" of insureds who enter the insurance system evenly over a 10 year period at the standard premium grade.

Average % of Standard Premium: we calculate the average premium paid by the sub-class of insureds (across all bonus/malus grades) for each development year based on the distribution of insureds by bonus/malus grade and the relevant levels of bonus/malus.

Relative Premium: for each development year, the average premium paid by each sub-class is standardised against the average premium paid by the three sub-classes in total.

There is a graph included in the exhibits for each of the bonus/malus systems modelled - these graphs show the evolution of the Average Premium as a % of Standard Premium, and the Relative Average Premium for each of the three sub-classes and for the class in total over the 50 years modelled. In a perfectly efficient system, the relative premium for the 30% sub-class should be 3.00 and that for the 5% sub-class 0.50. The less efficient the system, the closer these values will remain to 1.00, the relative premium for the class in total.

Standardised Standard Premium (SSP): the "standard" premium for a given system has little intrinsic significance - the premium in any of the bonus/malus grades could be taken as the "standard" after application of a suitable scaling factor. In order to be able to make comparisons among the systems, it is necessary to

standardise the standard premium. The Swiss system has been taken as the base - the SSP is taken to be the average premium payable under the Swiss system during the 50th year which should be, approximately, the steady state. The relative SSP from the other systems is determined by the ratio of the average premium estimated for year 50 in that system compared to that applying in the Swiss system. In this way, the two systems would generate the same premium volume for the same exposure base as is used in the models assuming the respective distribution of insureds by grade as estimated by the models. As an example of the use of the SSP, in the summary exhibit the implied deductible for each system is expressed as a percentage of the SSP.

RESULTS

The table overleaf summarises the main results of the analysis.

1. Efficiency: the Swiss system is obviously the most efficient of the systems reviewed, particularly in dealing with higher than average risks. None of the systems is particularly sensitive to lower than average risks - the Swiss system only reduced premiums by 50% of the relative risk reduction. In the shorter term (over 10 years), the Swiss system is again the best, although the Dutch and Belgian systems do well too. It is interesting to note that the UK system, which over the very long term is almost ineffective in distinguishing among high and low risk insureds, is almost as efficient as the Dutch and Belgian systems over 10 years.

2. Implicit Deductible: the implicit deductible varies with the bonus grade which the policyholder currently has. The summary shows two examples for each system which tend to suggest that there is a correlation between higher efficiency in a system and a higher implicit deductible. The UK system is distorted by the presence of the extra premium for bonus

SUMMARY OF RESULTS

Country	EFFICIENCY 5% risk		EFFICIENCY 30% risk		IMPLICIT DEDUCTIBLE Starting Grade	IMPLICIT DEDUCTIBLE --- Deductible --- % Std Pr	% SSP	FAIRNESS TO INDIVIDUAL MIN	MAX	STD DEV
FRENCH	8%	12%	10%	33%	12	56%	65%	86%	114%	11%
					10	64%	74%			
UK	11%	1%	12%	6%	6	0%	0%	93%	130%	14%
					2	110%	171%			
SWISS	21%	45%	25%	113%	12	380%	380%	53%	158%	34%
					5	665%	665%			
ITALY	10%	9%	13%	31%	12	72%	85%	84%	125%	13%
					3	315%	373%			
DUTCH	16%	28%	15%	52%	10	70%	116%	65%	157%	29%
					4	255%	423%			
BELGIAN	13%	25%	14%	60%	13	172%	345%	70%	147%	25%
					4	174%	348%			

protection (assumed to be 5% of the standard premium). Although the analysis shows an implicit deductible of zero for a policyholder in bonus grade 6, the decision not to claim will allow the policyholder to be eligible for bonus protection sooner which may be perceived as having value to the policyholder.

3. Fairness to the individual insured: as noted above, the method used to identify the degree of fairness to the individual insured is somewhat arbitrary - the results for each system would vary with the starting grade of the insured in year 0 and with the various claims experience scenarios modelled. The results tend to indicate that the degree of fairness (which is taken to be reflected in a low standard deviation of the relative premiums paid under the six scenarios, and a low range between high and low premiums paid) is negatively correlated with the efficiency of the system. This, perhaps should not come as an unexpected result, since a system which is efficient is one which responds quickly to the indications of the claims experience, while the concept of fairness to the individual is related to stability of premium under conditions where chance is the only element at work.

CONCLUSION

It is evident that most of the systems reviewed, with the possible exception of the Swiss and the Dutch systems, are not effective in introducing an average penalty or discount which is appropriate to the relative level of risk of various sub-classes of insureds within a given rating class. Given that the systems are not effective in respect of groups of insureds, the situation in respect of individual insureds can only be expected to be less equitable. This is because the timing of individual claims becomes relevant to evaluating the impact of the bonus/malus system, and for the individual, such timing is largely of a fortuitous nature. This will lead to individual insureds with the same underlying level of risk being treated differently - under certain systems, significantly differently.

Since the adjustment, which is a percentage loading or discount on the standard premium, is based solely on frequency of claims (severity of the claims is not directly reflected although it does have an indirect impact through the implicit deductible) and does not explicitly provide an experience adjustment relative to an "expected" level of claims, the bonus/malus systems as currently structured cannot be expected to reduce systematically the bias in a class premium rate which is not "correct".

From an "actuarial" point of view, the use of bonus/malus systems as a principal component in the determination of premiums for individual private automobile insurance policies appears questionable. The lack of credibility of an individual risk over one year, the changing nature of the underlying risk over time, and the resultant inequity to the individual insured due to the impact of the random timing of claims all support this contention. However, the systems can be recommended from various other points of view, viz.:

- Insureds' "psychological comfort" - the individual insured is likely to identify well with the system which appears to reward him for being a "good" driver, where "good" is defined as being an insured who does not claim. His attitude may change after he is forced to claim following an accident which is not his fault but which will result in his incurring a premium penalty!

- As a hidden deductible or excess - where the insured has the choice as to whether or not he makes a claim after an at-fault accident, the present value of the expected cumulative future premium penalties which the claim will produce represents a threshold below which he will ("logically") not claim but will agree to pay the claim amount himself without involving the insurer. In effect, the expected future premium penalty has the same effect as a deductible or excess of an equal amount. As noted in the paper, the relative level of such implicit deductibles is extremely high in some systems. From the insurers' point of view, especially in the marketing department, it is usually preferable to have a deductible which is not explicit. Although most insureds recognise this situation in principle, most probably underestimate the actual level of the implied deductible (at least until they have a claim!). The expense saving resulting from the elimination of many small claims can be significant. Note that offering bonus "protection" effectively removes this advantage.

- As a marketing tool - especially in those systems which are not fully specified by law, the design and implementation of the bonus/malus system can be regarded as an additional dimension in the developing the product. It is vital the premium rates fully recognise not only the specific design

of the bonus/malus system to be used, but also its implementation including, for example, expected levels of "introductory bonuses" which are to be offered to new insureds with a clean driving record but who have not previously been insured in their own name.

- Political Expediency - this derives from the insureds "psychological comfort" when viewed from the position of the political body responsible for determining the basis and level of rates in a market where rates are controlled. It is often considered much safer for the regulator to formulate a system which appears to base the premium to a large extent on the individual insureds' experience, rather than impose a detailed risk classification plan which may be seen to discriminate on a politically sensitive (although perhaps statistically justifiable) basis.

Furthermore, it may be argued that in particular markets, the data base available is too small to provide a sound statistical basis for determining a reasonably complete risk classification rating plan.

A great deal of work has been done to develop bonus/malus systems which are "efficient" on a risk group basis. The benefits of the implicit deductible in reducing claims frequency cannot be denied - however, the same effect could be achieved through explicit deductibles which could be set a levels which are more logical, consistent and useful. Perhaps it is time for the balance to be moved back towards the equity of the premium rating system as it affects the individual insured?

A THOUGHT FOR THE FUTURE

With the approach of an open market within the EEC (the Swiss are safe, at least for the time being!), it is likely that the level of government intervention in the personal lines insurance markets will tend to decline over the coming decade, particularly in terms of the rating basis to be used. At the same time, it is becoming easier for insurers in any member State to operate in all of the other member States, hence increasing the potential for competition. Together, these forces are likely to break down the tariff and cartel arrangements which currently underpin many of the private passenger automobile insurance markets in Europe. It will be interesting to see whether the efficient but intricate and long term bonus/malus systems of continental Europe can survive in such an environment. Equally, it is questionable whether the marketing based "No-Claims Discount" approach currently dominating the UK market will survive intact. ISO, where are you?

BIOGRAPHY:

1. RA Bailey and LJ Simon; "An Actuarial Note on the Credibility of Experience of a Single Private Passenger Car"; Proceedings of the Casualty Actuarial Society XLVI, 1959, p. 159.

2. LEMAIRE J. (1976). "Driver Versus Company : Optimal Behaviour of the Policy-Holder. Scandinavian Actuarial Journal, 209-219).

3. GERBER HU, "The new bonus/Malus System of Switzerland", XXII ASTIN Colloquium, 1990.

4. LEMAIRE, J "Construction of the New Belgian Motor Third Party Tariff Structure",; Wharton School - University of Pennsylvania.

SUMMARY

PREMIUM SCALE AND TRANSITION RULES

(Premium Scale in % Standard Premium: Transition Rules show Bonus Grade during Year 1 given 0, 1 or 2 claims during Year 0)

Grade in Year 0	(1) Premium Scale	French System — Grade During Year 1 if 0 claims	1 claim	2 claims	(2) Premium Scale	UK System — Grade During Year 1 if 0 claims	1 claim	2 claims	Premium Scale	Swiss System — Grade During Year 1 if 0 claims	1 claim	2 claims
		(APPROXIMATED)										
1	300.00%	1	1	1	100.00%	2	1	1	270.00%	2	1	1
2	250.00%	2	1	1	70.00%	3	1	1	250.00%	3	1	1
3	200.00%	3	2	1	60.00%	4	1	1	230.00%	4	1	1
4	175.00%	4	3	1	50.00%	5	2	1	215.00%	5	1	1
5	150.00%	6	4	2	40.00%	6	3	1	200.00%	6	1	1
6	137.50%	7	5	3	35.00%	7	4	2	185.00%	7	2	1
7	125.00%	8	6	4	35.00%	8	5	3	170.00%	8	3	1
8	112.50%	9	7	5	35.00%	9	5	4	155.00%	9	4	1
9	100.00%	10	8	6	35.00%	10	5	5	140.00%	10	5	1
10	95.00%	11	9	7	40.00%	10	10	10	130.00%	11	6	2
11	90.00%	12	9	8					120.00%	12	7	3
12	85.00%	13	10	9					110.00%	13	8	4
13	80.00%	14	11	9					100.00%	14	9	5
14	76.00%	15	12	10					90.00%	15	10	6
15	72.00%	16	13	11					80.00%	16	11	7
16	68.00%	17	14	12					75.00%	17	12	8
17	64.00%	18	15	13					70.00%	18	13	9
18	60.00%	19	16	14					65.00%	19	14	10
19	57.00%	20	17	15					60.00%	20	15	11
20	54.00%	21	18	16					55.00%	21	16	12
21	51.00%	22	19	17					50.00%	22	17	13
22	50.00%	22	19	17					45.00%	22	18	14

NOTES:

(1) The French system does not have defined grades - from an initial value of 1.00, the coefficient is multiplied by 0.95 after a claim free year, otherwise by 1.25 for each 100% at fault claim and 1.125 for each partially at fault claim.
The minimum coefficient is 0.50 and the maximum is 3.50. After 2 claim-free years, the maximum coefficient is 1.00.
The above system has been approximated by use of the premium scale and transition table shown above - in addition, the rule that after 2 claim-free years, the maximum coefficient is 1.00 has also been incorporated in the model.

(2) The UK system modelled is typical of the market - the availability of obtaining bonus protection after three years in the highest bonus class is assumed.

SUMMARY

RESULTS

	French System						UK System						Swiss System					
Number of Grades	22 (Approximation to 301 grades in practice)						10						22					
Entry Grade	9						1						13					
	"EFFICIENCY" OF SYSTEM FOR A SUB-CLASS OF INSUREDS																	
Sub-Class: Frequency =		5%	10%	30%	TOTAL:	10%		5%	10%	30%	TOTAL:	10%		5%	10%	30%	TOTAL:	10%
Av Prem % Std @ Yr 10		81.91%	85.09%	102.24%		85.31%		52.30%	55.11%	68.60%		55.22%		76.58%	85.31%	128.54%		85.72%
30		51.02%	53.79%	91.82%		55.13%		39.99%	39.95%	49.04%		40.41%		48.99%	60.38%	190.09%		64.59%
50		50.89%	52.73%	88.70%		54.16%		40.00%	40.00%	44.90%		40.24%		48.44%	57.00%	204.09%		62.65%
Rel Av Prem @ Yr 10		0.96	1.00	1.20		1.00		0.95	1.00	1.24		1.00		0.89	1.00	1.50		1.00
30		0.93	0.98	1.67		1.00		0.99	0.99	1.21		1.00		0.76	0.93	2.94		1.00
50		0.94	0.97	1.64		1.00		0.99	0.99	1.12		1.00		0.77	0.91	3.26		1.00
Efficiency @ Yr 10		8 %	#N/A	10 %				11 %	#N/A	12 %				21 %	#N/A	25 %		
30		15 %	#N/A	33 %				2 %	#N/A	11 %				48 %	#N/A	97 %		
50		12 %	#N/A	32 %				1 %	#N/A	6 %				45 %	#N/A	113 %		
	STANDARDISED STANDARD PREMIUM																	
Av Std Prem Yr 50	54%						40%						63%					
Index to Standardise Prem	1.16						1.56						1.00					
	2 EXAMPLES OF THE IMPLICIT EXCESS OR DEDUCTIBLE																	
Starting Grade	12	10					6	2					12	5				
Indicated Excess (% Std Pr)	56%	64%					0%	110%					380%	665%				
Excess % SSP	65%	74%					0%	171%					380%	665%				
	TEST OF FAIRNESS TO INDIVIDUAL INSUREDS: PREMIUM PAID OVER 10 YEARS:																	
Starting Grade	12	12	12	12	12	12	6	6	6	6	6	6	12	12	12	12	12	12
Claims in Years:	NONE	0	2,5,8	0, 2,4	0,1,2	7,8,9	NONE	0	3,6,9	1,5,9	7,8,9	0,1,2	NONE	0	2,5,8	0,4,8	0,1,2	7,8,9
Std Premiums Paid	6.32	6.88	7.31	8.43	8.35	6.94	3.90	3.90	3.90	4.05	3.90	5.45	6.90	10.70	13.30	16.30	20.45	9.95
Rel to AVERAGE line abov	85.73%	93.33%	99.16%	114.36%	113.27%	94.14%	93.23%	93.23%	93.23%	96.81%	93.23%	130.28%	53.35%	82.73%	102.84%	126.03%	158.12%	76.93%
MIN & MAX of line above	MIN	85.73%	MAX	114.36%			MIN	93.23%	MAX	130.28%			MIN	53.35%	MAX	158.12%		
Std Deviation line -2 above	STANDARD DEVIATION:			10.53%			STANDARD DEVIATION:			13.60%			STANDARD DEVIATION:			34.33%		

SUMMARY

PREMIUM SCALE AND TRANSITION RULES

(Premium Scale in % Standard Premium: Transition Rules show Bonus Grade during Year 1 given 0, 1 or 2 claims during Year 0)

Grade in Year 0	Italian System: Premium Scale	Italian System: Grade During Year 1 if 0 claims	Italian System: Grade During Year 1 if 1 claim	Italian System: Grade During Year 1 if 2 claims	Dutch System: Premium Scale	Dutch System: Grade During Year 1 if 0 claims	Dutch System: Grade During Year 1 if 1 claim	Dutch System: Grade During Year 1 if 2 claims	(3) Belgian System: Premium Scale	Belgian System: Grade During Year 1 if 0 claims	Belgian System: Grade During Year 1 if 1 claim	Belgian System: Grade During Year 1 if 2 claims
1	200.00%	2	1	1	120.00%	2	1	1	200.00%	2	1	1
2	175.00%	3	1	1	100.00%	3	1	1	160.00%	3	1	1
3	150.00%	4	1	1	90.00%	4	1	1	140.00%	4	1	1
4	130.00%	5	2	1	80.00%	5	1	1	130.00%	5	1	1
5	115.00%	6	3	1	70.00%	6	2	1	123.00%	6	1	1
6	100.00%	7	4	1	60.00%	7	3	1	117.00%	7	2	1
7	94.00%	8	5	2	55.00%	8	4	1	111.00%	8	3	1
8	88.00%	9	6	3	50.00%	9	5	1	105.00%	9	4	1
9	82.00%	10	7	4	45.00%	10	6	2	100.00%	10	5	1
10	78.00%	11	8	5	40.00%	11	7	3	95.00%	11	6	1
11	74.00%	12	9	6	37.50%	12	7	3	90.00%	12	7	2
12	70.00%	13	10	7	35.00%	13	8	4	85.00%	13	8	3
13	66.00%	14	11	8	32.50%	14	8	4	81.00%	14	9	4
14	62.00%	15	12	9	30.00%	14	9	5	77.00%	15	10	5
15	59.00%	16	13	10					73.00%	16	11	6
16	56.00%	17	14	11					69.00%	17	12	7
17	53.00%	18	15	12					66.00%	18	13	8
18	50.00%	18	16	13					63.00%	19	14	9
19									60.00%	20	15	10
20									57.00%	21	16	11
21									54.00%	22	17	12
22									54.00%	22	18	13

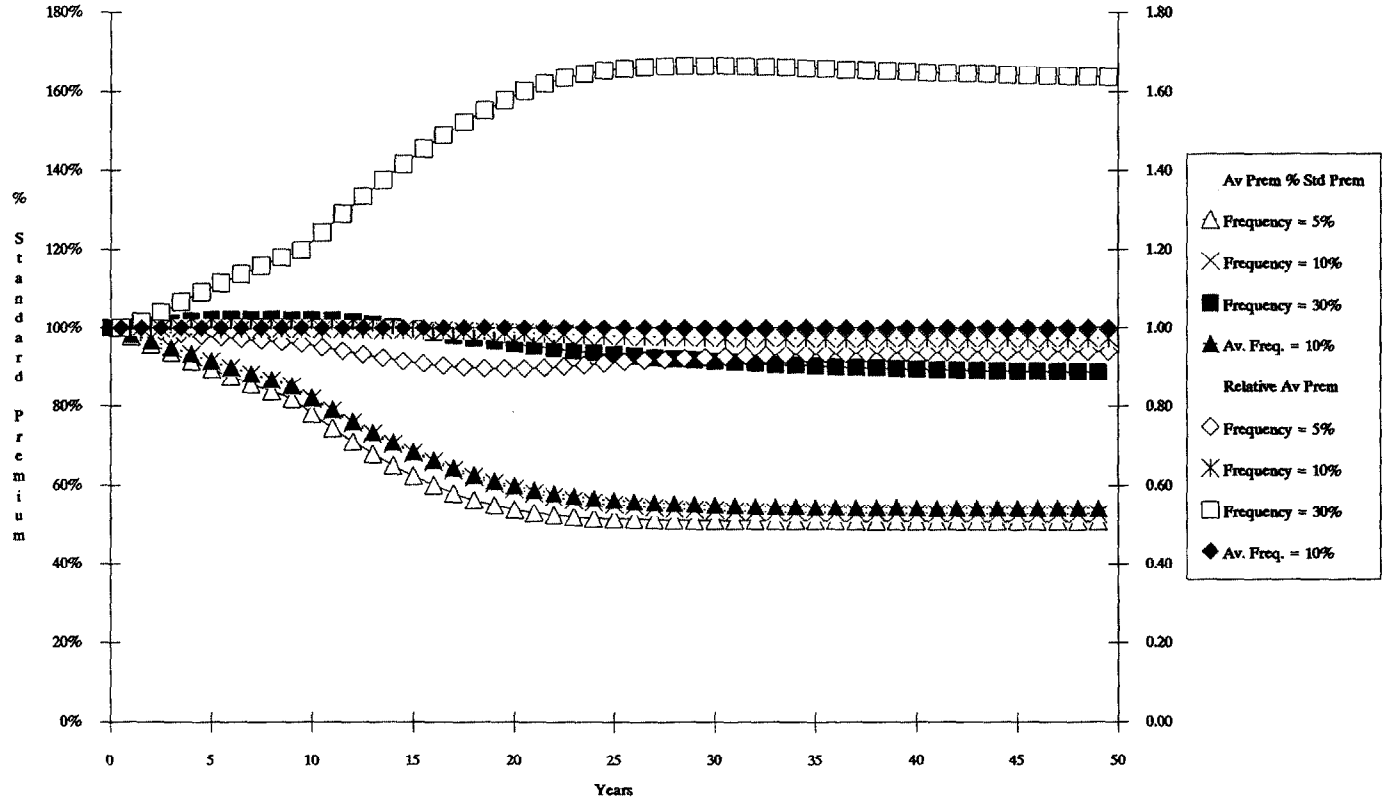
NOTES: (3) The Belgian system provides that after 4 claim-free years, the maximum coefficient is 1.00. This feature has not been modelled.

SUMMARY

RESULTS

	Italian System						Dutch System						Belgian System					
Number of Grades	18						14						22					
Entry Grade	6						2						9					
	"EFFICIENCY" OF SYSTEM FOR A SUB-CLASS OF INSUREDS																	
Sub-Class: Frequency =		5%	10%	30%	TOTAL:	10%		5%	10%	30%	TOTAL:	10%		5%	10%	30%	TOTAL:	10%
Av Prem % Std @ Yr 10		80.63%	84.45%	106.07%		84.77%		61.62%	67.13%	87.20%		67.04%		84.96%	90.52%	116.55%		90.71%
30		50.61%	52.26%	95.02%		54.07%		32.62%	37.44%	77.83%		38.50%		56.54%	65.19%	136.76%		67.04%
50		50.53%	51.31%	85.85%		52.88%		32.48%	36.52%	76.85%		37.73%		55.44%	60.23%	139.23%		63.23%
Rel Av Prem @ Yr 10		0.95	1.00	1.25		1.00		0.92	1.00	1.30		1.00		0.94	1.00	1.28		1.00
30		0.94	0.97	1.76		1.00		0.85	0.97	2.02		1.00		0.84	0.97	2.04		1.00
50		0.96	0.97	1.62		1.00		0.86	0.97	2.04		1.00		0.88	0.95	2.20		1.00
Efficiency @ Yr 10		10 %	#N/A	13 %				16 %	#N/A	15 %				13 %	#N/A	14 %		
30		13 %	#N/A	38 %				31 %	#N/A	51 %				31 %	#N/A	52 %		
50		9 %	#N/A	31 %				28 %	#N/A	52 %				25 %	#N/A	60 %		
	STANDARDISED STANDARD PREMIUM																	
Av Std Prem Yr 50	53%						38%						63%					
Index to Standardise Prem	1.18						1.66						1.01					
	2 EXAMPLES OF THE IMPLICIT EXCESS OR DEDUCTIBLE																	
Starting Grade	12	3					10	4					13	5				
Indicated Excess (% Std Pr)	72%	315%					70%	255%					172%	345%				
Excess % SSP	85%	373%					116%	423%					174%	348%				
	TEST OF FAIRNESS TO INDIVIDUAL INSUREDS: PREMIUM PAID OVER 10 YEARS:																	
Starting Grade	12	12	12	12	12	12	10	10	10	10	10	10	13	13	13	13	13	13
Claims in Years:	NONE	0	2,5,8	0,4,8	0,1,2	7,8,9	NONE	0	1,4,7	0,4,8	0,1,2	7,8,9	NONE	0	2,5,8	0,4,8	0,1,2	7,8,9
Std Premiums Paid	5.46	6.18	6.60	6.96	8.18	5.84	3.15	3.85	5.38	4.85	7.60	4.20	6.27	7.99	9.07	9.76	13.09	7.24
Rel to AVERAGE line abov	83.53%	94.54%	100.97%	106.48%	125.14%	89.34%	65.11%	79.57%	111.20%	100.24%	157.08%	86.81%	70.42%	89.74%	101.87%	109.62%	147.02%	81.32%
MIN & MAX of line above	MIN	83.53%	MAX	125.14%			MIN	65.11%	MAX	157.08%			MIN	70.42%	MAX	147.02%		
Std Deviation line -2 above	STANDARD DEVIATION:			13.48%			STANDARD DEVIATION:			29.42%			STANDARD DEVIATION:			24.62%		

BONUS/MALUS SYSTEM MODEL - French



NCD1C1.XLC

4:22 PM 1/1/91

BONUS/MALUS SYSTEM MODEL - French — Probability Claim 5.00% — NUMBER OF INSUREDS — Premium

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50	Scale
NEW ENTRANTS:	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	0	0	0	0	0	0	100.00%
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	300.00%
2	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	250.00%
3	0	0	0	1	4	6	7	8	8	9	9	9	1	0	0	0	200.00%
4	0	0	0	0	0	0	1	2	2	3	3	3	1	0	0	0	175.00%
5	0	0	25	49	51	55	56	57	60	61	61	62	3	0	0	0	150.00%
6	0	0	0	24	69	71	78	82	83	84	87	87	6	1	1	1	137.50%
7	0	0	0	0	0	43	63	68	77	83	85	89	12	1	1	1	125.00%
8	0	500	975	999	1 044	1 068	1 093	1 137	1 180	1 206	1 222	737	64	6	3	3	112.50%
9	10 000	10 000	10 475	11 378	11 423	11 531	11 638	11 671	11 709	11 762	1 790	1 805	104	19	16	16	100.00%
10	0	9 500	9 500	9 951	11 237	11 280	11 403	11 583	11 616	11 658	11 738	2 266	202	22	16	16	95.00%
11	0	0	9 025	9 025	9 454	11 083	11 123	11 260	11 522	11 555	11 602	11 711	294	28	17	17	90.00%
12	0	0	0	8 574	8 574	8 981	10 915	10 954	11 102	11 456	11 489	11 542	384	36	20	19	85.00%
13	0	0	0	0	8 145	8 145	8 532	10 737	10 774	10 932	11 384	11 418	897	66	44	43	80.00%
14	0	0	0	0	0	7 738	7 738	8 105	10 550	10 584	10 751	11 307	1 277	322	277	276	76.00%
15	0	0	0	0	0	0	7 351	7 351	7 700	10 354	10 387	10 561	1 432	330	278	275	72.00%
16	0	0	0	0	0	0	0	6 983	6 983	7 315	10 151	10 183	4 391	345	278	275	68.00%
17	0	0	0	0	0	0	0	0	6 634	6 634	6 949	9 943	4 903	459	289	285	64.00%
18	0	0	0	0	0	0	0	0	0	6 302	6 302	6 602	5 185	697	513	504	60.00%
19	0	0	0	0	0	0	0	0	0	0	5 987	5 987	13 223	5 031	4 919	4 914	57.00%
20	0	0	0	0	0	0	0	0	0	0	0	5 688	11 844	5 029	4 674	4 668	54.00%
21	0	0	0	0	0	0	0	0	0	0	0	0	10 823	4 753	4 451	4 435	51.00%
22	0	0	0	0	0	0	0	0	0	0	0	0	44 954	82 855	84 202	84 251	50.00%
TOTAL	10 000	20 000	30 000	40 000	50 000	60 000	70 000	80 000	90 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	Loading

Probability Claim 10.00%

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50	Scale
NEW ENTRANTS	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	0	0	0	0	0	0	100.00%
1	0	0	0	0	0	0	0	1	2	2	3	3	2	0	0	0	300.00%
2	0	0	0	0	1	4	7	10	12	13	14	15	5	1	1	1	250.00%
3	0	0	0	10	28	46	57	63	70	75	78	82	21	6	4	3	200.00%
4	0	0	0	0	0	0	7	14	16	21	25	26	17	3	1	1	175.00%
5	0	0	100	190	208	232	243	255	272	282	289	298	47	11	5	5	150.00%
6	0	0	0	90	252	268	312	341	351	368	386	392	73	22	17	16	137.50%
7	0	0	0	0	0	146	211	244	297	336	355	383	140	38	22	20	125.00%
8	0	1 000	1 900	1 990	2 152	2 241	2 344	2 499	2 645	2 753	2 844	1 938	509	130	73	65	112.50%
9	10 000	10 000	10 900	12 520	12 682	13 055	13 420	13 568	13 744	13 959	4 087	4 188	760	245	174	163	100.00%
10	0	9 000	9 000	9 810	11 997	12 143	12 544	13 109	13 254	13 450	13 756	4 884	1 166	297	191	176	95.00%
11	0	0	8 100	8 100	8 829	11 453	11 585	12 005	12 779	12 920	13 136	13 538	1 539	395	212	190	90.00%
12	0	0	0	7 290	7 290	7 946	10 899	11 017	11 448	12 431	12 568	12 801	1 870	494	262	226	85.00%
13	0	0	0	0	6 561	6 561	7 151	10 340	10 446	10 882	12 069	12 200	3 249	713	439	397	80.00%
14	0	0	0	0	0	5 905	5 905	6 436	9 784	9 880	10 315	11 693	4 019	1 652	1 250	1 210	76.00%
15	0	0	0	0	0	0	5 314	5 314	5 793	9 236	9 323	9 753	4 241	1 690	1 270	1 198	72.00%
16	0	0	0	0	0	0	0	4 783	4 783	5 213	8 700	8 778	7 853	1 746	1 273	1 196	68.00%
17	0	0	0	0	0	0	0	0	4 305	4 305	4 692	8 179	7 929	2 274	1 344	1 255	64.00%
18	0	0	0	0	0	0	0	0	0	3 874	3 874	4 223	7 936	2 945	2 111	1 960	60.00%
19	0	0	0	0	0	0	0	0	0	0	3 487	3 487	13 339	9 394	9 256	9 213	57.00%
20	0	0	0	0	0	0	0	0	0	0	0	3 138	10 574	9 071	8 319	8 289	54.00%
21	0	0	0	0	0	0	0	0	0	0	0	0	8 896	7 960	7 567	7 459	51.00%
22	0	0	0	0	0	0	0	0	0	0	0	0	25 818	60 914	66 209	66 957	50.00%
TOTAL	10 000	20 000	30 000	40 000	50 000	60 000	70 000	80 000	90 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	Loading
																450	10
																	5

BONUS/MALUS SYSTEM MODEL - French — Probability Claim 30.00% — NUMBER OF INSUREDS

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50	Scale
NEW ENTRANTS	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	0	0	0	0	0	0	100.00%
1	0	0	0	0	0	24	100	221	364	509	655	798	1 299	1 080	986	944	300.00%
2	0	0	0	0	81	251	444	611	753	893	1 022	1 145	1 162	1 001	931	899	250.00%
3	0	0	0	270	648	1 026	1 317	1 587	1 866	2 102	2 345	2 589	2 217	1 938	1 813	1 758	200.00%
4	0	0	0	0	0	0	93	157	216	325	416	490	846	752	708	684	175.00%
5	0	0	900	1 530	1 908	2 305	2 556	2 855	3 150	3 396	3 653	3 933	2 471	2 182	2 030	1 966	150.00%
6	0	0	0	630	1 512	1 777	2 332	2 703	3 003	3 346	3 675	3 933	2 808	2 458	2 336	2 274	137.50%
7	0	0	0	0	0	617	833	1 158	1 566	1 906	2 194	2 555	2 986	2 694	2 537	2 473	125.00%
8	0	3 000	5 100	5 730	6 612	7 185	7 904	8 709	9 474	10 228	11 030	8 827	7 420	6 644	6 280	6 125	112.50%
9	10 000	10 000	12 100	15 040	15 922	17 598	19 181	20 326	21 659	23 023	14 178	15 380	11 403	10 129	9 552	9 271	100.00%
10	0	7 000	7 000	8 470	11 557	12 174	13 564	15 277	16 169	17 338	18 708	12 661	10 716	9 225	8 692	8 440	95.00%
11	0	0	4 900	4 900	5 929	8 810	9 242	10 366	12 095	12 783	13 788	15 132	9 697	8 569	7 888	7 668	90.00%
12	0	0	0	3 430	3 430	4 150	6 671	6 974	7 866	9 521	10 047	10 898	8 386	7 735	7 310	7 032	85.00%
13	0	0	0	0	2 401	2 401	2 905	5 023	5 235	5 933	7 455	7 854	8 278	6 993	6 815	6 707	80.00%
14	0	0	0	0	0	1 681	1 681	2 034	3 763	3 911	4 452	5 808	6 935	6 857	6 617	6 655	76.00%
15	0	0	0	0	0	0	1 176	1 176	1 424	2 807	2 911	3 326	5 444	5 709	5 763	5 664	72.00%
16	0	0	0	0	0	0	0	824	824	996	2 086	2 159	5 317	4 729	4 875	4 907	68.00%
17	0	0	0	0	0	0	0	0	576	576	698	1 545	3 813	4 375	4 195	4 279	64.00%
18	0	0	0	0	0	0	0	0	0	404	404	488	2 804	3 775	4 100	4 119	60.00%
19	0	0	0	0	0	0	0	0	0	0	282	282	2 605	4 193	5 130	5 532	57.00%
20	0	0	0	0	0	0	0	0	0	0	0	198	1 412	3 053	3 521	3 835	54.00%
21	0	0	0	0	0	0	0	0	0	0	0	0	867	1 977	2 497	2 662	51.00%
22	0	0	0	0	0	0	0	0	0	0	0	0	1 115	3 931	5 424	6 107	50.00%
TOTAL	10 000	20 000	30 000	40 000	50 000	60 000	70 000	80 000	90 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	Loading

Weighted Average — Type 1 20.00% — Type 2 75.00% — Type 3 5.00% — Probability Claim 5.00% Average 10.00% — 10.00%

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50	Scale
																	100.00%
1	0	0	0	0	0	1	5	12	20	27	35	42	66	54	49	47	300.00%
2	0	0	0	0	5	15	28	38	46	54	62	68	62	51	47	45	250.00%
3	0	0	0	21	54	87	110	129	148	163	178	193	126	101	93	90	200.00%
4	0	0	0	0	0	0	10	19	23	32	40	45	55	40	36	35	175.00%
5	0	0	125	229	262	300	321	346	373	393	411	433	159	118	106	102	150.00%
6	0	0	0	104	278	304	366	407	430	460	491	508	196	140	129	126	137.50%
7	0	0	0	0	0	149	213	255	317	364	393	433	257	163	144	139	125.00%
8	0	1 000	1 875	1 979	2 153	2 254	2 372	2 537	2 693	2 817	2 929	2 043	766	431	369	356	112.50%
9	10 000	10 000	10 875	12 418	12 592	12 977	13 352	13 526	13 733	13 973	4 132	4 271	1 161	694	611	589	100.00%
10	0	9 000	9 000	9 771	11 823	11 972	12 367	12 912	13 072	13 286	13 600	4 749	1 450	688	581	557	95.00%
11	0	0	8 125	8 125	8 809	11 247	11 375	11 774	12 493	12 640	12 862	13 252	1 698	731	557	530	90.00%
12	0	0	0	7 354	7 354	7 963	10 691	10 802	11 200	12 091	12 226	12 454	1 898	764	566	525	85.00%
13	0	0	0	0	6 670	6 670	7 215	10 154	10 251	10 645	11 701	11 827	3 030	898	679	642	80.00%
14	0	0	0	0	0	6 060	6 060	6 550	9 636	9 723	10 109	11 322	3 616	1 646	1 324	1 295	76.00%
15	0	0	0	0	0	0	5 515	5 515	5 956	9 138	9 215	9 593	3 739	1 619	1 296	1 237	72.00%
16	0	0	0	0	0	0	0	5 025	5 025	5 423	8 660	8 728	7 034	1 615	1 254	1 198	68.00%
17	0	0	0	0	0	0	0	0	4 584	4 584	4 944	8 200	7 118	2 016	1 276	1 212	64.00%
18	0	0	0	0	0	0	0	0	0	4 186	4 186	4 512	7 129	2 537	1 891	1 777	60.00%
19	0	0	0	0	0	0	0	0	0	0	3 827	3 827	12 779	8 261	8 182	8 169	57.00%
20	0	0	0	0	0	0	0	0	0	0	0	3 501	10 370	7 961	7 350	7 342	54.00%
21	0	0	0	0	0	0	0	0	0	0	0	0	8 880	7 019	6 690	6 615	51.00%
22	0	0	0	0	0	0	0	0	0	0	0	0	28 410	62 453	66 768	67 373	50.00%
TOTAL	10 000	20 000	30 000	40 000	50 000	60 000	70 000	80 000	90 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	Av Prem

30
10
5

BONUS/MALUS SYSTEM MODEL - French

Probability Claim 5.00% UNITS OF STANDARD PREMIUM

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	1	1	2	2	2	2	2	0	0	0	0
3	0	0	0	3	7	12	15	16	17	17	18	18	2	0	0	0
4	0	0	0	0	0	0	2	4	4	5	5	5	2	0	0	0
5	0	0	38	73	77	82	84	86	89	91	92	93	4	0	0	0
6	0	0	0	33	95	98	107	113	114	116	119	120	8	1	1	1
7	0	0	0	0	0	54	79	85	96	104	106	111	15	2	1	1
8	0	563	1 097	1 124	1 174	1 201	1 230	1 280	1 327	1 357	1 374	830	72	6	4	4
9	10 000	10 000	10 475	11 378	11 423	11 531	11 638	11 671	11 709	11 762	1 790	1 805	104	19	16	16
10	0	9 025	9 025	9 454	10 675	10 716	10 833	11 004	11 035	11 075	11 151	2 153	192	21	16	15
11	0	0	8 123	8 123	8 508	9 974	10 011	10 134	10 370	10 400	10 442	10 540	265	26	16	15
12	0	0	0	7 288	7 288	7 634	9 278	9 311	9 437	9 738	9 766	9 810	326	30	17	17
13	0	0	0	0	6 516	6 516	6 826	8 590	8 619	8 746	9 107	9 134	718	53	35	35
14	0	0	0	0	0	5 881	5 881	6 160	8 018	8 044	8 171	8 593	970	245	211	210
15	0	0	0	0	0	0	5 293	5 293	5 544	7 455	7 479	7 604	1 031	238	200	198
16	0	0	0	0	0	0	0	4 749	4 749	4 974	6 903	6 924	2 986	235	189	187
17	0	0	0	0	0	0	0	0	4 246	4 246	4 448	6 364	3 138	293	185	183
18	0	0	0	0	0	0	0	0	0	3 781	3 781	3 961	3 111	418	308	303
19	0	0	0	0	0	0	0	0	0	0	3 413	3 413	7 537	2 868	2 804	2 801
20	0	0	0	0	0	0	0	0	0	0	0	3 072	6 396	2 716	2 524	2 521
21	0	0	0	0	0	0	0	0	0	0	0	0	5 520	2 424	2 270	2 262
22	0	0	0	0	0	0	0	0	0	0	0	0	22 477	41 427	42 101	42 125
	10 000	19 588	28 757	37 473	45 763	53 699	61 277	68 495	75 375	81 913	78 168	74 551	54 874	51 022	50 897	50 893
	100.00%	97.94%	95.86%	93.68%	91.53%	89.50%	87.54%	85.62%	83.75%	81.91%	78.17%	74.55%	54.87%	51.02%	50.90%	50.89%

Probability Claim 10.00%

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50
1	0	0	0	0	0	0	1	3	5	7	8	9	5	1	1	0
2	0	0	0	0	3	9	18	25	29	32	35	36	13	3	2	2
3	0	0	0	20	56	92	115	127	141	150	157	164	41	11	7	7
4	0	0	0	0	0	0	13	24	28	36	43	46	29	6	2	2
5	0	0	150	285	312	348	364	383	408	422	433	447	71	17	8	7
6	0	0	0	124	347	369	429	469	483	506	531	539	100	31	23	22
7	0	0	0	0	0	182	264	305	372	420	444	479	175	47	28	25
8	0	1 125	2 138	2 239	2 421	2 521	2 637	2 812	2 975	3 097	3 200	2 181	573	146	82	73
9	10 000	10 000	10 900	12 520	12 682	13 055	13 420	13 568	13 744	13 959	4 087	4 188	760	245	174	163
10	0	8 550	8 550	9 320	11 397	11 536	11 917	12 453	12 591	12 778	13 068	4 640	1 107	282	181	167
11	0	0	7 290	7 290	7 946	10 308	10 426	10 804	11 501	11 628	11 822	12 184	1 385	356	191	171
12	0	0	0	6 197	6 197	6 754	9 264	9 364	9 731	10 567	10 683	10 881	1 589	420	223	192
13	0	0	0	0	5 249	5 249	5 721	8 272	8 357	8 706	9 655	9 760	2 599	570	351	318
14	0	0	0	0	0	4 488	4 488	4 892	7 436	7 509	7 840	8 887	3 054	1 255	950	920
15	0	0	0	0	0	0	3 826	3 826	4 171	6 650	6 712	7 022	3 053	1 217	915	863
16	0	0	0	0	0	0	0	3 252	3 252	3 545	5 916	5 969	5 340	1 187	866	813
17	0	0	0	0	0	0	0	0	2 755	2 755	3 003	5 234	5 075	1 455	860	803
18	0	0	0	0	0	0	0	0	0	2 325	2 325	2 534	4 761	1 767	1 266	1 176
19	0	0	0	0	0	0	0	0	0	0	1 987	1 987	7 603	5 354	5 276	5 251
20	0	0	0	0	0	0	0	0	0	0	0	1 695	5 710	4 898	4 492	4 476
21	0	0	0	0	0	0	0	0	0	0	0	0	4 537	4 060	3 859	3 804
22	0	0	0	0	0	0	0	0	0	0	0	0	12 909	30 457	33 104	33 478
	10 000	19 675	29 028	37 994	46 609	54 911	62 903	70 580	77 978	85 090	81 948	78 883	60 490	53 785	52 862	52 733
Frequency = 10	100.00%	98.38%	96.76%	94.98%	93.22%	91.52%	89.86%	88.23%	86.64%	85.09%	81.95%	78.88%	60.49%	53.79%	52.86%	52.73%
Frequency = 5%	100.00%	97.94%	95.86%	93.68%	91.53%	89.50%	87.54%	85.62%	83.75%	81.91%	78.17%	74.55%	54.87%	51.02%	50.90%	50.89%

BONUS/MALUS SYSTEM MODEL - French — Probability Claim 30.00% — UNITS OF STANDARD PREMIUM

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50
1	0	0	0	0	0	73	299	663	1 091	1 528	1 965	2 393	3 897	3 240	2 957	2 831
2	0	0	0	0	203	628	1 110	1 526	1 882	2 232	2 556	2 862	2 906	2 502	2 328	2 249
3	0	0	0	540	1 296	2 052	2 634	3 174	3 731	4 204	4 689	5 178	4 433	3 876	3 625	3 517
4	0	0	0	0	0	0	162	276	378	568	728	857	1 480	1 316	1 239	1 197
5	0	0	1 350	2 295	2 862	3 457	3 834	4 283	4 724	5 095	5 479	5 899	3 706	3 272	3 046	2 948
6	0	0	0	866	2 079	2 443	3 207	3 716	4 129	4 601	5 053	5 408	3 861	3 380	3 212	3 126
7	0	0	0	0	0	772	1 042	1 447	1 958	2 383	2 743	3 194	3 733	3 368	3 172	3 091
8	0	3 375	5 738	6 446	7 439	8 083	8 892	9 798	10 658	11 506	12 409	9 931	8 347	7 475	7 065	6 890
9	10 000	10 000	12 100	15 040	15 922	17 598	19 181	20 326	21 659	23 023	14 178	15 380	11 403	10 129	9 552	9 271
10	0	6 650	6 650	8 047	10 979	11 566	12 885	14 513	15 361	16 471	17 773	12 028	10 180	8 764	8 257	8 018
11	0	0	4 410	4 410	5 336	7 929	8 318	9 329	10 885	11 505	12 410	13 618	8 727	7 712	7 099	6 901
12	0	0	0	2 916	2 916	3 528	5 671	5 928	6 686	8 093	8 540	9 263	7 128	6 575	6 213	5 977
13	0	0	0	0	1 921	1 921	2 324	4 018	4 188	4 747	5 964	6 284	6 623	5 595	5 452	5 366
14	0	0	0	0	0	1 277	1 277	1 546	2 860	2 973	3 384	4 414	5 270	5 211	5 029	5 058
15	0	0	0	0	0	0	847	847	1 025	2 021	2 096	2 395	3 920	4 110	4 149	4 078
16	0	0	0	0	0	0	0	560	560	678	1 419	1 468	3 616	3 216	3 315	3 336
17	0	0	0	0	0	0	0	0	369	369	446	989	2 441	2 800	2 685	2 738
18	0	0	0	0	0	0	0	0	0	242	242	293	1 682	2 265	2 460	2 471
19	0	0	0	0	0	0	0	0	0	0	161	161	1 485	2 390	2 924	3 153
20	0	0	0	0	0	0	0	0	0	0	0	107	762	1 649	1 901	2 071
21	0	0	0	0	0	0	0	0	0	0	0	0	442	1 008	1 274	1 358
22	0	0	0	0	0	0	0	0	0	0	0	0	557	1 965	2 712	3 053
	10 000	20 025	30 248	40 560	50 952	61 327	71 684	81 950	92 143	102 240	102 235	102 121	96 599	91 819	89 667	88 700
Frequency = 30	100.00%	100.13%	100.83%	101.40%	101.90%	102.21%	102.41%	102.44%	102.38%	102.24%	102.23%	102.12%	96.60%	91.82%	89.67%	88.70%
Frequency = 10	100.00%	98.38%	96.76%	94.98%	93.22%	91.52%	89.86%	88.23%	86.64%	85.09%	81.95%	78.88%	60.49%	53.79%	52.86%	52.73%
Frequency = 5%	100.00%	97.94%	95.86%	93.68%	91.53%	89.50%	87.54%	85.62%	83.75%	81.91%	78.17%	74.55%	54.87%	51.02%	50.90%	50.89%

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50
1	0	0	0	0	0	4	16	36	59	82	104	126	199	163	148	142
2	0	0	0	0	12	38	69	95	116	136	154	171	155	127	118	114
3	0	0	0	43	108	174	221	257	295	326	356	386	253	202	187	181
4	0	0	0	0	0	0	18	33	40	56	70	78	96	70	64	61
5	0	0	188	343	392	451	482	519	560	590	617	649	239	176	158	153
6	0	0	0	143	383	418	503	560	591	632	675	698	270	192	178	173
7	0	0	0	0	0	186	266	318	396	455	491	541	321	204	180	174
8	0	1 125	2 109	2 226	2 423	2 535	2 668	2 855	3 030	3 170	3 295	2 298	861	485	415	400
9	10 000	10 000	10 875	12 418	12 592	12 977	13 352	13 526	13 733	13 973	4 132	4 271	1 161	694	611	589
10	0	8 550	8 550	9 283	11 232	11 373	11 748	12 266	12 418	12 622	12 920	4 512	1 378	654	552	529
11	0	0	7 313	7 313	7 928	10 122	10 238	10 596	11 244	11 376	11 575	11 927	1 528	658	501	477
12	0	0	0	6 251	6 251	6 769	9 087	9 182	9 520	10 277	10 392	10 586	1 613	650	481	446
13	0	0	0	0	5 336	5 336	5 772	8 123	8 201	8 516	9 361	9 461	2 424	718	543	514
14	0	0	0	0	0	4 606	4 606	4 978	7 324	7 389	7 683	8 605	2 748	1 251	1 006	985
15	0	0	0	0	0	0	3 971	3 971	4 288	6 580	6 635	6 907	2 692	1 166	933	890
16	0	0	0	0	0	0	0	3 417	3 417	3 688	5 889	5 935	4 783	1 098	853	814
17	0	0	0	0	0	0	0	0	2 934	2 934	3 164	5 248	4 556	1 290	816	776
18	0	0	0	0	0	0	0	0	0	2 512	2 512	2 707	4 277	1 522	1 134	1 066
19	0	0	0	0	0	0	0	0	0	0	2 181	2 181	7 284	4 709	4 664	4 656
20	0	0	0	0	0	0	0	0	0	0	0	1 891	5 600	4 299	3 969	3 965
21	0	0	0	0	0	0	0	0	0	0	0	0	4 529	3 580	3 412	3 373
22	0	0	0	0	0	0	0	0	0	0	0	0	14 205	31 226	33 384	33 687
167%	10 000	19 675	29 034	38 018	46 657	54 990	63 017	70 732	78 166	85 312	82 206	79 179	61 173	55 134	54 309	54 163

BONUS/MALUS SYSTEM MODEL - French

CALCULATION OF IMPLICIT EXCESS OR DEDUCTIBLE

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	%Std Prem	Premium Prem
Claim in Yea	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
1												0.00	100.00%	0.00
2												0.00	95.00%	0.00
3												0.00	90.00%	0.00
4	1.00											0.00	85.00%	0.00
5		1.00										1.00	80.00%	0.80
6			1.00									1.00	76.00%	0.76
7				1.00								1.00	72.00%	0.72
8					1.00							1.00	68.00%	0.68
9						1.00						1.00	64.00%	0.64
10							1.00					1.00	60.00%	0.60
11								1.00				1.00	57.00%	0.57
12									1.00			1.00	54.00%	0.54
13										1.00		1.00	51.00%	0.51
14											1.00	1.00	50.00%	0.50
TOTAL	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	10.00	TOTAL	6.32
													Average	0.63

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	%Std Prem	Premium Prem
Claim in Yea	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
1												0.00	100.00%	0.00
2												0.00	95.00%	0.00
3												1.00	90.00%	0.90
4												1.00	85.00%	0.85
5												1.00	80.00%	0.80
6												1.00	76.00%	0.76
7												1.00	72.00%	0.72
8												1.00	68.00%	0.68
9												1.00	64.00%	0.64
10	1.00											1.00	60.00%	0.60
11		1.00										1.00	57.00%	0.57
12			1.00									1.00	54.00%	0.54
13				1.00								0.00	51.00%	0.00
14					1.00							0.00	50.00%	0.00
TOTAL	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	10.00	TOTAL	7.06
													Average	0.71

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	%Std Prem	Premium Prem
Claim?	1.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
1												0.00	100.00%	0.00
2												0.00	95.00%	0.00
3												0.00	90.00%	0.00
4	1.00	1.13										1.13	85.00%	0.96
5			1.13									1.13	80.00%	0.90
6				1.00								1.00	76.00%	0.76
7					1.00							1.00	72.00%	0.72
8						1.00						1.00	68.00%	0.68
9							1.00					1.00	64.00%	0.64
10								1.00				1.00	60.00%	0.60
11									1.00			1.00	57.00%	0.57
12										1.00		1.00	54.00%	0.54
13											1.00	1.00	51.00%	0.51
14												0.00	50.00%	0.00
TOTAL	1.00	1.13	1.13	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	10.25	TOTAL	6.88
													Average	0.67
													Excess	0.56

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	%Std Prem	Premium Prem
Claim?	1.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
1												0.00	100.00%	0.00
2												0.00	95.00%	0.00
3												1.13	90.00%	1.01
4	1.00	1.13										1.13	85.00%	0.96
5			1.13									1.00	80.00%	0.80
6				1.00								1.00	76.00%	0.76
7					1.00							1.00	72.00%	0.72
8						1.00						1.00	68.00%	0.68
9							1.00					1.00	64.00%	0.64
10								1.00				1.00	60.00%	0.60
11									1.00			1.00	57.00%	0.57
12										1.00		0.00	54.00%	0.00
13											1.00	0.00	51.00%	0.00
14												0.00	50.00%	0.00
TOTAL	1.00	1.13	1.13	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	10.25	TOTAL	7.70
													Average	0.75
													Excess	0.64

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	%Std Prem	Premium Prem
Claim?	0.00	0.00	1.13	0.00	0.00	1.13	0.00	0.00	1.13	0.00				
1														
2														
3														
4														
5														
6														
7														
8														
9												0.00	100.00%	0.00
10												0.00	95.00%	0.00
11												0.00	90.00%	0.00
12	1.00											0.00	85.00%	0.00
13		1.00										1.00	80.00%	0.80
14			1.00	1.13								2.13	76.00%	1.62
15					1.13							1.13	72.00%	0.81
16						1.00	1.13					2.13	68.00%	1.45
17								1.13				1.13	64.00%	0.72
18									1.00	1.13		2.13	60.00%	1.28
19											1.13	1.13	57.00%	0.64
20												0.00	54.00%	0.00
21												0.00	51.00%	0.00
22												0.00	50.00%	0.00
TOTAL	1.00	1.00	1.00	1.13	1.13	1.00	1.13	1.13	1.00	1.13	1.13	10.75	TOTAL	7.31

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	%Std Prem	Premium Prem
Claim?	1.13	1.13	1.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
1														
2														
3														
4														
5														
6														
7														
8														
9												0.00	100.00%	0.00
10												0.00	95.00%	0.00
11												0.00	90.00%	0.00
12	1.00	1.13	1.27	1.42								3.81	85.00%	3.24
13					1.42							1.42	80.00%	1.14
14						1.00						1.00	76.00%	0.76
15							1.00					1.00	72.00%	0.72
16								1.00				1.00	68.00%	0.68
17									1.00			1.00	64.00%	0.64
18										1.00		1.00	60.00%	0.60
19											1.00	1.00	57.00%	0.57
20												0.00	54.00%	0.00
21												0.00	51.00%	0.00
22												0.00	50.00%	0.00
TOTAL	1.00	1.13	1.27	1.42	1.42	1.00	1.00	1.00	1.00	1.00	1.00	11.24	TOTAL	8.35

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	%Std Prem	Premium Prem
Claim?	1.13	0.00	1.13	0.00	1.13	0.00	0.00	0.00	0.00	0.00				
1														
2														
3														
4														
5														
6														
7														
8														
9												0.00	100.00%	0.00
10												0.00	95.00%	0.00
11												0.00	90.00%	0.00
12	1.00	1.13										1.13	85.00%	0.96
13			1.13	1.27								2.39	80.00%	1.91
14					1.27	1.42						2.69	76.00%	2.04
15							1.42					1.42	72.00%	1.03
16								1.00				1.00	68.00%	0.68
17									1.00			1.00	64.00%	0.64
18										1.00		1.00	60.00%	0.60
19											1.00	1.00	57.00%	0.57
20												0.00	54.00%	0.00
21												0.00	51.00%	0.00
22												0.00	50.00%	0.00
TOTAL	1.00	1.13	1.13	1.27	1.27	1.42	1.42	1.00	1.00	1.00	1.00		TOTAL	8.43

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	%Std Prem	Premium Prem
Claim?	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13	1.13	1.13				
1														
2														
3														
4														
5														
6														
7														
8														
9												0.00	100.00%	0.00
10												0.00	95.00%	0.00
11												0.00	90.00%	0.00
12	1.00											0.00	85.00%	0.00
13		1.00										1.00	80.00%	0.80
14			1.00									1.00	76.00%	0.76
15				1.00								1.00	72.00%	0.72
16					1.00							1.00	68.00%	0.68
17						1.00						1.00	64.00%	0.64
18							1.00					1.00	60.00%	0.60
19								1.00	1.13	1.27	1.42	4.81	57.00%	2.74
20												0.00	54.00%	0.00
21												0.00	51.00%	0.00
22												0.00	50.00%	0.00
TOTAL	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.13	1.27	1.42	10.81	TOTAL	6.94

BONUS/MALUS SYSTEM MODEL - French Probability Claim: 5.00%

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50	Premium Scale
NO CLAIMS 2 YRS	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	0	0	0	0	0	0	100.00%
9	10 000	10 000	10 000	10 000	10 023	10 045	10 069	10 092	10 116	10 140	163	171	62	4	2	2	100.00%
10		9 500	9 500	9 951	10 380	10 423	10 485	10 529	10 556	10 584	10 609	1 134	95	6	2	2	95.00%
11		0	9 025	9 025	9 454	10 268	10 309	10 407	10 503	10 533	10 567	10 615	170	20	14	14	90.00%
12		0	0	8 574	8 574	8 981	10 142	10 180	10 292	10 453	10 483	10 521	242	24	15	15	85.00%
13		0	0	0	8 145	8 145	8 532	10 002	10 039	10 162	10 399	10 429	523	31	16	15	80.00%
14		0	0	0	0	7 738	7 738	8 105	9 851	9 886	10 020	10 339	774	53	19	18	76.00%
15		0	0	0	0	0	7 351	7 351	7 700	9 690	9 724	9 866	950	87	41	39	72.00%
16		0	0	0	0	0	0	6 983	6 983	7 315	9 521	9 552	3 328	301	251	249	68.00%
17		0	0	0	0	0	0	0	6 634	6 634	6 949	9 344	3 873	377	251	248	64.00%
18		0	0	0	0	0	0	0	0	6 302	6 302	6 602	4 119	401	255	248	60.00%
19		0	0	0	0	0	0	0	0	0	5 987	5 987	10 335	435	265	258	57.00%
20		0	0	0	0	0	0	0	0	0	0	5 688	10 000	903	465	455	54.00%
21		0	0	0	0	0	0	0	0	0	0	0	10 823	4 753	4 451	4 435	51.00%
22		0	0	0	0	0	0	0	0	0	0	0	44 954	82 855	84 202	84 251	50.00%
Claim Last Year, Not year before																Loading	100.00%
1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	300.00%
2		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	250.00%
3		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200.00%
4		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	175.00%
5		0	0	0	1	2	2	3	3	3	3	3	0	0	0	0	150.00%
6		0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	137.50%
7		0	0	0	0	0	0	1	2	3	4	4	3	0	0	0	125.00%
8		500	975	999	1 044	1 068	1 073	1 078	1 082	1 085	1 088	590	11	1	0	0	112.50%
9		0	0	451	451	494	555	559	568	577	579	582	16	2	1	1	100.00%
10		0	0	0	429	429	449	526	528	535	547	549	28	2	1	1	95.00%
11		0	0	0	0	407	407	427	518	520	527	544	41	3	1	1	90.00%
12		0	0	0	0	0	387	387	405	510	512	519	50	5	2	2	85.00%
13		0	0	0	0	0	0	368	368	385	501	503	175	16	13	13	80.00%
14		0	0	0	0	0	0	0	349	349	366	492	204	20	13	13	76.00%
15		0	0	0	0	0	0	0	0	332	332	347	217	21	13	13	72.00%
16		0	0	0	0	0	0	0	0	0	315	315	544	23	14	14	68.00%
17		0	0	0	0	0	0	0	0	0	0	299	526	48	24	24	64.00%
18		0	0	0	0	0	0	0	0	0	0	0	570	250	234	233	60.00%
19		0	0	0	0	0	0	0	0	0	0	0	2 366	4 361	4 432	4 434	57.00%
20																	54.00%
21																	51.00%
22																	50.00%
No Claim Last Year, Claim Year Before																Loading	100.00%
1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	300.00%
2		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	250.00%
3		0	0	0	1	2	4	4	4	4	4	4	0	0	0	0	200.00%
4		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	175.00%
5		0	0	0	0	0	0	1	2	2	2	3	1	0	0	0	150.00%
6		0	0	24	46	49	52	53	53	55	56	56	3	0	0	0	137.50%
7		0	0	0	0	21	21	24	27	28	28	30	3	1	1	1	125.00%
8		0	0	0	0	0	20	40	60	83	89	97	33	3	2	2	112.50%
9		0	475	926	949	992	1 014	1 019	1 024	1 028	1 031	1 033	13	1	0	0	100.00%
10		0	0	0	429	429	469	527	531	540	564	566	52	13	13	12	95.00%
11		0	0	0	0	407	407	427	500	502	508	536	57	4	1	1	90.00%
12		0	0	0	0	0	387	387	405	493	494	501	65	5	2	2	85.00%
13		0	0	0	0	0	0	368	368	385	485	486	171	7	3	3	80.00%
14		0	0	0	0	0	0	0	349	349	366	476	202	32	24	24	76.00%
15		0	0	0	0	0	0	0	0	332	332	347	266	223	223	223	72.00%

16	0	0	0	0	0	0	0	0	0	0	315	315	519	21	13	12	68.00%
17	0	0	0	0	0	0	0	0	0	0	0	299	503	34	13	13	64.00%
18	0	0	0	0	0	0	0	0	0	0	0	0	496	47	24	23	60.00%
19	0	0	0	0	0	0	0	0	0	0	0	0	522	235	222	222	57.00%
20	0	0	0	0	0	0	0	0	0	0	0	0	1 844	4 126	4 209	4 213	54.00%
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51.00%
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50.00%

Claim Each of Last 2 Years — Loading 100.00%

1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	300.00%
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	250.00%
3	0	0	1	2	4	4	4	4	4	5	5	0	0	0	0	0	200.00%
4	0	0	0	0	0	1	2	2	2	3	3	1	0	0	0	0	175.00%
5	0	25	49	50	52	53	54	55	56	56	57	2	0	0	0	0	150.00%
6	0	0	0	23	23	25	28	28	28	30	30	3	1	1	1	1	137.50%
7	0	0	0	0	21	42	43	48	52	53	55	6	0	0	0	0	125.00%
8	0	0	0	0	0	0	19	38	39	45	51	20	2	1	1	1	112.50%
9	0	0	0	0	0	0	0	0	17	17	18	14	12	12	12	12	100.00%
10	0	0	0	0	0	0	0	0	0	17	17	27	1	1	1	1	95.00%
11	0	0	0	0	0	0	0	0	0	0	16	26	2	1	1	1	90.00%
12	0	0	0	0	0	0	0	0	0	0	0	26	2	1	1	1	85.00%
13	0	0	0	0	0	0	0	0	0	0	0	27	12	12	12	12	80.00%
14	0	0	0	0	0	0	0	0	0	0	0	97	217	222	222	222	76.00%
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72.00%
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68.00%
17																	64.00%

TOTAL

1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	300.00%
2	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	250.00%
3	0	0	0	1	4	6	7	8	8	9	9	9	1	0	0	0	200.00%
4	0	0	0	0	0	0	1	2	2	3	3	3	1	0	0	0	175.00%
5	0	0	25	49	51	55	56	57	60	61	61	62	3	0	0	0	150.00%
6	0	0	0	24	69	71	78	82	83	84	87	87	6	1	1	1	137.50%
7	0	0	0	0	0	43	63	68	77	83	85	89	12	1	1	1	125.00%
8	0	500	975	999	1 044	1 068	1 093	1 137	1 180	1 206	1 222	737	64	6	3	3	112.50%
9	10 000	10 000	10 475	11 378	11 423	11 531	11 638	11 671	11 709	11 762	1 790	1 805	104	19	16	16	100.00%
10	0	9 500	9 500	9 951	11 237	11 280	11 403	11 583	11 616	11 658	11 738	2 266	202	22	16	16	95.00%
11	0	0	9 025	9 025	9 454	11 083	11 123	11 260	11 522	11 555	11 602	11 711	294	28	17	17	90.00%
12	0	0	0	8 574	8 574	8 981	10 915	10 954	11 102	11 456	11 489	11 542	384	36	20	19	85.00%
13	0	0	0	0	8 145	8 145	8 532	10 737	10 774	10 932	11 384	11 418	897	66	44	43	80.00%
14	0	0	0	0	0	7 738	7 738	8 105	10 550	10 584	10 751	11 307	1 277	322	277	276	76.00%
15	0	0	0	0	0	0	7 351	7 351	7 700	10 354	10 387	10 561	1 432	330	278	275	72.00%
16	0	0	0	0	0	0	0	6 983	6 983	7 315	10 151	10 183	4 391	345	278	275	68.00%
17	0	0	0	0	0	0	0	0	6 634	6 634	6 949	9 943	4 903	459	289	285	64.00%
18	0	0	0	0	0	0	0	0	0	6 302	6 302	6 602	5 185	697	513	504	60.00%
19	0	0	0	0	0	0	0	0	0	0	5 987	5 987	13 223	5 031	4 919	4 914	57.00%
20	0	0	0	0	0	0	0	0	0	0	0	5 688	11 844	5 029	4 674	4 668	54.00%
21	0	0	0	0	0	0	0	0	0	0	0	0	10 823	4 753	4 451	4 435	51.00%
22	0	0	0	0	0	0	0	0	0	0	0	0	44 954	82 855	84 202	84 251	50.00%
TOTAL	10 000	20 000	30 000	40 000	50 000	60 000	70 000	80 000	90 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	

BONUS/MALUS SYSTEM MODEL - French

Probability Claim: 10.00%

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50	Premium Scale
NO CLAIMS 2 YRS	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	0	0	0	0	0	0	100.00%
9	10 000	10 000	10 000	10 000	10 081	10 162	10 250	10 339	10 428	10 516	605	656	390	89	49	43	100.00%
10		9 000	9 000	9 810	10 539	10 685	10 889	11 041	11 150	11 260	11 363	2 462	547	120	56	47	95.00%
11		0	8 100	8 100	8 829	10 141	10 272	10 574	10 870	10 990	11 133	11 307	863	237	145	133	90.00%
12		0	0	7 290	7 290	7 946	9 718	9 836	10 160	10 618	10 736	10 895	1 131	293	163	143	85.00%
13		0	0	0	6 561	6 561	7 151	9 277	9 384	9 724	10 351	10 465	1 898	367	183	156	80.00%
14		0	0	0	0	5 905	5 905	6 436	8 828	8 923	9 273	10 069	2 465	548	222	185	76.00%
15		0	0	0	0	0	5 314	5 314	5 793	8 376	8 462	8 815	2 808	748	383	323	72.00%
16		0	0	0	0	0	0	4 783	4 783	5 213	7 925	8 003	5 796	1 364	1 036	984	68.00%
17		0	0	0	0	0	0	0	4 305	4 305	4 692	7 482	6 095	1 679	1 038	974	64.00%
18		0	0	0	0	0	0	0	0	3 874	3 874	4 223	6 118	1 754	1 088	971	60.00%
19		0	0	0	0	0	0	0	0	0	3 487	3 487	9 628	1 854	1 146	1 026	57.00%
20		0	0	0	0	0	0	0	0	0	0	3 138	8 547	3 074	1 716	1 596	54.00%
21		0	0	0	0	0	0	0	0	0	0	0	8 896	7 960	7 567	7 459	51.00%
22		0	0	0	0	0	0	0	0	0	0	0	25 818	60 914	66 209	66 957	50.00%

Claim Last Year, Not year before

																Loading	
1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	300.00%
2	0	0	0	0	1	2	3	3	3	3	4	1	0	0	0	0	250.00%
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200.00%
4	0	0	0	0	0	0	0	1	1	1	2	2	0	0	0	0	175.00%
5	0	0	0	9	17	19	21	22	22	23	24	4	1	0	0	0	150.00%
6	0	0	0	0	0	7	7	9	11	11	12	4	1	1	1	1	137.50%
7	0	0	0	0	0	0	7	12	19	27	30	32	7	4	3	3	125.00%
8	1 000	1 900	1 990	2 152	2 241	2 278	2 316	2 343	2 366	2 389	1 410	124	27	12	10	10	112.50%
9	0	0	810	810	956	1 153	1 179	1 233	1 286	1 304	1 331	158	45	28	26	26	100.00%
10	0	0	0	729	729	795	1 031	1 043	1 080	1 150	1 163	211	41	20	17	17	95.00%
11	0	0	0	0	656	656	715	981	991	1 030	1 119	274	61	25	21	21	90.00%
12	0	0	0	0	0	590	590	644	931	940	979	312	83	43	36	36	85.00%
13	0	0	0	0	0	0	531	531	579	881	889	644	152	115	109	109	80.00%
14	0	0	0	0	0	0	0	478	478	521	831	677	187	115	108	108	76.00%
15	0	0	0	0	0	0	0	0	430	430	469	680	195	121	108	108	72.00%
16	0	0	0	0	0	0	0	0	0	387	387	1 070	206	127	114	114	68.00%
17	0	0	0	0	0	0	0	0	0	0	0	349	950	342	191	177	64.00%
18	0	0	0	0	0	0	0	0	0	0	0	0	988	884	841	829	60.00%
19	0	0	0	0	0	0	0	0	0	0	0	0	2 869	6 768	7 357	7 440	57.00%
20																	54.00%
21																	51.00%
22																	50.00%

No Claim Last Year, Claim Year Before

																Loading	
1	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	300.00%
2	0	0	0	0	1	3	4	5	6	6	7	3	1	0	0	0	250.00%
3	0	0	0	9	17	26	28	32	35	36	38	10	3	2	2	2	200.00%
4	0	0	0	0	0	0	0	0	1	1	1	2	0	0	0	0	175.00%
5	0	0	0	0	0	0	7	12	14	17	20	15	3	1	1	1	150.00%
6	0	0	90	171	187	209	219	224	233	241	245	36	8	4	3	3	137.50%
7	0	0	0	0	73	73	93	110	114	121	130	38	14	11	11	11	125.00%
8	0	0	0	0	0	66	125	190	269	305	347	245	63	35	30	30	112.50%
9	0	900	1 710	1 791	1 937	2 017	2 051	2 084	2 109	2 130	2 150	128	27	11	9	9	100.00%
10	0	0	0	729	729	860	1 037	1 061	1 109	1 200	1 216	297	116	102	100	100	95.00%
11	0	0	0	0	656	656	715	928	938	972	1 074	304	70	30	25	25	90.00%
12	0	0	0	0	0	590	590	644	883	892	927	335	84	37	29	29	85.00%

13		0	0	0	0	0	0	531	531	579	838	846	613	109	57	49	80.00%
14		0	0	0	0	0	0	0	478	478	521	793	651	251	179	173	76.00%
15		0	0	0	0	0	0	0	0	430	430	469	753	747	767	767	72.00%
16		0	0	0	0	0	0	0	0	0	387	387	988	176	109	98	68.00%
17		0	0	0	0	0	0	0	0	0	0	349	884	253	116	103	64.00%
18		0	0	0	0	0	0	0	0	0	0	0	829	307	182	160	60.00%
19		0	0	0	0	0	0	0	0	0	0	0	842	771	753	747	57.00%
20		0	0	0	0	0	0	0	0	0	0	0	2 027	5 997	6 603	6 693	54.00%
21		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51.00%
22		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50.00%

Claim Each of Last 2 Years — Loading 100.00%

1	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	300.00%
2	0	0	0	1	2	3	3	4	4	4	4	1	0	0	0	250.00%
3	0	0	10	19	29	31	35	39	40	42	44	10	3	2	2	200.00%
4	0	0	0	0	0	7	14	15	19	22	23	13	3	1	1	175.00%
5	0	100	190	199	215	224	228	237	246	248	254	28	7	4	3	150.00%
6	0	0	0	81	81	96	115	118	123	133	135	33	13	11	11	137.50%
7	0	0	0	0	73	139	145	175	202	207	222	71	17	7	6	125.00%
8	0	0	0	0	0	0	59	112	118	151	182	140	40	26	25	112.50%
9	0	0	0	0	0	0	0	0	48	48	52	84	83	85	85	100.00%
10	0	0	0	0	0	0	0	0	0	43	43	110	20	12	11	95.00%
11	0	0	0	0	0	0	0	0	0	0	39	98	28	13	11	90.00%
12	0	0	0	0	0	0	0	0	0	0	0	92	34	20	18	85.00%
13	0	0	0	0	0	0	0	0	0	0	0	94	86	84	83	80.00%
14	0	0	0	0	0	0	0	0	0	0	0	225	666	734	744	76.00%
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72.00%
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68.00%

TOTAL

1	0	0	0	0	0	0	0	1	2	2	3	3	2	0	0	0	300.00%
2	0	0	0	0	1	4	7	10	12	13	14	15	5	1	1	1	250.00%
3	0	0	0	10	28	46	57	63	70	75	78	82	21	6	4	3	200.00%
4	0	0	0	0	0	0	7	14	16	21	25	26	17	3	1	1	175.00%
5	0	0	100	190	208	232	243	255	272	282	289	298	47	11	5	5	150.00%
6	0	0	0	90	252	268	312	341	351	368	386	392	73	22	17	16	137.50%
7	0	0	0	0	0	146	211	244	297	336	355	383	140	38	22	20	125.00%
8	0	1 000	1 900	1 990	2 152	2 241	2 344	2 499	2 645	2 753	2 844	1 938	509	130	73	65	112.50%
9	10 000	10 000	10 900	12 520	12 682	13 055	13 420	13 568	13 744	13 959	4 087	4 188	760	245	174	163	100.00%
10	0	9 000	9 000	9 810	11 997	12 143	12 544	13 109	13 254	13 450	13 756	4 884	1 166	297	191	176	95.00%
11	0	0	8 100	8 100	8 829	11 453	11 585	12 005	12 779	12 920	13 136	13 538	1 539	395	212	190	90.00%
12	0	0	0	7 290	7 290	7 946	10 899	11 017	11 448	12 431	12 568	12 801	1 870	494	262	226	85.00%
13	0	0	0	0	6 561	6 561	7 151	10 340	10 446	10 882	12 069	12 200	3 249	713	439	397	80.00%
14	0	0	0	0	0	5 905	5 905	6 436	9 784	9 880	10 315	11 693	4 019	1 652	1 250	1 210	76.00%
15	0	0	0	0	0	0	5 314	5 314	5 793	9 236	9 323	9 753	4 241	1 690	1 270	1 198	72.00%
16	0	0	0	0	0	0	0	4 783	4 783	5 213	8 700	8 778	7 853	1 746	1 273	1 196	68.00%
17	0	0	0	0	0	0	0	0	4 305	4 305	4 692	8 179	7 929	2 274	1 344	1 255	64.00%
18	0	0	0	0	0	0	0	0	0	3 874	3 874	4 223	7 936	2 945	2 111	1 960	60.00%
19	0	0	0	0	0	0	0	0	0	0	3 487	3 487	13 339	9 394	9 256	9 213	57.00%
20	0	0	0	0	0	0	0	0	0	0	0	3 138	10 574	9 071	8 319	8 289	54.00%
21	0	0	0	0	0	0	0	0	0	0	0	0	8 896	7 960	7 567	7 459	51.00%
22	0	0	0	0	0	0	0	0	0	0	0	0	25 818	60 914	66 209	66 957	50.00%
TOTAL	10 000	20 000	30 000	40 000	50 000	60 000	70 000	80 000	90 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	

BONUS/MALUS SYSTEM MODEL - French

Probability Claim: 30.00%

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50	Premium Scale
NO CLAIMS 2 YRS	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	0	0	0	0	0	0	100.00%
9	10 000	10 000	10 000	10 000	10 441	10 882	11 416	11 949	12 502	13 055	3 612	4 133	5 044	4 414	4 146	4 022	100.00%
10		7 000	7 000	8 470	9 499	10 116	10 857	11 512	12 132	12 765	13 379	6 993	5 711	4 936	4 567	4 404	95.00%
11		0	4 900	4 900	5 929	7 370	7 802	8 623	9 399	9 960	10 613	11 282	5 847	5 073	4 710	4 563	90.00%
12		0	0	3 430	3 430	4 150	5 663	5 965	6 646	7 486	7 923	8 496	5 258	4 637	4 314	4 145	85.00%
13		0	0	0	2 401	2 401	2 905	4 317	4 529	5 079	5 926	6 264	5 123	4 191	3 918	3 784	80.00%
14		0	0	0	0	1 681	1 681	2 034	3 269	3 417	3 855	4 665	4 517	3 935	3 567	3 467	76.00%
15		0	0	0	0	0	1 176	1 176	1 424	2 461	2 565	2 907	3 697	3 532	3 397	3 273	72.00%
16		0	0	0	0	0	0	824	824	996	1 844	1 917	3 789	3 202	3 267	3 278	68.00%
17		0	0	0	0	0	0	0	576	576	698	1 375	2 854	2 904	2 759	2 785	64.00%
18		0	0	0	0	0	0	0	0	404	404	488	2 117	2 391	2 432	2 377	60.00%
19		0	0	0	0	0	0	0	0	0	282	282	1 889	1 956	2 078	2 113	57.00%
20		0	0	0	0	0	0	0	0	0	0	198	1 173	1 921	1 923	2 020	54.00%
21		0	0	0	0	0	0	0	0	0	0	0	867	1 977	2 497	2 662	51.00%
22		0	0	0	0	0	0	0	0	0	0	0	1 115	3 931	5 424	6 107	50.00%
Claim Last Year, Not year before															Loading		100.00%
1		0	0	0	0	0	17	46	82	117	152	188	316	262	239	229	300.00%
2		0	0	0	0	57	96	148	173	212	243	271	282	242	226	218	250.00%
3		0	0	0	0	0	0	0	0	0	4	7	29	25	23	22	200.00%
4		0	0	0	0	0	0	0	19	33	41	58	130	119	110	106	175.00%
5		0	0	0	189	321	401	484	537	586	638	684	444	383	353	341	150.00%
6		0	0	0	0	0	93	93	151	192	220	256	296	258	246	240	137.50%
7		0	0	0	0	0	0	65	110	169	249	307	666	602	580	568	125.00%
8		3 000	5 100	5 730	6 612	7 185	7 688	8 191	8 653	9 110	9 563	7 010	4 192	3 613	3 335	3 211	112.50%
9		0	0	1 470	1 470	2 087	2 736	2 995	3 423	3 837	4 114	4 462	3 015	2 663	2 489	2 408	100.00%
10		0	0	0	1 029	1 029	1 245	1 850	1 941	2 177	2 540	2 684	2 195	1 796	1 679	1 622	95.00%
11		0	0	0	0	720	720	872	1 401	1 465	1 652	1 999	1 936	1 687	1 529	1 486	90.00%
12		0	0	0	0	0	504	504	610	1 055	1 099	1 246	1 584	1 514	1 456	1 403	85.00%
13		0	0	0	0	0	0	353	353	427	790	821	1 624	1 372	1 400	1 405	80.00%
14		0	0	0	0	0	0	0	247	247	299	589	1 223	1 244	1 182	1 194	76.00%
15		0	0	0	0	0	0	0	0	173	173	209	907	1 025	1 042	1 019	72.00%
16		0	0	0	0	0	0	0	0	0	121	121	809	838	891	905	68.00%
17		0	0	0	0	0	0	0	0	0	0	85	503	823	824	866	64.00%
18		0	0	0	0	0	0	0	0	0	0	0	372	847	1 070	1 141	60.00%
19		0	0	0	0	0	0	0	0	0	0	0	478	1 685	2 325	2 617	57.00%
20																	54.00%
21																	51.00%
22																	50.00%
No Claim Last Year, Claim Year Before															Loading		100.00%
1		0	0	0	0	0	17	58	114	175	234	295	542	448	407	389	300.00%
2		0	0	0	0	57	136	215	277	333	392	441	488	414	384	371	250.00%
3		0	0	0	189	321	493	577	707	811	904	1 008	917	803	749	725	200.00%
4		0	0	0	0	0	0	0	0	14	23	29	93	83	78	75	175.00%
5		0	0	0	0	0	0	65	110	137	195	246	450	392	364	353	150.00%
6		0	0	630	1 071	1 336	1 613	1 789	1 953	2 128	2 281	2 421	1 440	1 258	1 174	1 132	137.50%
7		0	0	0	0	309	309	503	639	735	853	976	981	856	813	800	125.00%
8		0	0	0	0	0	216	367	564	829	1 022	1 250	2 148	2 009	1 930	1 889	112.50%
9		0	2 100	3 570	4 011	4 628	5 030	5 382	5 734	6 057	6 377	6 694	2 984	2 558	2 349	2 254	100.00%
10		0	0	0	1 029	1 029	1 461	1 915	2 096	2 396	2 738	2 932	2 501	2 199	2 138	2 105	95.00%
11		0	0	0	0	720	720	872	1 295	1 359	1 524	1 814	1 718	1 531	1 388	1 350	90.00%

12	0	0	0	0	0	504	504	610	981	1 025	1 156	1 409	1 354	1 284	1 227	85.00%
13	0	0	0	0	0	0	353	353	427	738	769	1 429	1 193	1 186	1 174	80.00%
14	0	0	0	0	0	0	0	247	247	299	553	1 092	1 192	1 183	1 216	76.00%
15	0	0	0	0	0	0	0	0	173	173	209	840	1 152	1 323	1 372	72.00%
16	0	0	0	0	0	0	0	0	0	121	121	719	688	717	723	68.00%
17	0	0	0	0	0	0	0	0	0	0	85	456	648	612	628	64.00%
18	0	0	0	0	0	0	0	0	0	0	0	316	536	598	601	60.00%
19	0	0	0	0	0	0	0	0	0	0	0	239	552	727	802	57.00%
20	0	0	0	0	0	0	0	0	0	0	0	239	1 133	1 598	1 815	54.00%
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51.00%
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50.00%

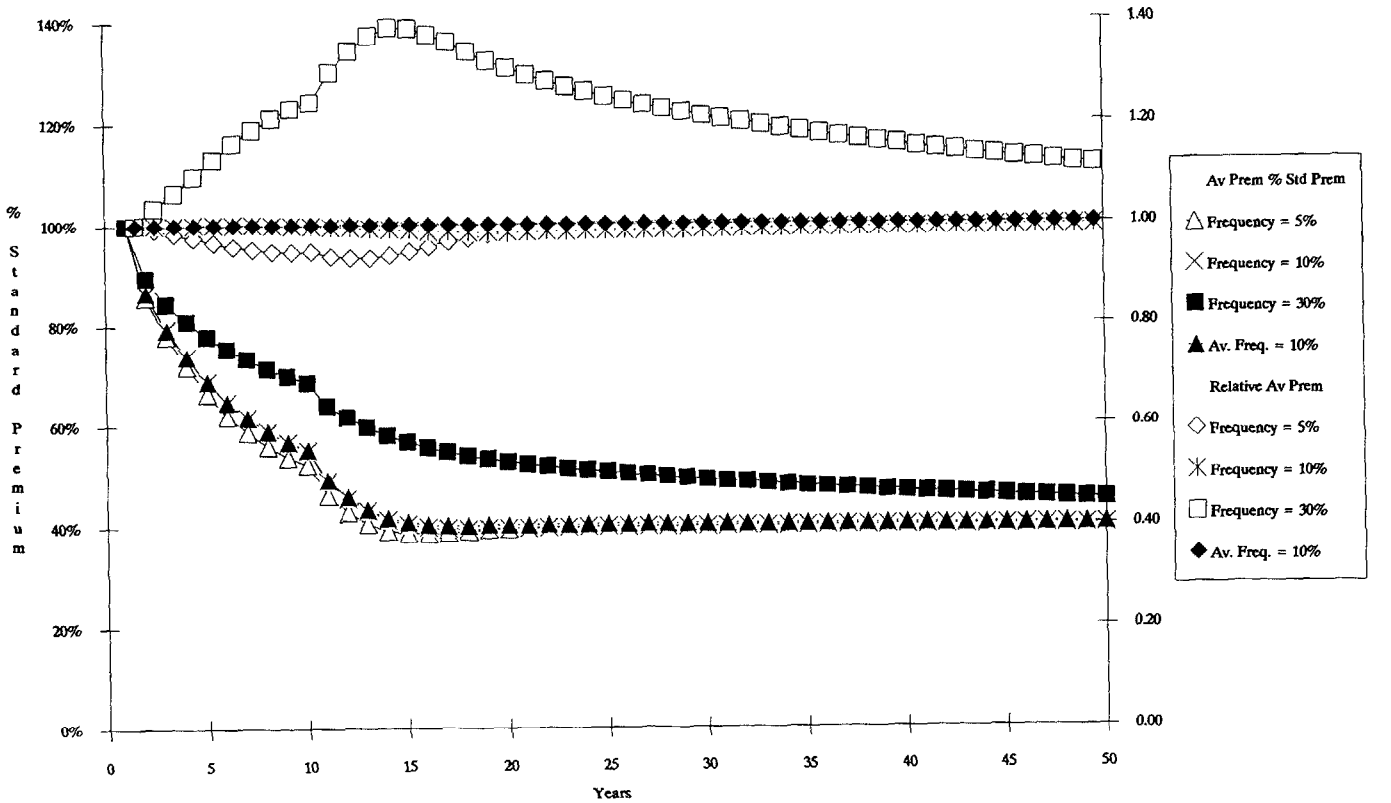
Claim Each of Last 2 Years — Loading 100.00%

1	0	0	0	0	24	66	117	167	218	268	315	441	370	339	326	300.00%
2	0	0	0	81	138	211	247	303	348	387	432	393	344	321	311	250.00%
3	0	0	270	459	705	824	1 010	1 158	1 291	1 437	1 573	1 270	1 110	1 041	1 011	200.00%
4	0	0	0	0	0	93	157	196	278	352	402	623	550	520	504	175.00%
5	0	900	1 530	1 719	1 984	2 156	2 306	2 503	2 673	2 820	3 002	1 577	1 407	1 314	1 272	150.00%
6	0	0	0	441	441	626	821	898	1 027	1 173	1 257	1 072	942	916	902	137.50%
7	0	0	0	0	309	525	590	817	1 003	1 092	1 273	1 340	1 237	1 145	1 104	125.00%
8	0	0	0	0	0	0	151	257	289	445	567	1 080	1 022	1 015	1 025	112.50%
9	0	0	0	0	0	0	0	0	74	74	90	360	494	567	588	100.00%
10	0	0	0	0	0	0	0	0	0	52	52	308	295	307	310	95.00%
11	0	0	0	0	0	0	0	0	0	0	36	196	278	262	269	90.00%
12	0	0	0	0	0	0	0	0	0	0	0	135	230	256	257	85.00%
13	0	0	0	0	0	0	0	0	0	0	0	102	237	312	344	80.00%
14	0	0	0	0	0	0	0	0	0	0	0	102	485	685	778	76.00%
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72.00%
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68.00%

TOTAL

1	0	0	0	0	0	24	100	221	364	509	655	798	1 299	1 080	986	944	300.00%
2	0	0	0	0	81	251	444	611	753	893	1 022	1 145	1 162	1 001	931	899	250.00%
3	0	0	0	270	648	1 026	1 317	1 587	1 866	2 102	2 345	2 589	2 217	1 938	1 813	1 758	200.00%
4	0	0	0	0	0	0	93	157	216	325	416	490	846	752	708	684	175.00%
5	0	0	900	1 530	1 908	2 305	2 556	2 855	3 150	3 396	3 653	3 933	2 471	2 182	2 030	1 966	150.00%
6	0	0	0	630	1 512	1 777	2 332	2 703	3 003	3 346	3 675	3 933	2 808	2 458	2 336	2 274	137.50%
7	0	0	0	0	0	617	833	1 158	1 566	1 906	2 194	2 555	2 986	2 694	2 537	2 473	125.00%
8	0	3 000	5 100	5 730	6 612	7 185	7 904	8 709	9 474	10 228	11 030	8 827	7 420	6 644	6 280	6 125	112.50%
9	10 000	10 000	12 100	15 040	15 922	17 598	19 181	20 326	21 659	23 023	14 178	15 380	11 403	10 129	9 552	9 271	100.00%
10	0	7 000	7 000	8 470	11 557	12 174	13 564	15 277	16 169	17 338	18 708	12 661	10 716	9 225	8 692	8 440	95.00%
11	0	0	4 900	4 900	5 929	8 810	9 242	10 366	12 095	12 783	13 788	15 132	9 697	8 569	7 888	7 668	90.00%
12	0	0	0	3 430	3 430	4 150	6 671	6 974	7 866	9 521	10 047	10 898	8 386	7 735	7 310	7 032	85.00%
13	0	0	0	0	2 401	2 401	2 905	5 023	5 235	5 933	7 455	7 854	8 278	6 993	6 815	6 707	80.00%
14	0	0	0	0	0	1 681	1 681	2 034	3 763	3 911	4 452	5 808	6 935	6 857	6 617	6 655	76.00%
15	0	0	0	0	0	0	1 176	1 176	1 424	2 807	2 911	3 326	5 444	5 709	5 763	5 664	72.00%
16	0	0	0	0	0	0	0	824	824	996	2 086	2 159	5 317	4 729	4 875	4 907	68.00%
17	0	0	0	0	0	0	0	0	576	576	698	1 545	3 813	4 375	4 195	4 279	64.00%
18	0	0	0	0	0	0	0	0	0	404	404	488	2 804	3 775	4 100	4 119	60.00%
19	0	0	0	0	0	0	0	0	0	0	282	282	2 605	4 193	5 130	5 532	57.00%
20	0	0	0	0	0	0	0	0	0	0	0	198	1 412	3 053	3 521	3 835	54.00%
21	0	0	0	0	0	0	0	0	0	0	0	0	867	1 977	2 497	2 662	51.00%
22	0	0	0	0	0	0	0	0	0	0	0	0	1 115	3 931	5 424	6 107	50.00%
TOTAL	10 000	20 000	30 000	40 000	50 000	60 000	70 000	80 000	90 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	

No Claims Discount Model - UK - With Bonus Protection



NCD2C1.XLC

10:17 AM 1/7/91

No Claims Discount Model - UK - With Bonus Protection

Probability Claim 5.00%

NUMBER OF INSUREDS

Class / Year		1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50	Premium Scale
NEW ENTRANTS:		10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	0	0	0	0	0	0	100.00%
	0	10 000	10 500	11 000	11 500	11 571	11 643	11 714	11 727	11 740	11 754	1 757	1 261	14	0	0	0	100.00%
	1		9 500	9 975	10 450	11 354	11 443	11 532	11 679	11 698	11 716	11 745	2 251	55	1	0	0	70.00%
	2			9 025	9 476	9 928	11 193	11 298	11 403	11 637	11 679	11 721	11 768	148	3	0	0	60.00%
	3				8 574	9 002	9 431	11 020	11 140	11 259	11 570	11 632	11 695	276	7	0	0	50.00%
	4					8 145	8 552	8 960	10 837	11 318	11 799	12 213	12 391	1 101	24	1	0	40.00%
	5						7 738	8 125	8 512	10 295	10 752	11 209	11 602	1 492	33	1	0	35.00%
	6							7 351	7 718	8 086	9 780	10 214	10 648	1 835	47	1	0	35.00%
	7								6 983	7 333	7 682	9 291	9 704	3 333	64	1	0	35.00%
	8									6 634	6 966	7 298	8 827	3 469	90	2	0	35.00%
	9										6 302	12 920	19 853	88 276	99 732	99 994	100 000	40.00%
	10																	
TOTAL		10000	20 000	30 000	40 000	50 000	60 000	70 000	80 000	90 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	

Probability Claim 10.00%

Class / Year		1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50	Scale
NEW ENTRANTS		10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	0	0	0	0	0	0	100.00%
	0	10 000	11 000	12 000	13 000	13 271	13 542	13 813	13 907	14 001	14 095	4 136	3 177	213	22	2	0	100.00%
	1		9 000	9 900	10 800	12 429	12 746	13 063	13 557	13 678	13 800	13 975	5 038	514	47	5	1	70.00%
	2			8 100	8 910	9 720	11 842	12 193	12 544	13 266	13 463	13 660	13 929	1 040	109	12	1	60.00%
	3				7 290	8 019	8 748	11 248	11 623	11 998	12 899	13 154	13 409	1 581	184	20	2	50.00%
	4					6 561	7 217	7 873	10 655	11 524	12 392	13 519	14 065	4 055	434	48	5	40.00%
	5						5 905	6 495	7 086	9 590	10 371	11 153	12 167	4 318	492	54	6	35.00%
	6							5 314	5 846	6 377	8 631	9 334	10 038	4 467	552	60	7	35.00%
	7								4 783	5 261	5 740	7 768	8 401	5 920	610	68	7	35.00%
	8									4 305	4 735	5 166	6 991	5 593	697	76	8	35.00%
	9										3 874	8 136	12 785	72 299	96 853	99 654	99 962	40.00%
	10																	
TOTAL		10000	20 000	30 000	40 000	50 000	60 000	70 000	80 000	90 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	

No Claims Discount Model - UK - With Bonus Protection Probability Claim 30.00% NUMBER OF INSUREDS

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50	Scale
NEW ENTRANTS	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	0	0	0	0	0	0	100.00%
0	10 000	13 000	16 000	19 000	20 971	22 942	24 913	26 430	27 947	29 465	20 737	19 010	11 063	7 889	5 799	4 274	100.00%
1		7 000	9 100	11 200	14 329	16 017	17 706	19 848	21 249	22 650	24 296	18 536	11 976	8 413	6 200	4 569	70.00%
2			4 900	6 370	7 840	10 751	12 149	13 547	15 686	17 010	18 333	20 026	12 614	9 187	6 746	4 975	60.00%
3				3 430	4 459	5 488	8 030	9 159	10 289	12 234	13 401	14 568	11 783	8 836	6 515	4 801	50.00%
4					2 401	3 121	3 842	5 974	7 118	8 261	10 062	11 319	13 310	9 933	7 357	5 424	40.00%
5						1 681	2 185	2 689	4 182	4 982	5 783	7 044	9 263	7 204	5 306	3 914	35.00%
6							1 176	1 529	1 882	2 927	3 488	4 048	6 470	5 176	3 833	2 825	35.00%
7								824	1 071	1 318	2 049	2 441	4 853	3 716	2 765	2 039	35.00%
8									576	749	922	1 434	3 241	2 704	1 993	1 471	35.00%
9										404	928	1 574	15 426	36 942	53 486	65 708	40.00%
10																	
TOTAL	10000	20 000	30 000	40 000	50 000	60 000	70 000	80 000	90 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	

Weighted Average Type 1 20.00% Probability Claim 5.00% Average 10.00%
Type 2 75.00% 10.00%
Type 3 5.00% 30.00%

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50	Scale
																	100.00%
0	10 000	11 000	12 000	13 000	13 316	13 632	13 948	14 097	14 246	14 395	4 490	3 585	716	411	292	214	100.00%
1		9 000	9 875	10 750	12 309	12 649	12 989	13 496	13 661	13 826	14 045	5 155	996	456	314	229	70.00%
2			8 125	8 896	9 668	11 658	12 012	12 366	13 062	13 284	13 505	13 802	1 440	541	346	250	60.00%
3				7 354	8 038	8 722	11 042	11 403	11 765	12 600	12 862	13 124	1 830	581	341	242	50.00%
4					6 670	7 279	7 889	10 457	11 262	12 067	13 085	13 593	3 927	827	404	275	40.00%
5						6 060	6 606	7 151	9 460	10 178	10 896	11 798	4 000	735	306	200	35.00%
6							5 515	6 005	6 494	8 575	9 218	9 860	4 041	682	237	146	35.00%
7								5 025	5 466	5 907	7 786	8 363	5 349	656	189	108	35.00%
8									4 584	4 982	5 380	7 080	5 051	676	157	80	35.00%
9										4 186	8 732	13 638	72 651	94 433	97 414	98 257	40.00%
10																	
TOTAL	10000	20 000	30 000	40 000	50 000	60 000	70 000	80 000	90 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	Av Prem

No Claims Discount Model - UK - With Bonus Protection — Probability Claim 5.00% — UNITS OF STANDARD PREMIUM

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50
0	10 000	10 500	11 000	11 500	11 571	11 643	11 714	11 727	11 740	11 754	1 757	1 261	14	0	0	0
1	0	6 650	6 983	7 315	7 948	8 010	8 072	8 175	8 188	8 201	8 221	1 576	39	1	0	0
2	0	0	5 415	5 686	5 957	6 716	6 779	6 842	6 982	7 007	7 032	7 061	89	2	0	0
3	0	0	0	4 287	4 501	4 716	5 510	5 570	5 629	5 785	5 816	5 847	138	3	0	0
4	0	0	0	0	3 258	3 421	3 584	4 335	4 527	4 719	4 885	4 956	440	10	0	0
5	0	0	0	0	0	2 708	2 844	2 979	3 603	3 763	3 923	4 061	522	12	0	0
6	0	0	0	0	0	0	2 573	2 701	2 830	3 423	3 575	3 727	642	16	0	0
7	0	0	0	0	0	0	0	2 444	2 566	2 689	3 252	3 396	1 167	22	0	0
8	0	0	0	0	0	0	0	0	2 322	2 438	2 554	3 089	1 214	31	1	0
9	0	0	0	0	0	0	0	0	0	2 521	5 168	7 941	35 311	39 893	39 998	40 000
	10 000	17 150	23 398	28 788	33 235	37 213	41 076	44 774	48 390	52 301	46 185	42 916	39 576	39 990	40 000	40 000
	100.00%	85.75%	77.99%	71.97%	66.47%	62.02%	58.68%	55.97%	53.77%	52.30%	46.18%	42.92%	39.58%	39.99%	40.00%	40.00%

Probability Claim 10.00%

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50
0	10 000	11 000	12 000	13 000	13 271	13 542	13 813	13 907	14 001	14 095	4 136	3 177	213	22	2	0
1	0	6 300	6 930	7 560	8 700	8 922	9 144	9 490	9 575	9 660	9 782	3 526	360	33	4	0
2	0	0	4 860	5 346	5 832	7 105	7 316	7 526	7 960	8 078	8 196	8 358	624	65	7	1
3	0	0	0	3 645	4 010	4 374	5 624	5 812	5 999	6 449	6 577	6 704	791	92	10	1
4	0	0	0	0	2 624	2 887	3 149	4 262	4 609	4 957	5 408	5 626	1 622	174	19	2
5	0	0	0	0	0	2 067	2 273	2 480	3 356	3 630	3 904	4 259	1 511	172	19	2
6	0	0	0	0	0	0	1 860	2 046	2 232	3 021	3 267	3 513	1 563	193	21	2
7	0	0	0	0	0	0	0	1 674	1 841	2 009	2 719	2 940	2 072	213	24	3
8	0	0	0	0	0	0	0	0	1 507	1 657	1 808	2 447	1 958	244	27	3
9	0	0	0	0	0	0	0	0	0	1 550	3 254	5 114	28 920	38 741	39 862	39 985
	10 000	17 300	23 790	29 551	34 437	38 897	43 180	47 196	51 080	55 106	49 050	45 664	39 633	39 950	39 994	39 999
Frequency = 10	100.00%	86.50%	79.30%	73.88%	68.87%	64.83%	61.69%	59.00%	56.76%	55.11%	49.05%	45.66%	39.63%	39.95%	39.99%	40.00%
Frequency = 5%	100.00%	85.75%	77.99%	71.97%	66.47%	62.02%	58.68%	55.97%	53.77%	52.30%	46.18%	42.92%	39.58%	39.99%	40.00%	40.00%

No Claims Discount Model - UK - With Bonus Protection Probability Claim 30.00% UNITS OF STANDARD PREMIUM

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50
0	10 000	13 000	16 000	19 000	20 971	22 942	24 913	26 430	27 947	29 465	20 737	19 010	11 063	7 889	5 799	4 274
1	0	4 900	6 370	7 840	10 030	11 212	12 394	13 894	14 874	15 855	17 007	12 976	8 383	5 889	4 340	3 198
2	0	0	2 940	3 822	4 704	6 450	7 289	8 128	9 411	10 206	11 000	12 015	7 568	5 512	4 048	2 985
3	0	0	0	1 715	2 230	2 744	4 015	4 580	5 145	6 117	6 701	7 284	5 891	4 418	3 258	2 400
4	0	0	0	0	960	1 249	1 537	2 389	2 847	3 305	4 025	4 527	5 324	3 973	2 943	2 170
5	0	0	0	0	0	588	765	941	1 464	1 744	2 024	2 465	3 242	2 522	1 857	1 370
6	0	0	0	0	0	0	412	535	659	1 024	1 221	1 417	2 265	1 812	1 342	989
7	0	0	0	0	0	0	0	288	375	461	717	854	1 699	1 301	968	714
8	0	0	0	0	0	0	0	0	202	262	323	502	1 134	947	698	515
9	0	0	0	0	0	0	0	0	0	161	371	630	6 171	14 777	21 394	26 283
	10 000	17 900	25 310	32 377	38 895	45 185	51 324	57 186	62 924	68 600	64 126	61 680	52 741	49 038	46 645	44 898
Frequency = 30	100.00%	89.50%	84.37%	80.94%	77.79%	75.31%	73.32%	71.48%	69.92%	68.60%	64.13%	61.68%	52.74%	49.04%	46.64%	44.90%
Frequency = 10	100.00%	86.50%	79.30%	73.88%	68.87%	64.83%	61.69%	59.00%	56.76%	55.11%	49.05%	45.66%	39.63%	39.95%	39.99%	40.00%
Frequency = 5%	100.00%	85.75%	77.99%	71.97%	66.47%	62.02%	58.68%	55.97%	53.77%	52.30%	46.18%	42.92%	39.58%	39.99%	40.00%	40.00%

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50
0	10 000	11 000	12 000	13 000	13 316	13 632	13 948	14 097	14 246	14 395	4 490	3 585	716	411	292	214
1	0	6 300	6 913	7 525	8 616	8 854	9 092	9 447	9 563	9 678	9 831	3 609	697	319	220	160
2	0	0	4 875	5 338	5 801	6 995	7 207	7 419	7 837	7 970	8 103	8 281	864	325	208	150
3	0	0	0	3 677	4 019	4 361	5 521	5 702	5 882	6 300	6 431	6 562	915	290	170	121
4	0	0	0	0	2 668	2 912	3 156	4 183	4 505	4 827	5 234	5 437	1 571	331	162	110
5	0	0	0	0	0	2 121	2 312	2 503	3 311	3 562	3 814	4 129	1 400	257	107	70
6	0	0	0	0	0	0	1 930	2 102	2 273	3 001	3 226	3 451	1 414	239	83	51
7	0	0	0	0	0	0	0	1 759	1 913	2 067	2 725	2 927	1 872	230	66	38
8	0	0	0	0	0	0	0	0	1 604	1 744	1 883	2 478	1 768	237	55	28
9	0	0	0	0	0	0	0	0	0	1 675	3 493	5 455	29 060	37 773	38 966	39 303
139%	10 000	17 300	23 788	29 540	34 420	38 875	43 166	47 211	51 134	55 219	49 231	45 916	40 277	40 413	40 328	40 244

CALCULATION OF IMPLICIT EXCESS OR DEDUCTIBLE

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std	Prem
Claim?	0	0	0	0	0	0	0	0	0	0			Premium	Paid
0												0	100.00%	0.00
1												0	70.00%	0.00
2												0	60.00%	0.00
3												0	50.00%	0.00
4												0	40.00%	0.00
5												0	35.00%	0.00
6	1											0	35.00%	0.00
7		1										1	35.00%	0.35
8			1									1	35.00%	0.35
9				1	1	1	1	1	1	1	1	8	40.00%	3.20
TOTAL	1	1	1	1	1	1	1	1	1	1	1		TOTAL	3.90

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std	Prem
Claim?	0	0	0	0	0	0	0	0	0	0			Premium	Paid
0												0	100.00%	0.00
1												0	70.00%	0.00
2	1											0	60.00%	0.00
3		1										1	50.00%	0.50
4			1									1	40.00%	0.40
5				1								1	35.00%	0.35
6					1							1	35.00%	0.35
7						1						1	35.00%	0.35
8							1					1	35.00%	0.35
9								1	1	1	1	4	40.00%	1.60
TOTAL	1	1	1	1	1	1	1	1	1	1	1	10	TOTAL	3.90
													Average	0.39

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std	Prem
Claim?	1	0	0	0	0	0	0	0	0	0			Premium	Paid
0												0	100.00%	0.00
1												0	70.00%	0.00
2												0	60.00%	0.00
3		1										1	50.00%	0.50
4			1									1	40.00%	0.40
5				1								1	35.00%	0.35
6	1				1							1	35.00%	0.35
7						1						1	35.00%	0.35
8							1					1	35.00%	0.35
9								1	1	1	1	4	40.00%	1.60
TOTAL	1	1	1	1	1	1	1	1	1	1	1	10	TOTAL	3.90
													Average	0.39
													Excess	0.00

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std	Prem
Claim?	1	0	0	0	0	0	0	0	0	0			Premium	Paid
0		1										1	100.00%	1.00
1			1									1	70.00%	0.70
2	1			1								1	60.00%	0.60
3					1							1	50.00%	0.50
4						1						1	40.00%	0.40
5							1					1	35.00%	0.35
6								1				1	35.00%	0.35
7									1			1	35.00%	0.35
8										1		1	35.00%	0.35
9											1	1	40.00%	0.40
TOTAL	1	1	1	1	1	1	1	1	1	1	1	10	TOTAL	5.00
													Average	0.50
													Excess	1.10

TEST OF FAIRNESS TO INDIVIDUAL INSUREDS

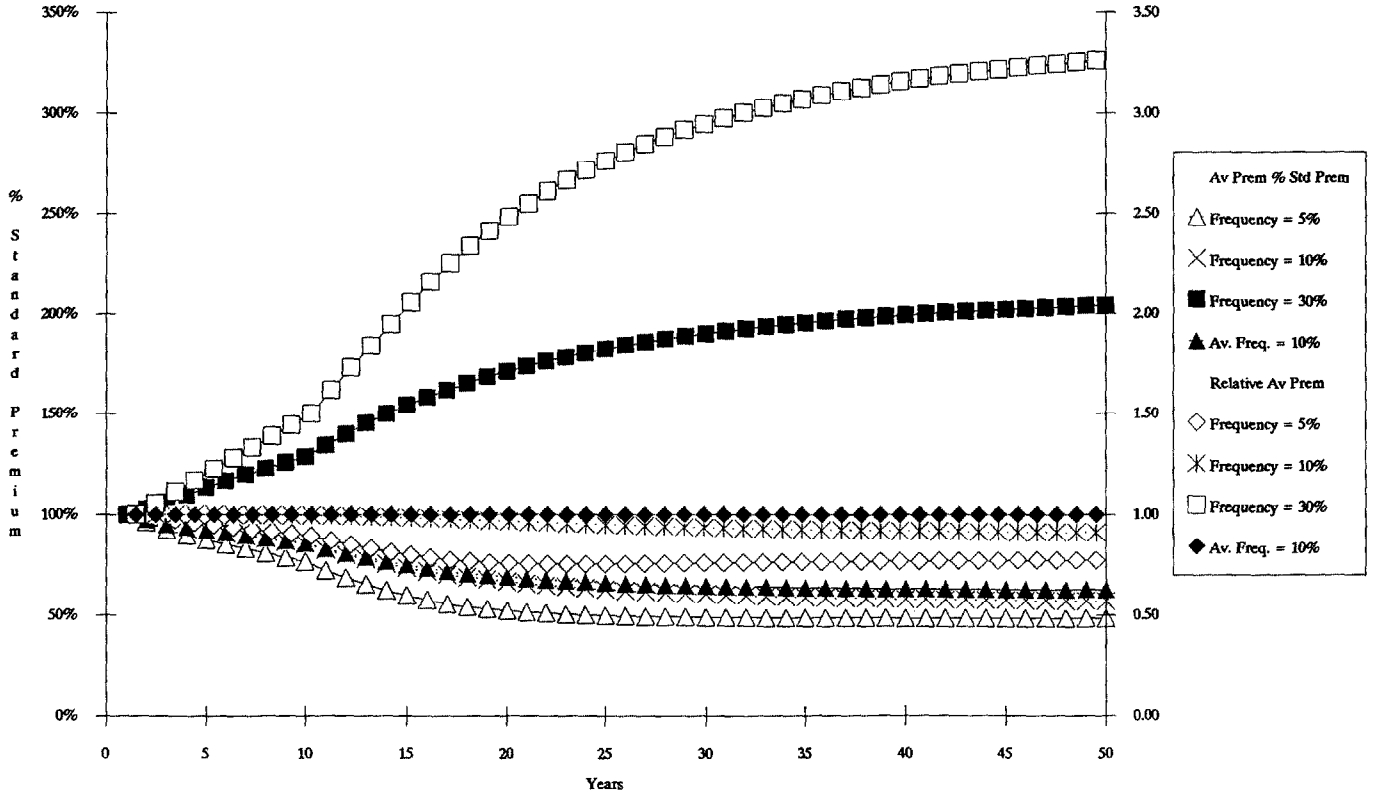
Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Premium	Prem Paid
Claim?	0	0	0	1	0	0	1	0	0	1				
0												0	100.00%	0.00
1												0	70.00%	0.00
2												0	60.00%	0.00
3												0	50.00%	0.00
4												0	40.00%	0.00
5												0	35.00%	0.00
6	1											0	35.00%	0.00
7		1										1	35.00%	0.35
8			1									1	35.00%	0.35
9				1	1	1	1	1	1	1	1	8	40.00%	3.20
TOTAL	1	1	1	1	1	1	1	1	1	1	1		TOTAL	3.90

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Premium	Prem Paid
Claim?	0	0	0	0	0	0	0	1	1	1				
0												0	100.00%	0.00
1												0	70.00%	0.00
2												0	60.00%	0.00
3												0	50.00%	0.00
4												0	40.00%	0.00
5												0	35.00%	0.00
6	1											0	35.00%	0.00
7		1										1	35.00%	0.35
8			1									1	35.00%	0.35
9				1	1	1	1	1	1	1	1	8	40.00%	3.20
TOTAL	1	1	1	1	1	1	1	1	1	1	1		TOTAL	3.90

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Premium	Prem Paid
Claim?	1	0	0	0	0	1	0	0	0	1				
0												0	100.00%	0.00
1												0	70.00%	0.00
2												0	60.00%	0.00
3		1					1				1	3	50.00%	1.50
4			1					1				2	40.00%	0.80
5				1					1			2	35.00%	0.70
6	1				1					1		2	35.00%	0.70
7						1						1	35.00%	0.35
8												0	35.00%	0.00
9												0	40.00%	0.00
TOTAL	1	1	1	1	1	1	1	1	1	1	1		TOTAL	4.05

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Premium	Prem Paid
Claim?	1	1	1	0	0	0	0	0	0	0				
0				1								1	100.00%	1.00
1			1		1							2	70.00%	1.40
2						1						1	60.00%	0.60
3		1					1					2	50.00%	1.00
4								1				1	40.00%	0.40
5									1			1	35.00%	0.35
6	1									1		1	35.00%	0.35
7											1	1	35.00%	0.35
8												0	35.00%	0.00
9												0	40.00%	0.00
TOTAL	1	1	1	1	1	1	1	1	1	1	1		TOTAL	5.45

BONUS/MALUS SYSTEM MODEL - Swiss - New



NCD3C1.XLC

10:38 AM 1/7/91

BONUS/MALUS SYSTEM MODEL - Swiss - New — Probability Claim 5.00% — NUMBERS OF INSUREDS — Premium

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50	Scale
NEW ENTRANTS:	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	0	0	0	0	0	0	100.00%
1				1	1	2	2	3	5	5	6	6	4	1	0	0	270.00%
2				0	5	5	5	6	7	11	11	12	6	2	1	0	250.00%
3				0	0	11	11	12	12	13	21	21	15	4	1	1	230.00%
4				0	0	0	21	21	22	22	23	36	23	6	2	1	215.00%
5			25	25	25	25	25	61	61	61	61	62	32	8	3	2	200.00%
6			0	71	71	71	71	71	125	125	126	126	43	11	5	4	185.00%
7			0	0	135	135	135	135	135	213	213	213	56	16	8	7	170.00%
8			0	0	0	214	214	214	214	214	319	319	156	38	16	12	155.00%
9		500	500	500	500	500	805	805	805	805	805	442	201	50	23	19	140.00%
10		0	950	950	950	950	950	1 356	1 356	1 356	1 356	1 356	256	72	42	37	130.00%
11		0	0	1 354	1 354	1 354	1 354	1 354	1 868	1 868	1 868	1 868	318	103	70	65	120.00%
12		0	0	0	1 715	1 715	1 715	1 715	1 715	2 343	2 343	2 343	382	140	106	100	110.00%
13	10 000	10 000	10 000	10 000	10 000	12 036	12 036	12 036	12 036	12 036	2 783	2 783	1 072	282	164	145	100.00%
14		9 500	9 500	9 500	9 500	9 500	11 821	11 821	11 821	11 821	11 821	3 188	1 359	516	399	380	90.00%
15			9 025	9 025	9 025	9 025	9 025	11 598	11 598	11 598	11 598	11 598	1 578	720	609	591	80.00%
16				8 574	8 574	8 574	8 574	8 574	11 367	11 367	11 367	11 367	1 734	896	795	780	75.00%
17					8 145	8 145	8 145	8 145	8 145	11 130	11 130	11 130	1 834	1 048	961	949	70.00%
18						7 738	7 738	7 738	7 738	7 738	10 889	11 188	7 328	5 175	4 897	4 855	65.00%
19							7 351	7 351	7 351	7 351	7 351	10 345	6 594	4 839	4 639	4 610	60.00%
20								6 983	6 983	6 983	6 983	6 983	5 907	4 531	4 396	4 377	55.00%
21									6 634	6 634	6 634	6 634	5 264	4 248	4 167	4 157	50.00%
22										6 302	12 290	17 978	65 839	77 295	78 695	78 906	45.00%
TOTAL	10 000	20 000	30 000	40 000	50 000	60 000	70 000	80 000	90 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	

Probability Claim 10.00%

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50	Scale
NEW ENTRANTS	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	0	0	0	0	0	0	100.00%
1				10	11	15	23	39	65	70	78	91	129	89	60	46	270.00%
2				0	36	37	40	48	62	118	123	131	166	114	78	60	250.00%
3				0	0	81	82	85	92	105	200	204	251	170	113	85	230.00%
4				0	0	0	146	147	149	155	167	310	327	220	148	113	215.00%
5			100	100	100	100	100	330	330	333	338	349	414	273	187	146	200.00%
6			0	270	270	270	270	270	601	601	603	609	515	334	236	191	185.00%
7			0	0	486	486	486	486	486	932	933	935	630	404	297	249	170.00%
8			0	0	0	729	729	729	729	729	1 303	1 303	1 042	639	442	354	155.00%
9		1 000	1 000	1 000	1 000	1 000	1 984	1 984	1 984	1 984	1 984	1 694	1 252	756	540	446	140.00%
10		0	1 800	1 800	1 800	1 800	1 800	3 040	3 040	3 040	3 040	3 040	1 496	917	693	598	130.00%
11		0	0	2 430	2 430	2 430	2 430	2 430	3 918	3 918	3 918	3 918	1 742	1 101	878	788	120.00%
12		0	0	0	2 916	2 916	2 916	2 916	2 916	4 638	4 638	4 638	1 966	1 290	1 080	999	110.00%
13	10 000	10 000	10 000	10 000	10 000	13 281	13 281	13 281	13 281	13 281	5 218	5 218	3 290	1 928	1 481	1 303	100.00%
14		9 000	9 000	9 000	9 000	9 000	12 543	12 543	12 543	12 543	12 543	5 674	3 866	2 551	2 159	2 010	90.00%
15			8 100	8 100	8 100	8 100	8 100	11 820	11 820	11 820	11 820	11 820	4 208	2 992	2 670	2 555	80.00%
16				7 290	7 290	7 290	7 290	7 290	11 116	11 116	11 116	11 116	4 356	3 289	3 046	2 967	75.00%
17					6 561	6 561	6 561	6 561	6 561	10 435	10 435	10 435	4 346	3 473	3 312	3 267	70.00%
18						5 905	5 905	5 905	5 905	5 905	9 779	10 128	9 713	8 799	8 588	8 521	65.00%
19							5 314	5 314	5 314	5 314	5 314	8 801	8 336	7 719	7 641	7 630	60.00%
20								4 783	4 783	4 783	4 783	4 783	7 112	6 777	6 805	6 836	55.00%
21									4 305	4 305	4 305	4 305	6 026	5 957	6 068	6 128	50.00%
22										3 874	7 361	10 499	38 819	50 210	53 479	54 705	45.00%
TOTAL	10 000	20 000	30 000	40 000	50 000	60 000	70 000	80 000	90 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	

BONUS/MALUS SYSTEM MODEL - Swiss - New — Probability Claim 30.00% — NUMBERS OF INSUREDS

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50	Scale
NEW ENTRANTS	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	0	0	0	0	0	0	100.00%
1				270	351	602	1 091	1 858	2 917	3 500	4 306	5 342	12 643	16 732	18 585	19 516	270.00%
2				0	756	813	988	1 331	1 868	3 371	3 783	4 361	9 904	13 164	14 700	15 480	250.00%
3				0	0	1 323	1 363	1 486	1 725	2 101	3 954	4 245	8 452	10 857	11 908	12 431	230.00%
4				0	0	0	1 852	1 880	1 966	2 134	2 397	4 495	7 140	8 821	9 566	9 938	215.00%
5			900	900	900	900	900	3 169	3 188	3 249	3 366	3 550	6 155	7 179	7 683	7 943	200.00%
6			0	1 890	1 890	1 890	1 890	1 890	4 431	4 445	4 487	4 569	5 409	5 865	6 175	6 350	185.00%
7			0	0	2 646	2 646	2 646	2 646	2 646	5 314	5 324	5 353	4 809	4 813	4 972	5 081	170.00%
8			0	0	0	3 087	3 087	3 087	3 087	3 087	5 755	5 762	5 350	4 695	4 421	4 290	155.00%
9		3 000	3 000	3 000	3 000	3 000	6 241	6 241	6 241	6 241	6 241	5 810	4 867	3 967	3 626	3 467	140.00%
10		0	4 200	4 200	4 200	4 200	4 200	7 377	7 377	7 377	7 377	7 377	4 420	3 375	2 991	2 814	130.00%
11		0	0	4 410	4 410	4 410	4 410	4 410	7 375	7 375	7 375	7 375	3 945	2 868	2 470	2 286	120.00%
12		0	0	0	4 116	4 116	4 116	4 116	4 116	6 784	6 784	6 784	3 436	2 426	2 038	1 856	110.00%
13	10 000	10 000	10 000	10 000	10 000	13 602	13 602	13 602	13 602	13 602	5 936	5 936	4 086	2 597	1 967	1 656	100.00%
14		7 000	7 000	7 000	7 000	7 000	10 025	10 025	10 025	10 025	10 025	5 023	3 601	2 270	1 681	1 386	90.00%
15			4 900	4 900	4 900	4 900	4 900	7 371	7 371	7 371	7 371	7 371	3 015	1 905	1 391	1 130	80.00%
16				3 430	3 430	3 430	3 430	3 430	5 407	5 407	5 407	5 407	2 430	1 557	1 129	906	75.00%
17					2 401	2 401	2 401	2 401	2 401	3 957	3 957	3 957	1 896	1 251	905	718	70.00%
18						1 681	1 681	1 681	1 681	1 681	2 891	2 976	2 559	1 620	1 083	794	65.00%
19							1 176	1 176	1 176	1 176	1 176	2 024	1 761	1 130	758	556	60.00%
20								824	824	824	824	824	1 204	790	533	391	55.00%
21									576	576	576	576	816	554	377	276	50.00%
22										404	686	884	2 100	1 565	1 041	733	45.00%
TOTAL	10 000	20 000	30 000	40 000	50 000	60 000	70 000	80 000	90 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	

Weighted Average — Type 1 20.00%, Type 2 75.00%, Type 3 5.00% — Probability Claim — 5.00% Average — 10.00%, 10.00%, 30.00%

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50	Scale
																	100.00%
1	0	0	0	21	26	41	72	123	195	228	275	336	730	903	974	1 010	270.00%
2	0	0	0	0	66	69	81	104	141	260	284	318	621	744	793	819	250.00%
3	0	0	0	0	0	129	132	140	157	186	352	370	614	671	680	685	230.00%
4	0	0	0	0	0	0	206	208	215	228	250	465	607	607	589	582	215.00%
5	0	0	125	125	125	125	125	418	419	424	434	452	624	565	525	507	200.00%
6	0	0	0	311	311	311	311	311	697	698	702	710	665	546	487	461	185.00%
7	0	0	0	0	524	524	524	524	524	1 008	1 008	1 011	724	547	473	442	170.00%
8	0	0	0	0	0	744	744	744	744	744	1 329	1 330	1 080	722	556	482	155.00%
9	0	1 000	1 000	1 000	1 000	1 000	1 961	1 961	1 961	1 961	1 961	1 650	1 222	775	591	512	140.00%
10	0	0	1 750	1 750	1 750	1 750	1 750	2 920	2 920	2 920	2 920	2 920	1 394	871	677	597	130.00%
11	0	0	0	2 314	2 314	2 314	2 314	2 314	3 681	3 681	3 681	3 681	1 568	989	796	718	120.00%
12	0	0	0	0	2 736	2 736	2 736	2 736	2 736	4 286	4 286	4 286	1 723	1 117	933	862	110.00%
13	10 000	10 000	10 000	10 000	10 000	13 048	13 048	13 048	13 048	13 048	4 767	4 767	2 886	1 632	1 242	1 089	100.00%
14	0	9 000	9 000	9 000	9 000	9 000	12 273	12 273	12 273	12 273	12 273	5 144	3 352	2 130	1 783	1 653	90.00%
15	0	0	8 125	8 125	8 125	8 125	8 125	11 553	11 553	11 553	11 553	11 553	3 622	2 483	2 194	2 091	80.00%
16	0	0	0	7 354	7 354	7 354	7 354	7 354	10 881	10 881	10 881	10 881	3 735	2 724	2 500	2 427	75.00%
17	0	0	0	0	6 670	6 670	6 670	6 670	6 670	10 250	10 250	10 250	3 721	2 877	2 722	2 676	70.00%
18	0	0	0	0	0	6 060	6 060	6 060	6 060	6 060	9 657	9 982	8 878	7 715	7 475	7 402	65.00%
19	0	0	0	0	0	0	5 515	5 515	5 515	5 515	5 515	8 771	7 659	6 814	6 696	6 673	60.00%
20	0	0	0	0	0	0	0	5 025	5 025	5 025	5 025	5 025	6 576	6 029	6 010	6 022	55.00%
21	0	0	0	0	0	0	0	0	4 584	4 584	4 584	4 584	5 613	5 345	5 403	5 442	50.00%
22	0	0	0	0	0	0	0	0	0	4 186	8 013	11 514	42 387	53 195	55 900	56 847	45.00%
TOTAL	10 000	20 000	30 000	40 000	50 000	60 000	70 000	80 000	90 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	Av Prem

BONUS/MALUS SYSTEM MODEL - Swiss - New — Probability Claim 5.00% — UNITS OF STANDARD PREMIUM

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50
1	0	0	0	3	4	4	6	9	14	14	15	17	11	3	1	1
2	0	0	0	0	12	12	13	14	17	28	28	29	15	4	2	1
3	0	0	0	0	0	26	26	27	28	30	49	49	34	9	3	2
4	0	0	0	0	0	0	46	46	47	48	50	78	48	12	4	3
5	0	0	50	50	50	50	50	121	121	122	123	125	63	16	6	5
6	0	0	0	132	132	132	132	132	232	232	232	233	79	21	9	7
7	0	0	0	0	230	230	230	230	230	361	361	362	95	27	14	12
8	0	0	0	0	0	332	332	332	332	332	495	495	242	59	25	19
9	0	700	700	700	700	700	1 128	1 128	1 128	1 128	1 128	619	281	70	33	26
10	0	0	1 235	1 235	1 235	1 235	1 235	1 763	1 763	1 763	1 763	1 763	333	94	55	48
11	0	0	0	1 625	1 625	1 625	1 625	1 625	2 242	2 242	2 242	2 242	382	123	84	77
12	0	0	0	0	1 886	1 886	1 886	1 886	1 886	2 578	2 578	2 578	420	154	116	110
13	10 000	10 000	10 000	10 000	10 000	12 036	12 036	12 036	12 036	12 036	2 783	2 783	1 072	282	164	145
14	0	8 550	8 550	8 550	8 550	8 550	10 639	10 639	10 639	10 639	10 639	2 869	1 224	464	359	342
15	0	0	7 220	7 220	7 220	7 220	7 220	9 278	9 278	9 278	9 278	9 278	1 262	576	487	473
16	0	0	0	6 430	6 430	6 430	6 430	6 430	8 525	8 525	8 525	8 525	1 301	672	596	585
17	0	0	0	0	5 702	5 702	5 702	5 702	5 702	7 791	7 791	7 791	1 284	734	673	664
18	0	0	0	0	0	5 030	5 030	5 030	5 030	5 030	7 078	7 272	4 763	3 364	3 183	3 156
19	0	0	0	0	0	0	4 411	4 411	4 411	4 411	4 411	6 207	3 956	2 904	2 783	2 766
20	0	0	0	0	0	0	0	3 841	3 841	3 841	3 841	3 841	3 249	2 492	2 418	2 408
21	0	0	0	0	0	0	0	0	3 317	3 317	3 317	3 317	2 632	2 124	2 083	2 078
22	0	0	0	0	0	0	0	0	0	2 836	5 530	8 090	29 627	34 783	35 413	35 508
	10 000	19 250	27 755	35 945	43 775	51 200	58 175	64 679	70 818	76 582	72 257	68 562	52 375	48 986	48 512	48 437
	100.00%	96.25%	92.52%	89.86%	87.55%	85.33%	83.11%	80.85%	78.69%	76.58%	72.26%	68.56%	52.37%	48.99%	48.51%	48.44%

362

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50
1	0	0	0	27	30	40	63	106	175	189	211	245	349	239	161	123
2	0	0	0	0	90	92	101	120	155	296	307	327	416	284	194	151
3	0	0	0	0	0	186	188	195	211	241	460	469	577	391	259	196
4	0	0	0	0	0	0	313	315	321	334	359	667	702	472	317	243
5	0	0	200	200	200	200	200	659	661	665	677	697	827	546	374	292
6	0	0	0	500	500	500	500	500	1 111	1 112	1 116	1 126	953	617	436	353
7	0	0	0	0	826	826	826	826	826	1 585	1 586	1 589	1 071	686	505	423
8	0	0	0	0	0	1 130	1 130	1 130	1 130	1 130	2 020	2 020	1 615	990	686	548
9	0	1 400	1 400	1 400	1 400	1 400	2 778	2 778	2 778	2 778	2 778	2 372	1 752	1 058	757	625
10	0	0	2 340	2 340	2 340	2 340	2 340	3 952	3 952	3 952	3 952	3 952	1 945	1 193	901	778
11	0	0	0	2 916	2 916	2 916	2 916	2 916	4 702	4 702	4 702	4 702	2 091	1 321	1 054	946
12	0	0	0	0	3 208	3 208	3 208	3 208	3 208	5 102	5 102	5 102	2 162	1 419	1 188	1 099
13	10 000	10 000	10 000	10 000	10 000	13 281	13 281	13 281	13 281	13 281	5 218	5 218	3 290	1 928	1 481	1 303
14	0	8 100	8 100	8 100	8 100	8 100	11 289	11 289	11 289	11 289	11 289	5 106	3 480	2 296	1 943	1 809
15	0	0	6 480	6 480	6 480	6 480	6 480	9 456	9 456	9 456	9 456	9 456	3 366	2 394	2 136	2 044
16	0	0	0	5 468	5 468	5 468	5 468	5 468	8 337	8 337	8 337	8 337	3 267	2 467	2 285	2 225
17	0	0	0	0	4 593	4 593	4 593	4 593	4 593	7 305	7 305	7 305	3 042	2 431	2 319	2 287
18	0	0	0	0	0	3 838	3 838	3 838	3 838	3 838	6 356	6 583	6 313	5 719	5 582	5 539
19	0	0	0	0	0	0	3 189	3 189	3 189	3 189	3 189	5 281	5 002	4 631	4 585	4 578
20	0	0	0	0	0	0	0	2 631	2 631	2 631	2 631	2 631	3 912	3 728	3 743	3 760
21	0	0	0	0	0	0	0	0	2 152	2 152	2 152	2 152	3 013	2 979	3 034	3 064
22	0	0	0	0	0	0	0	0	0	1 743	3 312	4 725	17 468	22 594	24 065	24 617
	10 000	19 500	28 520	37 430	46 149	54 596	62 698	70 447	77 994	85 306	82 513	80 061	66 613	60 383	58 003	57 004
Frequency = 10	100.00%	97.50%	95.07%	93.58%	92.30%	90.99%	89.57%	88.06%	86.66%	85.31%	82.51%	80.06%	66.61%	60.38%	58.00%	57.00%
Frequency = 5%	100.00%	96.25%	92.52%	89.86%	87.55%	85.33%	83.11%	80.85%	78.69%	76.58%	72.26%	68.56%	52.37%	48.99%	48.51%	48.44%

BONUS/MALUS SYSTEM MODEL - Swiss - New — Probability Claim 30.00% — UNITS OF STANDARD PREMIUM

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50
1	0	0	0	729	948	1 626	2 947	5 018	7 876	9 449	11 627	14 424	34 137	45 177	50 181	52 694
2	0	0	0	0	1 890	2 032	2 471	3 327	4 670	8 429	9 458	10 902	24 760	32 909	36 749	38 701
3	0	0	0	0	0	3 043	3 134	3 417	3 969	4 833	9 095	9 764	19 440	24 971	27 389	28 591
4	0	0	0	0	0	0	3 982	4 042	4 227	4 588	5 154	9 663	15 351	18 965	20 567	21 367
5	0	0	1 800	1 800	1 800	1 800	1 800	6 338	6 377	6 497	6 732	7 101	12 309	14 357	15 365	15 886
6	0	0	0	3 497	3 497	3 497	3 497	3 497	8 198	8 223	8 301	8 453	10 007	10 849	11 424	11 748
7	0	0	0	0	4 498	4 498	4 498	4 498	4 498	9 034	9 050	9 101	8 175	8 182	8 452	8 638
8	0	0	0	0	0	4 785	4 785	4 785	4 785	4 785	8 921	8 931	8 292	7 277	6 853	6 649
9	0	4 200	4 200	4 200	4 200	4 200	8 738	8 738	8 738	8 738	8 738	8 133	6 814	5 554	5 076	4 854
10	0	0	5 460	5 460	5 460	5 460	5 460	9 589	9 589	9 589	9 589	9 589	5 746	4 388	3 888	3 659
11	0	0	0	5 292	5 292	5 292	5 292	5 292	8 850	8 850	8 850	8 850	4 734	3 442	2 964	2 744
12	0	0	0	0	4 528	4 528	4 528	4 528	4 528	7 463	7 463	7 463	3 780	2 669	2 242	2 042
13	10 000	10 000	10 000	10 000	10 000	13 602	13 602	13 602	13 602	13 602	5 936	5 936	4 086	2 597	1 967	1 656
14	0	6 300	6 300	6 300	6 300	6 300	9 023	9 023	9 023	9 023	9 023	4 520	3 241	2 043	1 513	1 247
15	0	0	3 920	3 920	3 920	3 920	3 920	5 897	5 897	5 897	5 897	5 897	2 412	1 524	1 113	904
16	0	0	0	2 573	2 573	2 573	2 573	2 573	4 055	4 055	4 055	4 055	1 823	1 168	846	679
17	0	0	0	0	1 681	1 681	1 681	1 681	1 681	2 770	2 770	2 770	1 327	875	633	503
18	0	0	0	0	0	1 092	1 092	1 092	1 092	1 092	1 879	1 934	1 663	1 053	704	516
19	0	0	0	0	0	0	706	706	706	706	706	1 214	1 057	678	455	334
20	0	0	0	0	0	0	0	453	453	453	453	453	662	434	293	215
21	0	0	0	0	0	0	0	0	288	288	288	288	408	277	188	138
22	0	0	0	0	0	0	0	0	0	182	309	398	945	704	469	330
	10 000	20 500	31 680	43 770	56 585	69 927	83 727	98 094	113 100	128 544	134 294	139 840	171 171	190 094	199 332	204 094
Frequency = 30	100.00%	102.50%	105.60%	109.43%	113.17%	116.54%	119.61%	122.62%	125.67%	128.54%	134.29%	139.84%	171.17%	190.09%	199.33%	204.09%
Frequency = 10	100.00%	97.50%	95.07%	93.58%	92.30%	90.99%	89.57%	88.06%	86.66%	85.31%	82.51%	80.06%	66.61%	60.38%	58.00%	57.00%
Frequency = 5%	100.00%	96.25%	92.52%	89.86%	87.55%	85.33%	83.11%	80.85%	78.69%	76.58%	72.26%	68.56%	52.37%	48.99%	48.51%	48.44%

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50
1	0	0	0	57	70	112	196	332	528	617	743	908	1 971	2 439	2 630	2 727
2	0	0	0	0	164	173	202	259	353	649	709	796	1 553	1 859	1 983	2 048
3	0	0	0	0	0	297	303	322	362	428	809	850	1 412	1 543	1 564	1 577
4	0	0	0	0	0	0	443	448	461	490	537	999	1 304	1 305	1 267	1 251
5	0	0	250	250	250	250	250	836	839	848	869	903	1 249	1 130	1 050	1 015
6	0	0	0	576	576	576	576	576	1 290	1 292	1 299	1 314	1 231	1 010	900	853
7	0	0	0	0	891	891	891	891	891	1 713	1 714	1 719	1 231	929	804	752
8	0	0	0	0	0	1 153	1 153	1 153	1 153	1 153	2 060	2 061	1 674	1 118	862	748
9	0	1 400	1 400	1 400	1 400	1 400	2 746	2 746	2 746	2 746	2 746	2 310	1 711	1 085	828	716
10	0	0	2 275	2 275	2 275	2 275	2 275	3 796	3 796	3 796	3 796	3 796	1 813	1 133	881	776
11	0	0	0	2 777	2 777	2 777	2 777	2 777	4 417	4 417	4 417	4 417	1 881	1 187	955	862
12	0	0	0	0	3 009	3 009	3 009	3 009	3 009	4 715	4 715	4 715	1 895	1 228	1 026	949
13	10 000	10 000	10 000	10 000	10 000	13 048	13 048	13 048	13 048	13 048	4 767	4 767	2 886	1 632	1 242	1 089
14	0	8 100	8 100	8 100	8 100	8 100	11 045	11 045	11 045	11 045	11 045	4 630	3 016	1 917	1 605	1 488
15	0	0	6 500	6 500	6 500	6 500	6 500	9 243	9 243	9 243	9 243	9 243	2 898	1 987	1 755	1 673
16	0	0	0	5 515	5 515	5 515	5 515	5 515	8 161	8 161	8 161	8 161	2 801	2 043	1 875	1 820
17	0	0	0	0	4 669	4 669	4 669	4 669	4 669	7 175	7 175	7 175	2 605	2 014	1 905	1 873
18	0	0	0	0	0	3 939	3 939	3 939	3 939	3 939	6 277	6 489	5 771	5 015	4 859	4 811
19	0	0	0	0	0	0	3 309	3 309	3 309	3 309	3 309	5 263	4 595	4 088	4 018	4 004
20	0	0	0	0	0	0	0	2 764	2 764	2 764	2 764	2 764	3 617	3 316	3 305	3 312
21	0	0	0	0	0	0	0	0	2 292	2 292	2 292	2 292	2 806	2 673	2 702	2 721
22	0	0	0	0	0	0	0	0	0	1 884	3 606	5 181	19 074	23 938	25 155	25 581
326%	10 000	19 500	28 525	37 450	46 196	54 684	62 845	70 676	78 314	85 723	83 051	80 750	68 993	64 589	63 171	62 645

CALCULATION OF IMPLICIT EXCESS OR DEDUCTIBLE

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Prem	Prem Paid
Claim?	0	0	0	0	0	0	0	0	0	0				
1												0	270.00%	0.00
2												0	250.00%	0.00
3												0	230.00%	0.00
4												0	215.00%	0.00
5												0	200.00%	0.00
6												0	185.00%	0.00
7												0	170.00%	0.00
8												0	155.00%	0.00
9												0	140.00%	0.00
10												0	130.00%	0.00
11												0	120.00%	0.00
12	1											0	110.00%	0.00
13		1										1	100.00%	1.00
14			1									1	90.00%	0.90
15				1								1	80.00%	0.80
16					1							1	75.00%	0.75
17						1						1	70.00%	0.70
18							1					1	65.00%	0.65
19								1				1	60.00%	0.60
20									1			1	55.00%	0.55
21										1		1	50.00%	0.50
22											1	1	45.00%	0.45
TOTAL	1	1	1	1	1	1	1	1	1	1	1	10	TOTAL	6.90
													Average	0.69

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Prem	Prem Paid
Claim?	1	0	0	0	0	0	0	0	0	0				
1												0	270.00%	0.00
2												0	250.00%	0.00
3												0	230.00%	0.00
4												0	215.00%	0.00
5												0	200.00%	0.00
6												0	185.00%	0.00
7												0	170.00%	0.00
8		1										1	155.00%	1.55
9			1									1	140.00%	1.40
10				1								1	130.00%	1.30
11					1							1	120.00%	1.20
12	1					1						1	110.00%	1.10
13							1					1	100.00%	1.00
14								1				1	90.00%	0.90
15									1			1	80.00%	0.80
16										1		1	75.00%	0.75
17											1	1	70.00%	0.70
18												0	65.00%	0.00
19												0	60.00%	0.00
20												0	55.00%	0.00
21												0	50.00%	0.00
22												0	45.00%	0.00
TOTAL	1	1	1	1	1	1	1	1	1	1	1	10	TOTAL	10.70
													Average	1.07
													Excess	3.80

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Prem	Prem Paid
Claim?	0	0	0	0	0	0	0	0	0	0				
1												0	270.00%	0.00
2												0	250.00%	0.00
3												0	230.00%	0.00
4												0	215.00%	0.00
5	1											0	200.00%	0.00
6		1										1	185.00%	1.85
7			1									1	170.00%	1.70
8				1								1	155.00%	1.55
9					1							1	140.00%	1.40
10						1						1	130.00%	1.30
11							1					1	120.00%	1.20
12								1				1	110.00%	1.10
13									1			1	100.00%	1.00
14										1		1	90.00%	0.90
15											1	1	80.00%	0.80
16												0	75.00%	0.00
17												0	70.00%	0.00
18												0	65.00%	0.00
19												0	60.00%	0.00
20												0	55.00%	0.00
21												0	50.00%	0.00
22												0	45.00%	0.00
TOTAL	1	1	1	1	1	1	1	1	1	1	1	10	TOTAL	12.80
													Average	1.28

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Prem	Prem Paid
Claim?	1	0	0	0	0	0	0	0	0	0				
1		1										1	270.00%	2.70
2			1									1	250.00%	2.50
3				1								1	230.00%	2.30
4					1							1	215.00%	2.15
5	1					1						1	200.00%	2.00
6							1					1	185.00%	1.85
7								1				1	170.00%	1.70
8									1			1	155.00%	1.55
9										1		1	140.00%	1.40
10											1	1	130.00%	1.30
11												0	120.00%	0.00
12												0	110.00%	0.00
13												0	100.00%	0.00
14												0	90.00%	0.00
15												0	80.00%	0.00
16												0	75.00%	0.00
17												0	70.00%	0.00
18												0	65.00%	0.00
19												0	60.00%	0.00
20												0	55.00%	0.00
21												0	50.00%	0.00
22												0	45.00%	0.00
TOTAL	1	1	1	1	1	1	1	1	1	1	1	10	TOTAL	19.45
													Average	1.95
													Excess	6.65

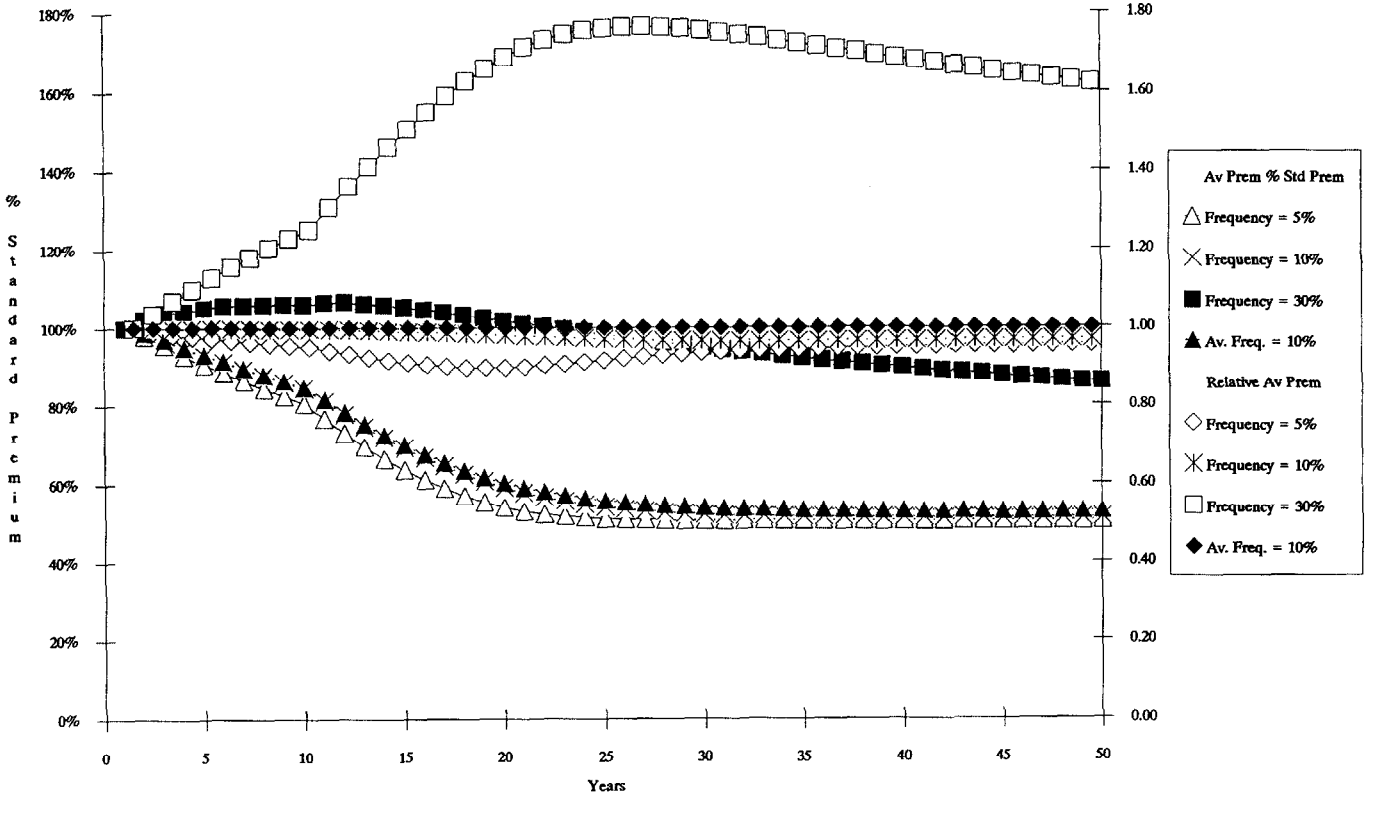
Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Prem	Prem Paid
Claim?	0	0	1	0	0	1	0	0	1	0				
1										1		0	270.00%	0.00
2												0	250.00%	0.00
3												0	230.00%	0.00
4												0	215.00%	0.00
5												0	200.00%	0.00
6											1	1	185.00%	1.85
7											1	1	170.00%	1.70
8							1					1	155.00%	1.55
9								1				1	140.00%	1.40
10				1					1			2	130.00%	2.60
11					1							1	120.00%	1.20
12	1					1						1	110.00%	1.10
13		1										1	100.00%	1.00
14			1									1	90.00%	0.90
15												0	80.00%	0.00
16												0	75.00%	0.00
17												0	70.00%	0.00
18												0	65.00%	0.00
19												0	60.00%	0.00
20												0	55.00%	0.00
21												0	50.00%	0.00
22												0	45.00%	0.00
TOTAL	1	1	1	1	1	1	1	1	1	1	1		TOTAL	13.30

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Prem	Prem Paid
Claim?	1	1	1	0	0	0	0	0	0	0				
1				1								1	270.00%	2.70
2					1							1	250.00%	2.50
3						1						1	230.00%	2.30
4			1				1					2	215.00%	4.30
5								1				1	200.00%	2.00
6									1			1	185.00%	1.85
7										1		1	170.00%	1.70
8		1									1	2	155.00%	3.10
9												0	140.00%	0.00
10												0	130.00%	0.00
11												0	120.00%	0.00
12	1											0	110.00%	0.00
13												0	100.00%	0.00
14												0	90.00%	0.00
15												0	80.00%	0.00
16												0	75.00%	0.00
17												0	70.00%	0.00
18												0	65.00%	0.00
19												0	60.00%	0.00
20												0	55.00%	0.00
21												0	50.00%	0.00
22												0	45.00%	0.00
TOTAL	1	1	1	1	1	1	1	1	1	1	1	10	TOTAL	20.45

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Prem	Prem Paid
Claim?	1	0	0	0	1	0	0	0	1	0				
1												0	270.00%	0.00
2												0	250.00%	0.00
3												0	230.00%	0.00
4												0	215.00%	0.00
5										1		1	200.00%	2.00
6						1					1	2	185.00%	3.70
7		1					1					2	170.00%	3.40
8			1					1				2	155.00%	3.10
9				1					1			2	140.00%	2.80
10					1							1	130.00%	1.30
11	1											0	120.00%	0.00
12												0	110.00%	0.00
13												0	100.00%	0.00
14												0	90.00%	0.00
15												0	80.00%	0.00
16												0	75.00%	0.00
17												0	70.00%	0.00
18												0	65.00%	0.00
19												0	60.00%	0.00
20												0	55.00%	0.00
21												0	50.00%	0.00
22												0	45.00%	0.00
TOTAL	1	1	1	1	1	1	1	1	1	1	1		TOTAL	16.30

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Prem	Prem Paid
Claim?	0	0	0	0	0	0	0	1	1	1				
1												0	270.00%	0.00
2												0	250.00%	0.00
3												0	230.00%	0.00
4												0	215.00%	0.00
5												0	200.00%	0.00
6											1	1	185.00%	1.85
7												0	170.00%	0.00
8												0	155.00%	0.00
9												0	140.00%	0.00
10										1		1	130.00%	1.30
11	1											0	120.00%	0.00
12		1										1	110.00%	1.10
13			1									1	100.00%	1.00
14				1					1			2	90.00%	1.80
15					1							1	80.00%	0.80
16						1						1	75.00%	0.75
17							1					1	70.00%	0.70
18								1				1	65.00%	0.65
19												0	60.00%	0.00
20												0	55.00%	0.00
21												0	50.00%	0.00
22												0	45.00%	0.00
TOTAL	1	1	1	1	1	1	1	1	1	1	1	10	TOTAL	9.95

BONUS/MALUS SYSTEM MODEL - Italian - New



NCD4C1.XLC

10:46 AM 1/7/91

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50	Scale
NEW ENTRANTS:	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	0	0	0	0	0	0	100.00%
1				1	5	5	6	7	7	7	7	7	0	0	0	0	200.00%
2			25	25	26	36	37	37	40	40	40	41	1	0	0	0	175.00%
3			0	71	71	72	93	93	94	99	99	99	2	0	0	0	150.00%
4		500	500	500	635	635	636	671	671	672	681	181	12	0	0	0	130.00%
5		0	950	950	950	1 164	1 164	1 165	1 219	1 219	1 219	1 233	19	0	0	0	115.00%
6	10 000	10 000	10 000	11 354	11 354	11 354	11 659	11 659	11 660	11 736	1 737	1 737	28	1	0	0	100.00%
7		9 500	9 500	9 500	11 215	11 215	11 215	11 621	11 621	11 622	11 726	2 226	142	1	0	0	94.00%
8			9 025	9 025	9 025	11 061	11 061	11 061	11 576	11 576	11 577	11 713	185	4	0	0	88.00%
9				8 574	8 574	8 574	10 895	10 895	10 895	11 524	11 524	11 524	236	5	0	0	82.00%
10					8 145	8 145	8 145	10 718	10 718	10 718	11 464	11 464	1 040	8	1	1	78.00%
11						7 738	7 738	7 738	10 531	10 531	10 531	11 398	1 203	33	3	3	74.00%
12							7 351	7 351	7 351	10 336	10 336	10 336	1 392	54	18	17	70.00%
13								6 983	6 983	6 983	10 135	10 135	4 736	84	43	42	66.00%
14									6 634	6 634	6 634	9 927	5 015	454	289	288	62.00%
15										6 302	6 302	6 302	5 317	674	513	509	59.00%
16											5 987	5 987	13 347	5 036	4 960	4 957	56.00%
17												5 688	11 837	5 156	4 711	4 709	53.00%
18													55 488	88 491	89 462	89 473	50.00%
TOTAL	10 000	20 000	30 000	40 000	50 000	60 000	70 000	80 000	90 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	

Probability Claim 10.00%

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50	Scale
NEW ENTRANTS	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	0	0	0	0	0	0	100.00%
1				10	38	42	50	65	68	73	80	81	20	1	0	0	200.00%
2			100	100	109	183	186	195	231	233	238	255	41	4	0	0	175.00%
3			0	270	270	278	417	420	429	494	496	502	66	7	1	0	150.00%
4		1 000	1 000	1 000	1 486	1 486	1 493	1 717	1 720	1 728	1 830	833	199	12	1	0	130.00%
5		0	1 800	1 800	1 800	2 529	2 529	2 536	2 861	2 863	2 871	3 020	276	32	2	0	115.00%
6	10 000	10 000	10 000	12 430	12 430	12 430	13 414	13 414	13 420	13 862	3 864	3 871	373	45	6	1	100.00%
7		9 000	9 000	9 000	11 916	11 916	11 916	13 156	13 156	13 161	13 731	4 733	1 055	61	9	2	94.00%
8			8 100	8 100	8 100	11 381	11 381	11 381	12 869	12 869	12 873	13 580	1 243	163	14	5	88.00%
9				7 290	7 290	7 290	10 833	10 833	10 833	12 555	12 555	12 559	1 503	201	35	11	82.00%
10					6 561	6 561	6 561	10 281	10 281	10 281	12 218	12 218	3 718	260	57	31	78.00%
11						5 905	5 905	5 905	9 731	9 731	9 731	11 862	3 889	642	97	66	74.00%
12							5 314	5 314	5 314	9 189	9 189	9 189	4 302	793	273	190	70.00%
13								4 783	4 783	4 783	8 657	8 657	8 555	1 016	457	382	66.00%
14									4 305	4 305	4 305	8 140	8 139	2 697	1 371	1 303	62.00%
15										3 874	3 874	8 874	8 265	3 188	2 224	2 036	59.00%
16											3 487	3 487	13 657	9 777	9 656	9 617	56.00%
17												3 138	10 370	9 893	8 659	8 648	53.00%
18													34 327	71 208	77 137	77 706	50.00%
TOTAL	10 000	20 000	30 000	40 000	50 000	60 000	70 000	80 000	90 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	

BONUS/MALUS SYSTEM MODEL - Italian - New Probability Claim 30.00% NUMBERS OF INSUREDS

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50	Scale
NEW ENTRANTS	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	0	0	0	0	0	0	100.00%
1				270	918	1 169	1 658	2 398	2 767	3 318	4 044	4 462	5 567	4 625	3 991	3 466	200.00%
2			900	900	1 089	2 336	2 512	2 882	4 069	4 354	4 802	5 882	5 916	5 360	4 264	3 752	175.00%
3			0	1 890	1 890	2 022	3 822	3 945	4 223	5 809	6 026	6 386	6 061	5 452	4 955	3 980	150.00%
4		3 000	3 000	3 000	5 646	5 646	5 739	7 971	8 057	8 265	10 170	7 335	7 948	5 561	4 929	4 619	130.00%
5		0	4 200	4 200	4 200	7 287	7 287	7 352	9 867	9 927	10 083	12 213	7 086	6 859	5 028	4 554	115.00%
6	10 000	10 000	10 000	14 410	14 410	14 410	17 651	17 651	17 697	20 347	10 389	10 505	6 947	6 122	6 053	4 668	100.00%
7		7 000	7 000	7 000	11 116	11 116	11 116	14 293	14 293	14 324	16 980	10 009	9 415	5 968	5 461	5 536	94.00%
8			4 900	4 900	4 900	8 502	8 502	8 502	11 466	11 466	11 488	14 048	7 346	7 533	5 384	5 104	88.00%
9				3 430	3 430	3 430	6 455	6 455	6 455	9 124	9 124	9 139	6 797	6 063	6 573	5 116	82.00%
10					2 401	2 401	2 401	4 872	4 872	4 872	7 206	7 206	8 570	5 699	5 543	6 127	78.00%
11						1 681	1 681	1 681	3 657	3 657	3 657	5 655	5 906	7 053	5 336	5 424	74.00%
12							1 176	1 176	1 176	2 733	2 733	2 733	5 106	5 291	6 518	5 504	70.00%
13								824	824	824	2 034	2 034	5 566	4 791	5 260	6 359	66.00%
14									576	576	576	1 509	3 384	5 786	5 371	6 034	62.00%
15										404	404	404	2 700	4 012	5 792	5 627	59.00%
16											282	282	2 596	4 432	6 059	7 769	56.00%
17												198	1 216	3 473	4 148	5 003	53.00%
18													1 871	5 920	9 334	11 358	50.00%
TOTAL	10 000	20 000	30 000	40 000	50 000	60 000	70 000	80 000	90 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	

Weighted Average Type 1 20.00% Type 2 75.00% Type 3 5.00% Probability Claim 5.00% 10.00% 30.00% Average 10.00%

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50	Scale
																	100.00%
1	0	0	0	21	75	91	122	170	191	222	264	286	293	232	200	173	200.00%
2	0	0	125	125	141	261	273	297	384	401	427	494	327	271	213	188	175.00%
3	0	0	0	311	311	324	523	531	551	680	693	715	353	278	248	199	150.00%
4	0	1 000	1 000	1 000	1 524	1 524	1 534	1 821	1 827	1 844	2 017	1 028	549	287	248	231	130.00%
5	0	0	1 750	1 750	1 750	2 494	2 494	2 502	2 883	2 888	2 901	3 123	566	367	253	228	115.00%
6	10 000	10 000	10 000	12 314	12 314	12 314	13 275	13 275	13 282	13 761	3 765	3 776	633	340	307	234	100.00%
7	0	9 000	9 000	9 000	11 736	11 736	11 736	12 906	12 906	12 912	13 492	4 495	1 290	345	280	279	94.00%
8	0	0	8 125	8 125	8 125	11 173	11 173	11 173	12 540	12 540	12 545	13 230	1 337	500	280	259	88.00%
9	0	0	0	7 354	7 354	7 354	10 626	10 626	10 626	12 177	12 177	12 181	1 515	455	355	264	82.00%
10	0	0	0	0	6 670	6 670	6 670	10 098	10 098	10 098	11 817	11 817	3 425	481	320	330	78.00%
11	0	0	0	0	0	6 060	6 060	6 060	9 588	9 588	9 588	11 459	3 453	841	340	321	74.00%
12	0	0	0	0	0	0	5 515	5 515	5 515	9 095	9 095	9 095	3 760	870	534	421	70.00%
13	0	0	0	0	0	0	0	5 025	5 025	5 025	8 622	8 622	7 642	1 018	615	613	66.00%
14	0	0	0	0	0	0	0	0	4 584	4 584	4 584	8 166	7 276	2 403	1 354	1 337	62.00%
15	0	0	0	0	0	0	0	0	0	4 186	4 186	4 186	7 397	2 726	2 060	1 910	59.00%
16	0	0	0	0	0	0	0	0	0	0	3 827	3 827	13 042	8 561	8 537	8 593	56.00%
17	0	0	0	0	0	0	0	0	0	0	0	3 501	10 206	8 624	7 644	7 678	53.00%
18	0	0	0	0	0	0	0	0	0	0	0	0	36 937	71 400	76 212	76 742	50.00%
TOTAL	10 000	20 000	30 000	40 000	50 000	60 000	70 000	80 000	90 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	Av Prem

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50
1	0	0	0	3	10	10	11	14	14	14	15	15	1	0	0	0
2	0	0	44	44	46	64	64	65	70	70	70	72	2	0	0	0
3	0	0	0	107	107	109	139	140	140	148	149	149	3	0	0	0
4	0	650	650	650	826	826	827	872	873	874	885	235	16	0	0	0
5	0	0	1 093	1 093	1 093	1 339	1 339	1 340	1 401	1 402	1 402	1 418	22	0	0	0
6	10 000	10 000	10 000	11 354	11 354	11 354	11 659	11 659	11 660	11 736	1 737	1 737	28	1	0	0
7	0	8 930	8 930	8 930	10 542	10 542	10 542	10 924	10 924	10 925	11 022	2 092	133	1	0	0
8	0	0	7 942	7 942	7 942	9 734	9 734	9 734	10 187	10 187	10 187	10 307	163	3	0	0
9	0	0	0	7 030	7 030	7 030	8 934	8 934	8 934	9 449	9 449	9 450	193	4	0	0
10	0	0	0	0	6 353	6 353	6 353	8 360	8 360	8 360	8 942	8 942	811	6	1	1
11	0	0	0	0	0	5 726	5 726	5 726	7 793	7 793	7 793	8 434	890	25	2	2
12	0	0	0	0	0	0	5 146	5 146	5 146	7 235	7 235	7 235	974	37	13	12
13	0	0	0	0	0	0	0	4 609	4 609	4 609	6 689	6 689	3 126	55	28	28
14	0	0	0	0	0	0	0	0	4 113	4 113	4 113	6 155	3 110	281	179	178
15	0	0	0	0	0	0	0	0	0	3 718	3 718	3 718	3 137	398	303	300
16	0	0	0	0	0	0	0	0	0	0	3 353	3 353	7 474	2 820	2 777	2 776
17	0	0	0	0	0	0	0	0	0	0	0	3 015	6 274	2 733	2 497	2 496
18	0	0	0	0	0	0	0	0	0	0	0	0	27 744	44 245	44 731	44 737
	10 000	19 580	28 658	37 152	45 302	53 087	60 475	67 522	74 224	80 634	76 761	73 017	54 101	50 610	50 532	50 530
	100.00%	97.90%	95.53%	92.88%	90.60%	88.48%	86.39%	84.40%	82.47%	80.63%	76.76%	73.02%	54.10%	50.61%	50.53%	50.53%

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50
1	0	0	0	20	76	83	101	131	136	145	160	163	39	3	0	0
2	0	0	175	175	191	320	326	340	403	408	417	446	72	7	1	0
3	0	0	0	405	405	417	626	631	643	740	744	752	99	11	1	0
4	0	1 300	1 300	1 300	1 932	1 932	1 941	2 232	2 236	2 246	2 380	1 083	259	15	2	0
5	0	0	2 070	2 070	2 070	2 908	2 908	2 916	3 290	3 293	3 302	3 474	318	37	3	1
6	10 000	10 000	10 000	12 430	12 430	12 430	13 414	13 414	13 420	13 862	3 864	3 871	373	45	6	1
7	0	8 460	8 460	8 460	11 201	11 201	11 201	12 367	12 367	12 372	12 907	4 449	991	58	8	2
8	0	0	7 128	7 128	7 128	10 015	10 015	10 015	11 324	11 324	11 329	11 950	1 094	143	12	5
9	0	0	0	5 978	5 978	5 978	8 883	8 883	8 883	10 295	10 295	10 298	1 233	165	29	9
10	0	0	0	0	5 118	5 118	5 118	8 019	8 019	8 019	9 530	9 530	2 900	203	45	24
11	0	0	0	0	0	4 370	4 370	4 370	7 201	7 201	7 201	8 778	2 878	475	72	49
12	0	0	0	0	0	0	3 720	3 720	3 720	6 432	6 432	6 432	3 012	555	191	133
13	0	0	0	0	0	0	0	3 157	3 157	3 157	5 714	5 714	5 647	671	302	252
14	0	0	0	0	0	0	0	0	2 669	2 669	2 669	5 047	5 046	1 672	850	808
15	0	0	0	0	0	0	0	0	0	2 286	2 286	2 286	4 877	1 881	1 312	1 201
16	0	0	0	0	0	0	0	0	0	0	1 953	1 953	7 648	5 475	5 407	5 386
17	0	0	0	0	0	0	0	0	0	0	0	1 663	5 496	5 243	4 589	4 584
18	0	0	0	0	0	0	0	0	0	0	0	0	17 164	35 604	38 569	38 853
	10 000	19 760	29 133	37 966	46 528	54 771	62 622	70 194	77 469	84 450	81 181	77 889	59 145	52 263	51 398	51 308
Frequency = 10	100.00%	98.80%	97.11%	94.91%	93.06%	91.29%	89.46%	87.74%	86.08%	84.45%	81.18%	77.89%	59.14%	52.26%	51.40%	51.31%
Frequency = 5%	100.00%	97.90%	95.53%	92.88%	90.60%	88.48%	86.39%	84.40%	82.47%	80.63%	76.76%	73.02%	54.10%	50.61%	50.53%	50.53%

BONUS/MALUS SYSTEM MODEL - Italian - New Probability Claim 30.00% UNITS OF STANDARD PREMIUM

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50
1	0	0	0	540	1 836	2 338	3 317	4 795	5 535	6 636	8 089	8 924	11 134	9 250	7 982	6 931
2	0	0	1 575	1 575	1 906	4 089	4 396	5 044	7 122	7 620	8 404	10 294	10 353	9 380	7 463	6 566
3	0	0	0	2 835	2 835	3 033	5 732	5 917	6 335	8 713	9 039	9 580	9 091	8 178	7 433	5 970
4	0	3 900	3 900	3 900	7 340	7 340	7 460	10 362	10 474	10 745	13 221	9 536	10 333	7 229	6 407	6 005
5	0	0	4 830	4 830	4 830	8 380	8 380	8 455	11 347	11 417	11 595	14 045	8 149	7 888	5 782	5 237
6	10 000	10 000	10 000	14 410	14 410	14 410	17 651	17 651	17 697	20 347	10 389	10 505	6 947	6 122	6 053	4 668
7	0	6 580	6 580	6 580	10 449	10 449	10 449	13 435	13 435	13 465	15 961	9 409	8 850	5 610	5 134	5 204
8	0	0	4 312	4 312	4 312	7 481	7 481	7 481	10 090	10 090	10 110	12 362	6 464	6 629	4 738	4 491
9	0	0	0	2 813	2 813	2 813	5 293	5 293	5 293	7 481	7 481	7 494	5 573	4 971	5 390	4 195
10	0	0	0	0	1 873	1 873	1 873	3 800	3 800	3 800	5 621	5 621	6 685	4 445	4 324	4 779
11	0	0	0	0	0	1 244	1 244	1 244	2 706	2 706	2 706	4 184	4 371	5 219	3 949	4 014
12	0	0	0	0	0	0	824	824	824	1 913	1 913	1 913	3 574	3 704	4 563	3 853
13	0	0	0	0	0	0	0	544	544	544	1 343	1 343	3 674	3 162	3 472	4 197
14	0	0	0	0	0	0	0	0	357	357	357	935	2 098	3 587	3 330	3 741
15	0	0	0	0	0	0	0	0	0	238	238	238	1 593	2 367	3 417	3 320
16	0	0	0	0	0	0	0	0	0	0	158	158	1 454	2 482	3 393	4 351
17	0	0	0	0	0	0	0	0	0	0	0	105	645	1 841	2 198	2 651
18	0	0	0	0	0	0	0	0	0	0	0	0	936	2 960	4 667	5 679
	10 000	20 480	31 197	41 795	52 603	63 450	74 101	84 844	95 558	106 072	106 626	106 645	101 924	95 025	89 693	85 852
Frequency = 30	100.00%	102.40%	103.99%	104.49%	105.21%	105.75%	105.86%	106.06%	106.18%	106.07%	106.63%	106.64%	101.92%	95.02%	89.69%	85.85%
Frequency = 10	100.00%	98.80%	97.11%	94.91%	93.06%	91.29%	89.46%	87.74%	86.08%	84.45%	81.18%	77.89%	59.14%	52.26%	51.40%	51.31%
Frequency = 5%	100.00%	97.90%	95.53%	92.88%	90.60%	88.48%	86.39%	84.40%	82.47%	80.63%	76.76%	73.02%	54.10%	50.61%	50.53%	50.53%

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50
1	0	0	0	43	151	182	244	341	382	444	527	571	586	465	399	347
2	0	0	219	219	248	457	477	521	673	701	747	864	572	475	374	328
3	0	0	0	467	467	486	784	797	827	1 021	1 040	1 073	530	417	373	299
4	0	1 300	1 300	1 300	1 981	1 981	1 994	2 367	2 375	2 397	2 623	1 336	714	373	322	300
5	0	0	2 013	2 013	2 013	2 868	2 868	2 878	3 315	3 321	3 337	3 591	650	422	291	262
6	10 000	10 000	10 000	12 314	12 314	12 314	13 275	13 275	13 282	13 761	3 765	3 776	633	340	307	234
7	0	8 460	8 460	8 460	11 032	11 032	11 032	12 131	12 131	12 137	12 683	4 226	1 213	324	263	262
8	0	0	7 150	7 150	7 150	9 832	9 832	9 832	11 035	11 035	11 039	11 642	1 176	440	246	228
9	0	0	0	6 030	6 030	6 030	8 714	8 714	8 714	9 985	9 985	9 989	1 242	373	291	217
10	0	0	0	0	5 202	5 202	5 202	7 876	7 876	7 876	9 217	9 217	2 671	376	250	257
11	0	0	0	0	0	4 485	4 485	4 485	7 095	7 095	7 095	8 480	2 555	622	252	238
12	0	0	0	0	0	0	3 860	3 860	3 860	6 367	6 367	6 367	2 632	609	374	295
13	0	0	0	0	0	0	0	3 317	3 317	3 317	5 690	5 690	5 044	672	406	404
14	0	0	0	0	0	0	0	0	2 842	2 842	2 842	5 063	4 511	1 490	840	829
15	0	0	0	0	0	0	0	0	0	2 470	2 470	2 470	4 365	1 608	1 215	1 127
16	0	0	0	0	0	0	0	0	0	0	2 143	2 143	7 304	4 794	4 780	4 812
17	0	0	0	0	0	0	0	0	0	0	0	1 856	5 409	4 571	4 051	4 069
18	0	0	0	0	0	0	0	0	0	0	0	0	18 468	35 700	38 106	38 371
177%	10 000	19 760	29 141	37 994	46 587	54 868	62 767	70 392	77 724	84 768	81 570	78 353	60 275	54 071	53 140	52 879

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Prem	Prem Paid
Claim?	0	0	0	0	0	0	0	0	0	0				
1												0	200.00%	0.00
2												0	175.00%	0.00
3												0	150.00%	0.00
4												0	130.00%	0.00
5												0	115.00%	0.00
6												0	100.00%	0.00
7												0	94.00%	0.00
8												0	88.00%	0.00
9												0	82.00%	0.00
10												0	78.00%	0.00
11												0	74.00%	0.00
12	1											0	70.00%	0.00
13		1										1	66.00%	0.66
14			1									1	62.00%	0.62
15				1								1	59.00%	0.59
16					1							1	56.00%	0.56
17						1						1	53.00%	0.53
18							1	1	1	1	1	5	50.00%	2.50
TOTAL	1	1	1	1	1	1	1	1	1	1	1	10	TOTAL	5.46
													Average	*0.55*

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Prem	Prem Paid
Claim?	0	0	0	0	0	0	0	0	0	0				
1												0	200.00%	0.00
2												0	175.00%	0.00
3	1											0	150.00%	0.00
4		1										1	130.00%	1.30
5			1									1	115.00%	1.15
6				1								1	100.00%	1.00
7					1							1	94.00%	0.94
8						1						1	88.00%	0.88
9							1					1	82.00%	0.82
10								1				1	78.00%	0.78
11									1			1	74.00%	0.74
12										1		1	70.00%	0.70
13											1	1	66.00%	0.66
14												0	62.00%	0.00
15												0	59.00%	0.00
16												0	56.00%	0.00
17												0	53.00%	0.00
18												0	50.00%	0.00
TOTAL	1	1	1	1	1	1	1	1	1	1	1	10	TOTAL	8.97
													Average	0.90

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Prem	Prem Paid
Claim?	1	0	0	0	0	0	0	0	0	0				
1												0	200.00%	0.00
2												0	175.00%	0.00
3												0	150.00%	0.00
4												0	130.00%	0.00
5												0	115.00%	0.00
6												0	100.00%	0.00
7												0	94.00%	0.00
8												0	88.00%	0.00
9												0	82.00%	0.00
10		1										1	78.00%	0.78
11			1									1	74.00%	0.74
12	1			1								1	70.00%	0.70
13					1							1	66.00%	0.66
14						1						1	62.00%	0.62
15							1					1	59.00%	0.59
16								1				1	56.00%	0.56
17									1			1	53.00%	0.53
18										1	1	2	50.00%	1.00
TOTAL	1	1	1	1	1	1	1	1	1	1	1	10	TOTAL	6.18
													Average	0.62
													Excess	0.72

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Prem	Prem Paid
Claim?	1	0	0	0	0	0	0	0	0	0				
1		1										1	200.00%	2.00
2			1									1	175.00%	1.75
3	1			1								1	150.00%	1.50
4					1							1	130.00%	1.30
5						1						1	115.00%	1.15
6							1					1	100.00%	1.00
7								1				1	94.00%	0.94
8									1			1	88.00%	0.88
9										1		1	82.00%	0.82
10											1	1	78.00%	0.78
11												0	74.00%	0.00
12												0	70.00%	0.00
13												0	66.00%	0.00
14												0	62.00%	0.00
15												0	59.00%	0.00
16												0	56.00%	0.00
17												0	53.00%	0.00
18												0	50.00%	0.00
TOTAL	1	1	1	1	1	1	1	1	1	1	1	10	TOTAL	12.12
													Average	1.21
													Excess	3.15

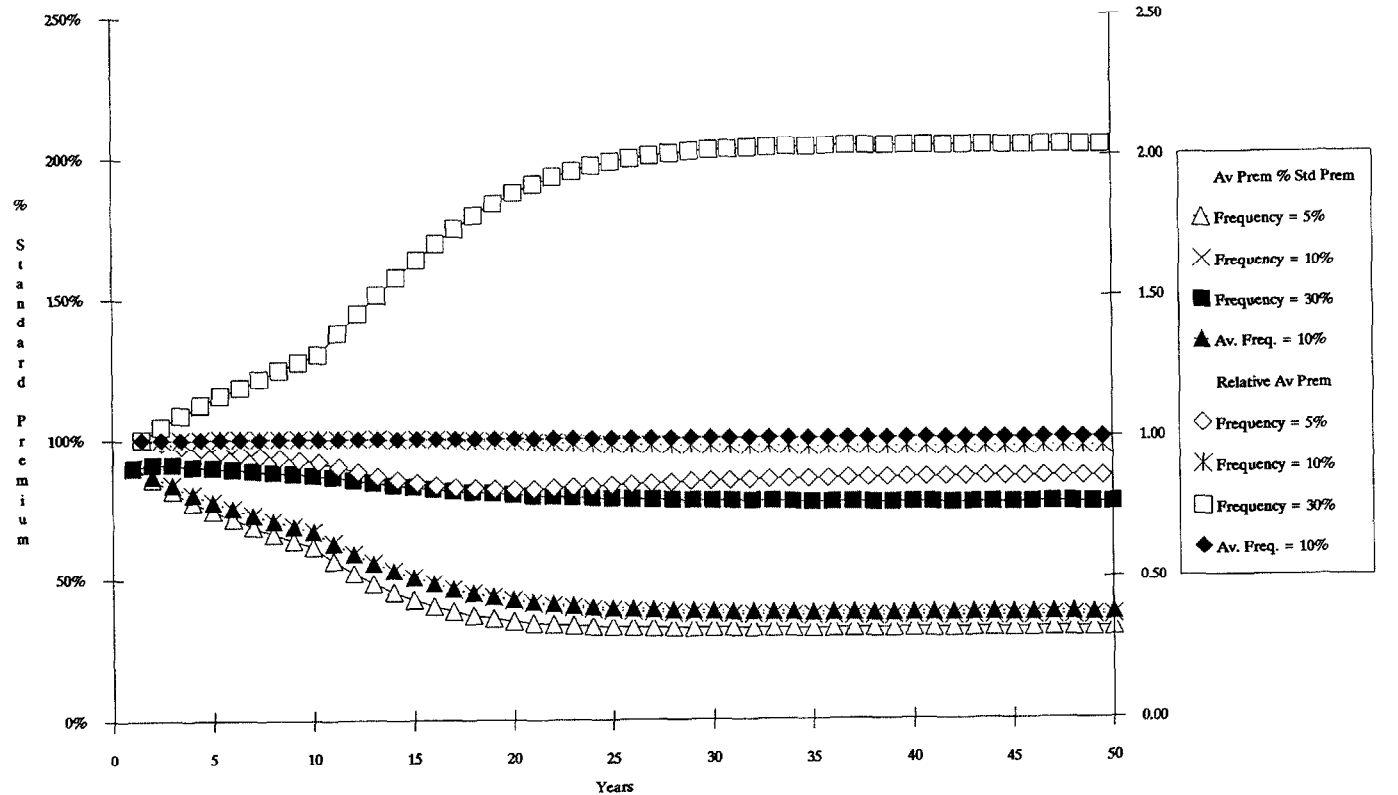
Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Prem	Prem Paid
Claim?	0	0	1	0	0	1	0	0	1	0				
1												0	200.00%	0.00
2												0	175.00%	0.00
3												0	150.00%	0.00
4												0	130.00%	0.00
5												0	115.00%	0.00
6												0	100.00%	0.00
7												0	94.00%	0.00
8												0	88.00%	0.00
9												0	82.00%	0.00
10												0	78.00%	0.00
11												0	74.00%	0.00
12	1			1			1			1		3	70.00%	2.10
13		1			1			1			1	4	66.00%	2.64
14			1			1			1			3	62.00%	1.86
15												0	59.00%	0.00
16												0	56.00%	0.00
17												0	53.00%	0.00
18												0	50.00%	0.00
TOTAL	1	1	1	1	1	1	1	1	1	1	1		TOTAL	6.60

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Prem	Prem Paid
Claim?	1	1	1	0	0	0	0	0	0	0				
1												0	200.00%	0.00
2												0	175.00%	0.00
3												0	150.00%	0.00
4												0	130.00%	0.00
5												0	115.00%	0.00
6					1							1	100.00%	1.00
7						1						1	94.00%	0.94
8				1			1					2	88.00%	1.76
9								1				1	82.00%	0.82
10		1							1			2	78.00%	1.56
11										1		1	74.00%	0.74
12	1										1	1	70.00%	0.70
13												1	66.00%	0.66
14												0	62.00%	0.00
15												0	59.00%	0.00
16												0	56.00%	0.00
17												0	53.00%	0.00
18												0	50.00%	0.00
TOTAL	1	1	1	1	1	1	1	1	1	1	1	10	TOTAL	8.18

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Prem	Prem Paid
Claim?	1	0	0	0	1	0	0	0	1	0				
1												0	200.00%	0.00
2												0	175.00%	0.00
3												0	150.00%	0.00
4												0	130.00%	0.00
5												0	115.00%	0.00
6												0	100.00%	0.00
7												0	94.00%	0.00
8												0	88.00%	0.00
9												0	82.00%	0.00
10		1										1	78.00%	0.78
11			1			1						2	74.00%	1.48
12	1			1			1			1		3	70.00%	2.10
13					1			1			1	3	66.00%	1.98
14									1			1	62.00%	0.62
15												0	59.00%	0.00
16												0	56.00%	0.00
17												0	53.00%	0.00
18												0	50.00%	0.00
TOTAL	1	1	1	1	1	1	1	1	1	1	1		TOTAL	6.96

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Prem	Prem Paid
Claim?	0	0	0	0	0	0	0	1	1	1				
1												0	200.00%	0.00
2												0	175.00%	0.00
3												0	150.00%	0.00
4												0	130.00%	0.00
5												0	115.00%	0.00
6												0	100.00%	0.00
7												0	94.00%	0.00
8												0	88.00%	0.00
9												0	82.00%	0.00
10												0	78.00%	0.00
11												0	74.00%	0.00
12	1										1	1	70.00%	0.70
13		1										1	66.00%	0.66
14			1							1		2	62.00%	1.24
15				1								1	59.00%	0.59
16					1				1			2	56.00%	1.12
17						1						1	53.00%	0.53
18								1	1			2	50.00%	1.00
TOTAL	1	1	1	1	1	1	1	1	1	1	1	10	TOTAL	5.84

BONUS/MALUS SYSTEM MODEL - Dutch



NCD5C1.XLC

10:54 AM 1/7/91

BONUS/MALUS SYSTEM MODEL - Dutch

Probability Claim 5.00%

NUMBER OF INSUREDS

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50	Premium Scale
NEW ENTRANTS:	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	0	0	0	0	0	0	100.00%
1		500	1 000	1 049	1 120	1 213	1 306	1 321	1 340	1 363	1 386	891	57	8	6	6	120.00%
2		0	475	1 401	1 448	1 515	1 624	1 810	1 826	1 847	1 876	1 923	127	16	12	11	100.00%
3	10 000	10 000	10 000	10 451	11 760	11 804	11 868	11 991	12 278	12 296	2 319	2 354	205	39	29	29	90.00%
4		9 500	9 500	9 500	9 929	11 579	11 621	11 682	11 817	12 213	12 248	2 773	314	84	68	67	80.00%
5			9 025	9 025	9 025	9 432	11 387	11 427	11 485	11 630	12 124	12 191	930	149	123	122	70.00%
6				8 574	8 574	8 574	8 961	11 185	11 223	11 278	11 433	12 013	1 365	399	361	359	60.00%
7					8 145	8 145	8 145	8 513	10 975	11 343	11 395	11 558	1 882	878	796	793	55.00%
8						7 738	7 738	7 738	8 087	10 426	11 091	11 440	3 114	1 277	1 166	1 161	50.00%
9							7 351	7 351	7 351	7 683	9 905	10 536	7 456	4 952	4 877	4 873	45.00%
10								6 983	6 983	6 983	7 298	9 410	6 913	4 725	4 634	4 629	40.00%
11									6 634	6 634	6 634	6 934	6 041	4 574	4 404	4 398	37.50%
12										6 302	6 302	6 302	5 321	4 343	4 186	4 178	35.00%
13											5 987	5 987	10 592	4 174	3 982	3 969	32.50%
14												5 688	55 682	74 381	75 354	75 405	30.00%
TOTAL	10 000	20 000	30 000	40 000	50 000	60 000	70 000	80 000	90 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	

Probability Claim 10.00%

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50	Scale
NEW ENTRANTS	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	0	0	0	0	0	0	100.00%
1		1 000	2 000	2 190	2 461	2 805	3 149	3 257	3 388	3 540	3 693	2 755	627	214	152	142	120.00%
2		0	900	2 610	2 781	3 025	3 400	4 011	4 121	4 257	4 436	4 705	1 058	338	245	228	100.00%
3	10 000	10 000	10 000	10 810	13 078	13 232	13 451	13 848	14 723	14 833	4 971	5 174	1 438	575	408	385	90.00%
4		9 000	9 000	9 000	9 729	12 426	12 565	12 762	13 173	14 300	14 452	5 591	1 886	912	693	661	80.00%
5			8 100	8 100	8 100	8 756	11 774	11 899	12 077	12 494	13 815	14 038	3 558	1 302	1 051	1 001	70.00%
6				7 290	7 290	7 290	7 880	11 128	11 240	11 400	11 819	13 283	4 497	2 122	1 842	1 790	60.00%
7					6 561	6 561	6 561	7 092	10 494	11 025	11 169	11 584	5 393	3 676	3 189	3 131	55.00%
8						5 905	5 905	5 905	6 383	9 444	10 310	10 788	6 777	4 591	4 124	4 049	50.00%
9							5 314	5 314	5 314	5 745	8 500	9 279	11 106	9 014	8 907	8 872	45.00%
10								4 783	4 783	4 783	5 170	7 650	9 568	8 133	8 012	7 986	40.00%
11									4 305	4 305	4 653	7 675	7 532	7 213	7 189	7 189	37.50%
12										3 874	3 874	3 874	6 332	6 701	6 498	6 470	35.00%
13											3 487	3 487	8 610	5 998	5 875	5 824	32.50%
14												3 138	31 476	48 890	51 792	52 271	30.00%
TOTAL	10 000	20 000	30 000	40 000	50 000	60 000	70 000	80 000	90 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	

BONUS/MALUS SYSTEM MODEL - Dutch Probability Claim 30.00% NUMBER OF INSUREDS

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50	Scale
NEW ENTRANTS	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	0	0	0	0	0	0	100.00%
1		3 000	6 000	7 530	9 501	11 781	14 060	15 735	17 591	19 574	21 558	20 214	17 367	16 123	15 735	15 608	120.00%
2		0	2 100	5 670	6 741	8 121	9 933	12 350	13 632	15 073	16 715	18 683	15 465	14 091	13 835	13 718	100.00%
3	10 000	10 000	10 000	11 470	14 998	15 748	16 713	18 133	20 506	21 480	12 589	13 931	13 039	12 455	12 092	12 028	90.00%
4		7 000	7 000	7 000	8 029	11 219	11 744	12 420	13 519	15 731	16 519	10 364	10 842	10 950	10 691	10 659	80.00%
5			4 900	4 900	4 900	5 620	8 357	8 725	9 198	10 042	11 975	12 637	10 207	9 325	9 355	9 291	70.00%
6				3 430	3 430	3 430	3 934	6 203	6 460	6 792	7 434	9 057	8 395	7 932	8 055	8 044	60.00%
7					2 401	2 401	2 401	2 754	4 589	4 942	5 174	5 660	6 625	7 462	7 407	7 469	55.00%
8						1 681	1 681	1 681	1 928	3 212	3 581	3 828	5 128	5 948	6 063	6 116	50.00%
9							1 176	1 176	1 176	1 349	2 249	2 506	4 524	4 801	5 084	5 130	45.00%
10								824	824	824	945	1 574	2 980	3 331	3 539	3 590	40.00%
11									576	576	576	661	1 789	2 391	2 462	2 514	37.50%
12										404	404	404	1 125	1 632	1 719	1 756	35.00%
13											282	282	985	1 099	1 210	1 227	32.50%
14												198	1 530	2 459	2 754	2 850	30.00%
TOTAL	10 000	20 000	30 000	40 000	50 000	60 000	70 000	80 000	90 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	

Weighted Average Type 1 20.00% Probability Claim 5.00% Average 10.00%
Type 2 75.00% 10.00%
Type 3 5.00% 30.00%

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50	Scale
																	100.00%
1	0	1 000	2 000	2 229	2 545	2 935	3 326	3 493	3 688	3 907	4 125	3 255	1 350	968	902	888	120.00%
2	0	0	875	2 521	2 712	2 978	3 371	3 988	4 137	4 316	4 538	4 848	1 592	961	878	859	100.00%
3	10 000	10 000	10 000	10 771	12 910	13 072	13 298	13 691	14 523	14 658	4 822	5 048	1 772	1 062	917	896	90.00%
4	0	9 000	9 000	9 000	9 684	12 196	12 335	12 529	12 919	13 954	14 115	5 266	2 020	1 248	1 068	1 042	80.00%
5	0	0	8 125	8 125	8 125	8 735	11 526	11 646	11 814	12 198	13 384	13 598	3 365	1 473	1 280	1 240	70.00%
6	0	0	0	7 354	7 354	7 354	7 899	10 893	10 998	11 146	11 522	12 818	4 065	2 068	1 856	1 816	60.00%
7	0	0	0	0	6 670	6 670	6 670	7 160	10 295	10 784	10 915	11 283	4 752	3 305	2 921	2 880	55.00%
8	0	0	0	0	0	6 060	6 060	6 060	6 501	9 329	10 130	10 571	5 962	3 996	3 630	3 575	50.00%
9	0	0	0	0	0	0	5 515	5 515	5 515	5 913	8 468	9 192	10 047	7 991	7 910	7 885	45.00%
10	0	0	0	0	0	0	0	5 025	5 025	5 025	5 385	7 698	8 707	7 211	7 113	7 095	40.00%
11	0	0	0	0	0	0	0	0	4 584	4 584	4 584	4 910	7 054	6 684	6 414	6 397	37.50%
12	0	0	0	0	0	0	0	0	0	4 186	4 186	4 186	5 870	5 976	5 797	5 776	35.00%
13	0	0	0	0	0	0	0	0	0	0	3 827	3 827	8 625	5 389	5 263	5 223	32.50%
14	0	0	0	0	0	0	0	0	0	0	0	3 501	34 820	51 667	54 052	54 427	30.00%
TOTAL	10 000	20 000	30 000	40 000	50 000	60 000	70 000	80 000	90 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	Av Prem

BONUS/MALUS SYSTEM MODEL - Dutch Probability Claim 5.00% UNITS OF STANDARD PREMIUM

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50
1	0	600	1 200	1 259	1 344	1 455	1 567	1 585	1 608	1 636	1 663	1 070	68	9	7	7
2	0	0	475	1 401	1 448	1 515	1 624	1 810	1 826	1 847	1 876	1 923	127	16	12	11
3	9 000	9 000	9 000	9 406	10 584	10 623	10 681	10 792	11 051	11 066	2 087	2 119	184	35	26	26
4	0	7 600	7 600	7 600	7 943	9 263	9 297	9 346	9 453	9 771	9 799	2 218	251	67	54	54
5	0	0	6 318	6 318	6 318	6 603	7 971	7 999	8 039	8 141	8 487	8 533	651	104	86	85
6	0	0	0	5 144	5 144	5 144	5 376	6 711	6 734	6 767	6 860	7 208	819	239	217	216
7	0	0	0	0	4 480	4 480	4 480	4 682	6 036	6 238	6 267	6 357	1 035	483	438	436
8	0	0	0	0	0	3 869	3 869	3 869	4 043	5 213	5 545	5 720	1 557	638	583	580
9	0	0	0	0	0	0	3 308	3 308	3 308	3 457	4 457	4 741	3 355	2 228	2 195	2 193
10	0	0	0	0	0	0	0	2 793	2 793	2 793	2 919	3 764	2 765	1 890	1 854	1 852
11	0	0	0	0	0	0	0	0	2 488	2 488	2 488	2 600	2 265	1 715	1 652	1 649
12	0	0	0	0	0	0	0	0	0	2 206	2 206	2 206	1 863	1 520	1 465	1 462
13	0	0	0	0	0	0	0	0	0	0	1 946	1 946	3 442	1 357	1 294	1 290
14	0	0	0	0	0	0	0	0	0	0	0	1 706	16 705	22 314	22 606	22 621
	9 000	17 200	24 593	31 128	37 260	42 953	48 173	52 894	57 380	61 624	56 601	52 111	35 089	32 618	32 489	32 483
	90.00%	86.00%	81.98%	77.82%	74.52%	71.59%	68.82%	66.12%	63.76%	61.62%	56.60%	52.11%	35.09%	32.62%	32.49%	32.48%

Probability Claim 10.00%

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50
1	0	1 200	2 400	2 628	2 953	3 366	3 779	3 908	4 065	4 248	4 432	3 306	752	257	183	170
2	0	0	900	2 610	2 781	3 025	3 400	4 011	4 121	4 257	4 436	4 705	1 058	338	245	228
3	9 000	9 000	9 000	9 729	11 770	11 909	12 106	12 463	13 251	13 349	4 474	4 657	1 295	518	367	347
4	0	7 200	7 200	7 200	7 783	9 941	10 052	10 210	10 538	11 440	11 562	4 473	1 509	729	554	529
5	0	0	5 670	5 670	5 670	6 129	8 242	8 329	8 454	8 746	9 670	9 826	2 491	912	735	701
6	0	0	0	4 374	4 374	4 374	4 728	6 677	6 744	6 840	7 091	7 970	2 698	1 273	1 105	1 074
7	0	0	0	0	3 609	3 609	3 609	3 901	5 772	6 064	6 143	6 371	2 966	2 022	1 754	1 722
8	0	0	0	0	0	2 952	2 952	2 952	3 192	4 722	5 155	5 394	3 389	2 296	2 062	2 024
9	0	0	0	0	0	0	2 391	2 391	2 391	2 585	3 825	4 176	4 998	4 056	4 008	3 992
10	0	0	0	0	0	0	0	1 913	1 913	1 913	2 068	3 060	3 827	3 253	3 205	3 194
11	0	0	0	0	0	0	0	0	1 614	1 614	1 614	1 745	2 878	2 825	2 705	2 696
12	0	0	0	0	0	0	0	0	0	1 356	1 356	1 356	2 216	2 346	2 274	2 265
13	0	0	0	0	0	0	0	0	0	0	1 133	1 133	2 798	1 949	1 909	1 893
14	0	0	0	0	0	0	0	0	0	0	0	941	9 443	14 667	15 537	15 681
	9 000	17 400	25 170	32 211	38 940	45 305	51 259	56 756	62 055	67 135	62 959	59 114	42 317	37 440	36 644	36 517
Frequency = 10	90.00%	87.00%	83.90%	80.53%	77.88%	75.51%	73.23%	70.95%	68.95%	67.13%	62.96%	59.11%	42.32%	37.44%	36.64%	36.52%
Frequency = 5%	90.00%	86.00%	81.98%	77.82%	74.52%	71.59%	68.82%	66.12%	63.76%	61.62%	56.60%	52.11%	35.09%	32.62%	32.49%	32.48%

BONUS/MALUS SYSTEM MODEL - Dutch Probability Claim 30.00% UNITS OF STANDARD PREMIUM

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50
1	0	3 600	7 200	9 036	11 401	14 137	16 872	18 882	21 109	23 489	25 869	24 257	20 841	19 348	18 882	18 730
2	0	0	2 100	5 670	6 741	8 121	9 933	12 350	13 632	15 073	16 715	18 683	15 465	14 091	13 835	13 718
3	9 000	9 000	9 000	10 323	13 498	14 173	15 042	16 320	18 455	19 332	11 330	12 537	11 735	11 209	10 882	10 825
4	0	5 600	5 600	5 600	6 423	8 975	9 395	9 936	10 815	12 585	13 215	8 291	8 674	8 760	8 553	8 527
5	0	0	3 430	3 430	3 430	3 934	5 850	6 107	6 439	7 029	8 383	8 846	7 145	6 528	6 548	6 504
6	0	0	0	2 058	2 058	2 058	2 361	3 722	3 876	4 075	4 460	5 434	5 037	4 759	4 833	4 826
7	0	0	0	0	1 321	1 321	1 321	1 515	2 524	2 718	2 846	3 113	3 644	4 104	4 074	4 108
8	0	0	0	0	0	840	840	840	964	1 606	1 790	1 914	2 564	2 974	3 031	3 058
9	0	0	0	0	0	0	529	529	529	607	1 012	1 128	2 036	2 161	2 288	2 309
10	0	0	0	0	0	0	0	329	329	329	378	630	1 192	1 332	1 416	1 436
11	0	0	0	0	0	0	0	0	216	216	216	248	671	897	923	943
12	0	0	0	0	0	0	0	0	0	141	141	141	394	571	602	615
13	0	0	0	0	0	0	0	0	0	0	92	92	320	357	393	399
14	0	0	0	0	0	0	0	0	0	0	0	59	459	738	826	855
	9 000	18 200	27 330	36 117	44 872	53 559	62 143	70 530	78 890	87 202	86 447	85 374	80 175	77 829	77 086	76 852
Frequency = 30	90.00%	91.00%	91.10%	90.29%	89.74%	89.26%	88.78%	88.16%	87.66%	87.20%	86.45%	85.37%	80.18%	77.83%	77.09%	76.85%
Frequency = 10	90.00%	87.00%	83.90%	80.53%	77.88%	75.51%	73.23%	70.95%	68.95%	67.13%	62.96%	59.11%	42.32%	37.44%	36.64%	36.52%
Frequency = 5%	90.00%	86.00%	81.98%	77.82%	74.52%	71.59%	68.82%	66.12%	63.76%	61.62%	56.60%	52.11%	35.09%	32.62%	32.49%	32.48%

Weighted Average

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50
1	0	1 200	2 400	2 675	3 054	3 522	3 991	4 192	4 426	4 688	4 950	3 906	1 620	1 162	1 082	1 066
2	0	0	875	2 521	2 712	2 978	3 371	3 988	4 137	4 316	4 538	4 848	1 592	961	878	859
3	9 000	9 000	9 000	9 694	11 619	11 765	11 968	12 322	13 071	13 192	4 339	4 543	1 595	956	825	807
4	0	7 200	7 200	7 200	7 747	9 757	9 868	10 023	10 335	11 163	11 292	4 213	1 616	998	854	834
5	0	0	5 688	5 688	5 688	6 114	8 068	8 152	8 270	8 539	9 369	9 519	2 355	1 031	896	868
6	0	0	0	4 412	4 412	4 412	4 740	6 536	6 599	6 687	6 913	7 691	2 439	1 241	1 114	1 090
7	0	0	0	0	3 668	3 668	3 668	3 938	5 662	5 931	6 003	6 206	2 614	1 818	1 607	1 584
8	0	0	0	0	0	3 030	3 030	3 030	3 251	4 665	5 065	5 285	2 981	1 998	1 815	1 787
9	0	0	0	0	0	0	2 482	2 482	2 482	2 661	3 811	4 136	4 521	3 596	3 559	3 548
10	0	0	0	0	0	0	0	2 010	2 010	2 010	2 154	3 079	3 483	2 885	2 845	2 838
11	0	0	0	0	0	0	0	0	1 719	1 719	1 719	1 841	2 645	2 506	2 405	2 399
12	0	0	0	0	0	0	0	0	0	1 465	1 465	1 465	2 054	2 092	2 029	2 022
13	0	0	0	0	0	0	0	0	0	0	1 244	1 244	2 803	1 751	1 710	1 698
14	0	0	0	0	0	0	0	0	0	0	0	1 050	10 446	15 500	16 216	16 328
204%	9 000	17 400	25 163	32 190	38 901	45 247	51 186	56 673	61 962	67 036	62 862	59 026	42 764	38 495	37 835	37 727

CALCULATION OF IMPLICIT EXCESS OR DEDUCTIBLE

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Premium	Prem Paid
Claims ?	0	0	0	0	0	0	0	0	0	0				
1												0	120.00%	0.00
2												0	100.00%	0.00
3												0	90.00%	0.00
4												0	80.00%	0.00
5												0	70.00%	0.00
6												0	60.00%	0.00
7												0	55.00%	0.00
8												0	50.00%	0.00
9												0	45.00%	0.00
10	1											0	40.00%	0.00
11		1										1	37.50%	0.38
12			1									1	35.00%	0.35
13				1								1	32.50%	0.33
14					1	1	1	1	1	1	1	7	30.00%	2.10
TOTAL	1	1	1	1	1	1	1	1	1	1	1	10	TOTAL	3.15
													Average	0.32

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Premium	Prem Paid
Claims ?	0	0	0	0	0	0	0	0	0	0				
1												0	120.00%	0.00
2												0	100.00%	0.00
3												0	90.00%	0.00
4	1											0	80.00%	0.00
5		1										1	70.00%	0.70
6			1									1	60.00%	0.60
7				1								1	55.00%	0.55
8					1							1	50.00%	0.50
9						1						1	45.00%	0.45
10							1					1	40.00%	0.40
11								1				1	37.50%	0.38
12									1			1	35.00%	0.35
13										1		1	32.50%	0.33
14											1	1	30.00%	0.30
TOTAL	1	1	1	1	1	1	1	1	1	1	1	10	TOTAL	4.55
													Average	0.46

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Premium	Prem Paid
Claims ?	1	0	0	0	0	0	0	0	0	0				
1												0	120.00%	0.00
2												0	100.00%	0.00
3												0	90.00%	0.00
4												0	80.00%	0.00
5												0	70.00%	0.00
6												0	60.00%	0.00
7		1										1	55.00%	0.55
8			1									1	50.00%	0.50
9				1								1	45.00%	0.45
10	1				1							1	40.00%	0.40
11						1						1	37.50%	0.38
12							1					1	35.00%	0.35
13								1				1	32.50%	0.33
14									1	1	1	3	30.00%	0.90
TOTAL	1	1	1	1	1	1	1	1	1	1	1	10	TOTAL	3.85
													Average	0.39
													Excess	0.70

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Premium	Prem Paid
Claims ?	1	0	0	0	0	0	0	0	0	0				
1		1										1	120.00%	1.20
2			1									1	100.00%	1.00
3				1								1	90.00%	0.90
4	1				1							1	80.00%	0.80
5						1						1	70.00%	0.70
6							1					1	60.00%	0.60
7								1				1	55.00%	0.55
8									1			1	50.00%	0.50
9										1		1	45.00%	0.45
10											1	1	40.00%	0.40
11												0	37.50%	0.00
12												0	35.00%	0.00
13												0	32.50%	0.00
14												0	30.00%	0.00
TOTAL	1	1	1	1	1	1	1	1	1	1	1	10	TOTAL	7.10
													Average	0.71
													Excess	2.55

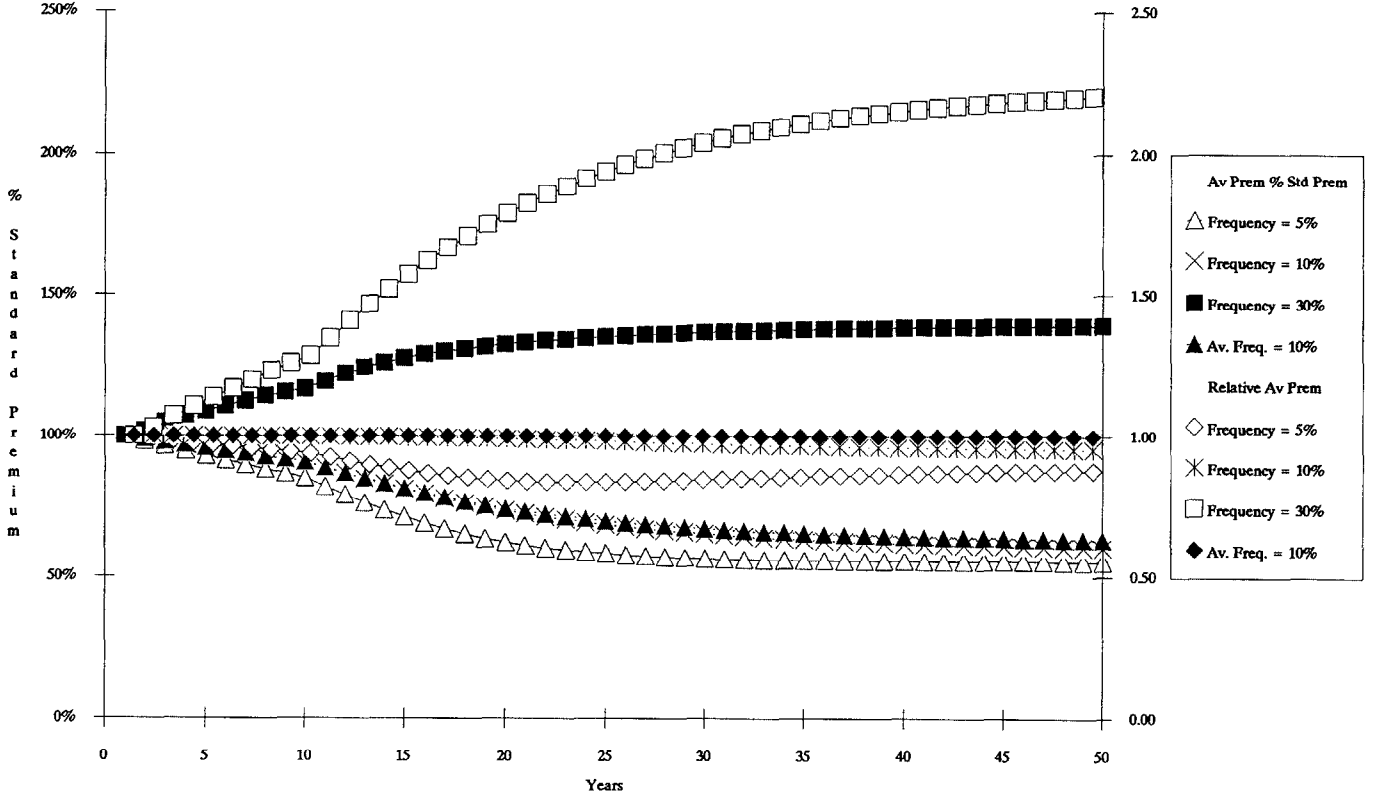
Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Premium	Prem Paid
Claim?	0	1	0	0	1	0	0	1	0	0				
1												0	120.00%	0.00
2												0	100.00%	0.00
3												0	90.00%	0.00
4												0	80.00%	0.00
5									1			1	70.00%	0.70
6						1				1		2	60.00%	1.20
7			1				1				1	3	55.00%	1.65
8				1				1				2	50.00%	1.00
9					1							1	45.00%	0.45
10	1											0	40.00%	0.00
11		1										1	37.50%	0.38
12												0	35.00%	0.00
13												0	32.50%	0.00
14												0	30.00%	0.00
TOTAL	1	1	1	1	1	1	1	1	1	1	1		TOTAL	5.38

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Premium	Prem Paid
Claim?	1	1	1	0	0	0	0	0	0	0				
1				1								1	120.00%	1.20
2					1							1	100.00%	1.00
3						1						1	90.00%	0.90
4			1				1					2	80.00%	1.60
5								1				1	70.00%	0.70
6									1			1	60.00%	0.60
7		1								1		2	55.00%	1.10
8											1	1	50.00%	0.50
9												0	45.00%	0.00
10	1											0	40.00%	0.00
11												0	37.50%	0.00
12												0	35.00%	0.00
13												0	32.50%	0.00
14												0	30.00%	0.00
TOTAL	1	1	1	1	1	1	1	1	1	1	1	10	TOTAL	7.60

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Pre	Premium
Claim?	1	0	0	0	1	0	0	0	1	0				
1												0	120.00%	0.00
2												0	100.00%	0.00
3												0	90.00%	0.00
4												0	80.00%	0.00
5												0	70.00%	0.00
6												0	60.00%	0.00
7		1				1				1		3	55.00%	1.65
8			1				1				1	3	50.00%	1.50
9				1				1				2	45.00%	0.90
10	1				1				1			2	40.00%	0.80
11												0	37.50%	0.00
12												0	35.00%	0.00
13												0	32.50%	0.00
14												0	30.00%	0.00
TOTAL	1	1	1	1	1	1	1	1	1	1	1		TOTAL	4.85

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Premium	Prem Paid
Claim?	0	0	0	0	0	0	0	1	1	1				
1												0	120.00%	0.00
2												0	100.00%	0.00
3											1	1	90.00%	0.90
4												0	80.00%	0.00
5												0	70.00%	0.00
6										1		1	60.00%	0.60
7												0	55.00%	0.00
8												0	50.00%	0.00
9									1			1	45.00%	0.45
10	1											0	40.00%	0.00
11		1										1	37.50%	0.38
12			1									1	35.00%	0.35
13				1								1	32.50%	0.33
14					1	1	1	1				4	30.00%	1.20
TOTAL	1	1	1	1	1	1	1	1	1	1	1	10	TOTAL	4.20

BONUS/MALUS SYSTEM MODEL - Belgian - New



NCD6C1.XLC

11:02 AM 1/7/91

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50	Scale
NEW ENTRANTS:	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	0	0	0	0	0	0	100.00%
1			25	26	30	37	48	65	66	69	73	79	26	5	1	0	200.00%
2			0	71	72	76	83	93	129	131	134	138	40	7	2	1	160.00%
3			0	0	135	137	140	146	156	216	218	221	55	10	2	1	140.00%
4			0	0	0	214	215	219	225	234	322	324	145	25	5	2	130.00%
5		500	500	500	500	500	805	806	809	815	824	445	198	36	8	3	123.00%
6		0	950	950	950	950	950	1 356	1 357	1 360	1 365	1 374	253	47	11	5	117.00%
7		0	0	1 354	1 354	1 354	1 354	1 354	1 868	1 869	1 872	1 877	311	60	16	8	111.00%
8		0	0	0	1 715	1 715	1 715	1 715	1 715	2 343	2 344	2 347	375	75	22	13	105.00%
9	10 000	10 000	10 000	10 000	10 000	12 036	12 036	12 036	12 036	12 036	2 783	2 783	1 071	189	47	23	100.00%
10		9 500	9 500	9 500	9 500	9 500	11 821	11 821	11 821	11 821	11 821	3 188	1 238	236	70	42	95.00%
11			9 025	9 025	9 025	9 025	9 025	11 598	11 598	11 598	11 598	11 598	1 412	289	101	70	90.00%
12				8 574	8 574	8 574	8 574	8 574	11 367	11 367	11 367	11 367	1 586	344	140	106	85.00%
13					8 145	8 145	8 145	8 145	8 145	11 130	11 130	11 130	1 759	401	184	149	81.00%
14						7 738	7 738	7 738	7 738	7 738	10 889	10 889	4 556	1 085	497	397	77.00%
15							7 351	7 351	7 351	7 351	7 351	10 644	4 816	1 297	707	608	73.00%
16								6 983	6 983	6 983	6 983	6 983	5 020	1 465	891	796	69.00%
17									6 634	6 634	6 634	6 634	5 172	1 595	1 051	964	66.00%
18										6 302	6 302	6 302	6 380	5 012	4 870	4 850	63.00%
19											5 987	5 987	10 260	5 851	4 824	4 642	60.00%
20												5 688	9 559	5 361	4 540	4 402	57.00%
21													8 892	4 913	4 275	4 175	54.00%
22													36 877	71 698	77 736	78 744	54.00%
TOTAL	10 000	20 000	30 000	40 000	50 000	60 000	70 000	80 000	90 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	

Probability Claim 10.00%

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50	Scale
NEW ENTRANTS	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	0	0	0	0	0	0	100.00%
1			100	110	138	190	272	386	412	449	500	565	433	221	117	71	200.00%
2			0	270	279	304	351	425	651	675	711	759	557	289	155	94	160.00%
3			0	0	486	494	517	559	625	978	1 000	1 033	681	359	196	121	140.00%
4			0	0	0	729	736	757	795	854	1 344	1 364	1 097	541	286	173	130.00%
5		1 000	1 000	1 000	1 000	1 000	1 984	1 991	2 009	2 043	2 097	1 731	1 330	668	359	222	123.00%
6		0	1 800	1 800	1 800	1 800	1 800	3 040	3 046	3 062	3 093	3 141	1 555	796	440	280	117.00%
7		0	0	2 430	2 430	2 430	2 430	2 430	3 918	3 923	3 938	3 966	1 778	925	528	351	111.00%
8		0	0	0	2 916	2 916	2 916	2 916	2 916	4 638	4 643	4 656	2 001	1 053	624	433	105.00%
9	10 000	10 000	10 000	10 000	10 000	13 281	13 281	13 281	13 281	13 281	5 218	5 222	3 362	1 631	919	611	100.00%
10		9 000	9 000	9 000	9 000	9 000	12 543	12 543	12 543	12 543	12 543	5 674	3 647	1 848	1 101	777	95.00%
11			8 100	8 100	8 100	8 100	8 100	11 820	11 820	11 820	11 820	11 820	3 917	2 059	1 301	974	90.00%
12				7 290	7 290	7 290	7 290	7 290	11 116	11 116	11 116	11 116	4 159	2 251	1 502	1 184	85.00%
13					6 561	6 561	6 561	6 561	6 561	10 435	10 435	10 435	4 363	2 415	1 694	1 397	81.00%
14						5 905	5 905	5 905	5 905	5 905	9 779	9 779	6 665	3 867	2 748	2 270	77.00%
15							5 314	5 314	5 314	5 314	5 314	9 150	6 690	4 168	3 194	2 786	73.00%
16								4 783	4 783	4 783	4 783	4 783	6 618	4 315	3 492	3 162	69.00%
17									4 305	4 305	4 305	4 305	6 464	4 342	3 673	3 423	66.00%
18										3 874	3 874	3 874	7 180	7 678	8 097	8 306	63.00%
19											3 487	3 487	7 398	7 858	7 753	7 686	60.00%
20												3 138	6 523	6 799	6 826	6 847	57.00%
21													5 735	5 874	6 013	6 102	54.00%
22													17 847	40 043	48 982	52 730	54.00%
TOTAL	10 000	20 000	30 000	40 000	50 000	60 000	70 000	80 000	90 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	

BONUS/MALUS SYSTEM MODEL - Belgian - New Probability Claim 30.00% NUMBERS OF INSUREDS

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50	Scale
NEW ENTRANTS	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	0	0	0	0	0	0	100.00%
1			900	1 170	1 818	2 863	4 278	6 018	7 077	8 408	9 977	11 746	17 513	19 335	19 961	20 243	200.00%
2			0	1 890	2 079	2 533	3 264	4 255	6 425	7 180	8 145	9 296	13 764	15 317	15 851	16 091	160.00%
3			0	0	2 646	2 778	3 096	3 608	4 301	6 710	7 248	7 946	10 769	12 079	12 555	12 773	140.00%
4			0	0	0	3 087	3 180	3 402	3 760	4 246	6 732	7 116	9 578	10 003	10 173	10 256	130.00%
5		3 000	3 000	3 000	3 000	3 000	6 241	6 306	6 462	6 713	7 052	6 494	7 812	8 022	8 123	8 174	123.00%
6		0	4 200	4 200	4 200	4 200	4 200	7 377	7 422	7 531	7 706	7 944	6 355	6 407	6 470	6 507	117.00%
7		0	0	4 410	4 410	4 410	4 410	4 410	7 375	7 407	7 483	7 606	5 174	5 097	5 139	5 172	111.00%
8		0	0	0	4 116	4 116	4 116	4 116	4 116	6 784	6 807	6 860	4 225	4 037	4 067	4 102	105.00%
9	10 000	10 000	10 000	10 000	10 000	13 602	13 602	13 602	13 602	13 602	5 936	5 952	4 642	3 741	3 493	3 395	100.00%
10		7 000	7 000	7 000	7 000	7 000	10 025	10 025	10 025	10 025	10 025	5 023	3 793	3 015	2 799	2 713	95.00%
11			4 900	4 900	4 900	4 900	4 900	7 371	7 371	7 371	7 371	7 371	3 094	2 418	2 234	2 162	90.00%
12				3 430	3 430	3 430	3 430	3 430	5 407	5 407	5 407	5 407	2 516	1 928	1 773	1 716	85.00%
13					2 401	2 401	2 401	2 401	2 401	3 957	3 957	3 957	2 034	1 526	1 399	1 356	81.00%
14						1 681	1 681	1 681	1 681	1 681	2 891	2 891	2 174	1 555	1 308	1 190	77.00%
15							1 176	1 176	1 176	1 176	1 176	2 109	1 691	1 233	1 039	944	73.00%
16								824	824	824	824	824	1 300	959	810	737	69.00%
17									576	576	576	576	989	736	623	568	66.00%
18										404	404	404	800	700	600	539	63.00%
19											282	282	603	578	474	408	60.00%
20												198	419	396	327	282	57.00%
21													290	272	226	196	54.00%
22													467	647	556	476	54.00%
TOTAL	10 000	20 000	30 000	40 000	50 000	60 000	70 000	80 000	90 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	

Weighted Average Type 1 20.00% Type 2 75.00% Type 3 5.00% Probability Claim 5.00% 10.00% 30.00% Average 10.00%

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50	Scale
																	100.00%
1	0	0	125	146	200	293	427	603	676	771	889	1 027	1 205	1 134	1 086	1 065	200.00%
2	0	0	0	311	328	370	443	550	836	892	967	1 062	1 114	984	909	875	160.00%
3	0	0	0	0	524	537	570	629	715	1 112	1 156	1 216	1 060	875	775	730	140.00%
4	0	0	0	0	0	744	754	781	829	900	1 409	1 444	1 331	911	724	643	130.00%
5	0	1 000	1 000	1 000	1 000	1 000	1 961	1 970	1 992	2 031	2 090	1 712	1 427	909	677	576	123.00%
6	0	0	1 750	1 750	1 750	1 750	1 750	2 920	2 927	2 945	2 978	3 028	1 534	927	655	536	117.00%
7	0	0	0	2 314	2 314	2 314	2 314	2 314	3 681	3 687	3 702	3 730	1 655	961	656	523	111.00%
8	0	0	0	0	2 736	2 736	2 736	2 736	2 736	4 286	4 291	4 304	1 787	1 006	675	533	105.00%
9	10 000	10 000	10 000	10 000	10 000	13 048	13 048	13 048	13 048	13 048	4 767	4 771	2 968	1 448	873	633	100.00%
10	0	9 000	9 000	9 000	9 000	9 000	12 273	12 273	12 273	12 273	12 273	5 144	3 173	1 584	980	727	95.00%
11	0	0	8 125	8 125	8 125	8 125	8 125	11 553	11 553	11 553	11 553	11 553	3 375	1 723	1 108	852	90.00%
12	0	0	0	7 354	7 354	7 354	7 354	7 354	10 881	10 881	10 881	10 881	3 562	1 854	1 243	995	85.00%
13	0	0	0	0	6 670	6 670	6 670	6 670	6 670	10 250	10 250	10 250	3 726	1 968	1 378	1 145	81.00%
14	0	0	0	0	0	6 060	6 060	6 060	6 060	6 060	9 657	9 657	6 019	3 195	2 226	1 841	77.00%
15	0	0	0	0	0	0	5 515	5 515	5 515	5 515	5 515	9 097	6 065	3 447	2 589	2 258	73.00%
16	0	0	0	0	0	0	0	5 025	5 025	5 025	5 025	5 025	6 032	3 577	2 838	2 568	69.00%
17	0	0	0	0	0	0	0	0	4 584	4 584	4 584	4 584	5 932	3 612	2 997	2 788	66.00%
18	0	0	0	0	0	0	0	0	0	4 186	4 186	4 186	6 701	6 796	7 077	7 227	63.00%
19	0	0	0	0	0	0	0	0	0	0	3 827	3 827	7 630	7 093	6 803	6 713	60.00%
20	0	0	0	0	0	0	0	0	0	0	0	3 501	6 825	6 191	6 044	6 029	57.00%
21	0	0	0	0	0	0	0	0	0	0	0	0	6 094	5 402	5 376	5 421	54.00%
22	0	0	0	0	0	0	0	0	0	0	0	0	20 784	44 404	52 311	55 320	54.00%
TOTAL	10 000	20 000	30 000	40 000	50 000	60 000	70 000	80 000	90 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	Av Prem

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50
1	0	0	50	53	60	74	96	129	133	139	147	157	53	10	2	1
2	0	0	0	114	116	121	132	149	207	210	214	221	64	12	3	1
3	0	0	0	0	190	191	196	205	219	303	305	309	77	15	3	1
4	0	0	0	0	0	279	280	284	292	304	419	421	189	33	7	3
5	0	615	615	615	615	615	991	992	996	1 003	1 014	548	243	44	10	4
6	0	0	1 112	1 112	1 112	1 112	1 112	1 587	1 588	1 591	1 598	1 608	296	55	13	6
7	0	0	0	1 503	1 503	1 503	1 503	1 503	2 074	2 075	2 078	2 084	346	67	18	9
8	0	0	0	0	1 800	1 800	1 800	1 800	1 800	2 460	2 461	2 464	393	78	23	14
9	10 000	10 000	10 000	10 000	10 000	12 036	12 036	12 036	12 036	12 036	2 783	2 783	1 071	189	47	23
10	0	9 025	9 025	9 025	9 025	9 025	11 230	11 230	11 230	11 230	11 230	3 029	1 176	224	66	39
11	0	0	8 123	8 123	8 123	8 123	8 123	10 438	10 438	10 438	10 438	10 438	1 270	260	91	63
12	0	0	0	7 288	7 288	7 288	7 288	7 288	9 662	9 662	9 662	9 662	1 348	292	119	90
13	0	0	0	0	6 598	6 598	6 598	6 598	6 598	9 016	9 016	9 016	1 425	324	149	120
14	0	0	0	0	0	5 958	5 958	5 958	5 958	5 958	8 385	8 385	3 508	835	382	306
15	0	0	0	0	0	0	5 366	5 366	5 366	5 366	5 366	7 770	3 516	947	516	444
16	0	0	0	0	0	0	0	4 819	4 819	4 819	4 819	4 819	3 464	1 011	615	550
17	0	0	0	0	0	0	0	0	4 379	4 379	4 379	4 379	3 414	1 053	694	636
18	0	0	0	0	0	0	0	0	0	3 971	3 971	3 971	4 019	3 158	3 068	3 056
19	0	0	0	0	0	0	0	0	0	0	3 592	3 592	6 156	3 510	2 894	2 785
20	0	0	0	0	0	0	0	0	0	0	0	3 242	5 448	3 056	2 588	2 509
21	0	0	0	0	0	0	0	0	0	0	0	0	4 802	2 653	2 308	2 254
22	0	0	0	0	0	0	0	0	0	0	0	0	19 914	38 717	41 977	42 522
	10 000	19 640	28 924	37 831	46 428	54 722	62 708	70 381	77 794	84 959	81 875	78 896	62 190	56 542	55 594	55 435
	100.00%	98.20%	96.41%	94.58%	92.86%	91.20%	89.58%	87.98%	86.44%	84.96%	81.88%	78.90%	62.19%	56.54%	55.59%	55.44%

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50
1	0	0	200	220	276	381	544	772	823	898	1 000	1 130	866	442	235	142
2	0	0	0	432	446	487	562	679	1 042	1 080	1 137	1 215	891	462	248	150
3	0	0	0	0	680	692	723	783	875	1 369	1 400	1 447	954	502	274	170
4	0	0	0	0	0	948	957	984	1 033	1 110	1 747	1 773	1 427	704	372	225
5	0	1 230	1 230	1 230	1 230	1 230	2 441	2 449	2 471	2 513	2 579	2 130	1 636	822	442	273
6	0	0	2 106	2 106	2 106	2 106	2 106	3 557	3 564	3 583	3 619	3 675	1 819	932	514	328
7	0	0	0	2 697	2 697	2 697	2 697	2 697	4 349	4 355	4 371	4 402	1 974	1 027	586	389
8	0	0	0	0	3 062	3 062	3 062	3 062	3 062	4 870	4 875	4 889	2 101	1 105	655	455
9	10 000	10 000	10 000	10 000	10 000	13 281	13 281	13 281	13 281	13 281	5 218	5 222	3 362	1 631	919	611
10	0	8 550	8 550	8 550	8 550	8 550	11 916	11 916	11 916	11 916	11 916	5 390	3 465	1 755	1 046	738
11	0	0	7 290	7 290	7 290	7 290	7 290	10 638	10 638	10 638	10 638	10 638	3 525	1 853	1 171	876
12	0	0	0	6 197	6 197	6 197	6 197	6 197	9 449	9 449	9 449	9 449	3 535	1 914	1 277	1 007
13	0	0	0	0	5 314	5 314	5 314	5 314	5 314	8 453	8 453	8 453	3 534	1 956	1 373	1 131
14	0	0	0	0	0	4 547	4 547	4 547	4 547	4 547	7 530	7 530	5 132	2 978	2 116	1 748
15	0	0	0	0	0	0	3 880	3 880	3 880	3 880	3 880	6 679	4 884	3 042	2 332	2 034
16	0	0	0	0	0	0	0	3 300	3 300	3 300	3 300	3 300	4 566	2 977	2 410	2 182
17	0	0	0	0	0	0	0	0	2 841	2 841	2 841	2 841	4 266	2 866	2 424	2 259
18	0	0	0	0	0	0	0	0	0	2 441	2 441	2 441	4 524	4 837	5 101	5 233
19	0	0	0	0	0	0	0	0	0	0	2 092	2 092	4 439	4 715	4 652	4 611
20	0	0	0	0	0	0	0	0	0	0	0	1 789	3 718	3 875	3 891	3 903
21	0	0	0	0	0	0	0	0	0	0	0	0	3 097	3 172	3 247	3 295
22	0	0	0	0	0	0	0	0	0	0	0	0	9 637	21 623	26 450	28 474
	10 000	19 780	29 376	38 722	47 849	56 780	65 515	74 054	82 385	90 524	88 485	86 485	73 350	65 191	61 733	60 235
Frequency = 10	100.00%	98.90%	97.92%	96.80%	95.70%	94.63%	93.59%	92.57%	91.54%	90.52%	88.49%	86.49%	73.35%	65.19%	61.73%	60.23%
Frequency = 5%	100.00%	98.20%	96.41%	94.58%	92.86%	91.20%	89.58%	87.98%	86.44%	84.96%	81.88%	78.90%	62.19%	56.54%	55.59%	55.44%

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50
1	0	0	1 800	2 340	3 636	5 726	8 556	12 035	14 153	16 815	19 954	23 493	35 025	38 671	39 923	40 486
2	0	0	0	3 024	3 326	4 052	5 222	6 808	10 281	11 488	13 031	14 873	22 022	24 508	25 362	25 745
3	0	0	0	0	3 704	3 890	4 334	5 051	6 022	9 394	10 147	11 124	15 076	16 911	17 577	17 882
4	0	0	0	0	0	4 013	4 133	4 422	4 888	5 519	8 752	9 250	12 451	13 004	13 225	13 333
5	0	3 690	3 690	3 690	3 690	3 690	7 677	7 757	7 948	8 257	8 675	7 987	9 608	9 867	9 991	10 055
6	0	0	4 914	4 914	4 914	4 914	4 914	8 631	8 684	8 811	9 017	9 295	7 435	7 497	7 570	7 614
7	0	0	0	4 895	4 895	4 895	4 895	4 895	8 186	8 221	8 306	8 442	5 743	5 657	5 704	5 741
8	0	0	0	0	4 322	4 322	4 322	4 322	4 322	7 123	7 147	7 203	4 437	4 239	4 271	4 307
9	10 000	10 000	10 000	10 000	10 000	13 602	13 602	13 602	13 602	13 602	5 936	5 952	4 642	3 741	3 493	3 395
10	0	6 650	6 650	6 650	6 650	6 650	9 524	9 524	9 524	9 524	9 524	4 772	3 603	2 864	2 659	2 577
11	0	0	4 410	4 410	4 410	4 410	4 410	6 634	6 634	6 634	6 634	6 634	2 785	2 176	2 011	1 946
12	0	0	0	2 916	2 916	2 916	2 916	2 916	4 596	4 596	4 596	4 596	2 138	1 638	1 507	1 459
13	0	0	0	0	1 945	1 945	1 945	1 945	1 945	3 206	3 206	3 206	1 647	1 236	1 134	1 098
14	0	0	0	0	0	1 294	1 294	1 294	1 294	1 294	2 226	2 226	1 674	1 198	1 007	916
15	0	0	0	0	0	0	859	859	859	859	859	1 539	1 234	900	758	689
16	0	0	0	0	0	0	0	568	568	568	568	568	897	662	559	509
17	0	0	0	0	0	0	0	0	380	380	380	380	653	485	411	375
18	0	0	0	0	0	0	0	0	0	254	254	254	504	441	378	340
19	0	0	0	0	0	0	0	0	0	0	169	169	362	347	285	245
20	0	0	0	0	0	0	0	0	0	0	0	113	239	226	186	161
21	0	0	0	0	0	0	0	0	0	0	0	0	157	147	122	106
22	0	0	0	0	0	0	0	0	0	0	0	0	252	349	300	257
	10 000	20 340	31 464	42 839	54 408	66 318	78 603	91 261	103 884	116 545	119 381	122 076	132 585	136 762	138 431	139 233
Frequency = 30	100.00%	101.70%	104.88%	107.10%	108.82%	110.53%	112.29%	114.08%	115.43%	116.55%	119.38%	122.08%	132.58%	136.76%	138.43%	139.23%
Frequency = 10	100.00%	98.90%	97.92%	96.80%	95.70%	94.63%	93.59%	92.57%	91.54%	90.52%	88.49%	86.49%	73.35%	65.19%	61.73%	60.23%
Frequency = 5%	100.00%	98.20%	96.41%	94.58%	92.86%	91.20%	89.58%	87.98%	86.44%	84.96%	81.88%	78.90%	62.19%	56.54%	55.59%	55.44%

Class / Year	1	2	3	4	5	6	7	8	9	10	11	12	20	30	40	50
1	0	0	250	293	401	586	855	1 207	1 352	1 542	1 777	2 054	2 411	2 267	2 173	2 131
2	0	0	0	498	524	592	709	880	1 337	1 426	1 547	1 699	1 782	1 574	1 454	1 400
3	0	0	0	0	733	752	798	881	1 001	1 557	1 618	1 703	1 484	1 225	1 085	1 022
4	0	0	0	0	0	967	981	1 016	1 078	1 170	1 832	1 877	1 730	1 184	941	836
5	0	1 230	1 230	1 230	1 230	1 230	2 412	2 423	2 450	2 498	2 571	2 106	1 756	1 119	833	708
6	0	0	2 048	2 048	2 048	2 048	2 048	3 417	3 425	3 446	3 485	3 543	1 795	1 085	767	628
7	0	0	0	2 568	2 568	2 568	2 568	2 568	4 086	4 092	4 109	4 141	1 837	1 066	728	581
8	0	0	0	0	2 873	2 873	2 873	2 873	2 873	4 501	4 506	4 520	1 876	1 057	709	559
9	10 000	10 000	10 000	10 000	10 000	13 048	13 048	13 048	13 048	13 048	4 767	4 771	2 968	1 448	873	633
10	0	8 550	8 550	8 550	8 550	8 550	11 659	11 659	11 659	11 659	11 659	4 887	3 014	1 504	931	690
11	0	0	7 313	7 313	7 313	7 313	7 313	10 398	10 398	10 398	10 398	10 398	3 037	1 551	997	767
12	0	0	0	6 251	6 251	6 251	6 251	6 251	9 249	9 249	9 249	9 249	3 028	1 576	1 057	846
13	0	0	0	0	5 403	5 403	5 403	5 403	5 403	8 303	8 303	8 303	3 018	1 594	1 116	928
14	0	0	0	0	0	4 666	4 666	4 666	4 666	4 666	7 436	7 436	4 635	2 460	1 714	1 418
15	0	0	0	0	0	0	4 026	4 026	4 026	4 026	4 026	6 641	4 428	2 516	1 890	1 649
16	0	0	0	0	0	0	0	3 467	3 467	3 467	3 467	3 467	4 162	2 468	1 958	1 772
17	0	0	0	0	0	0	0	0	3 026	3 026	3 026	3 026	3 915	2 384	1 978	1 840
18	0	0	0	0	0	0	0	0	0	2 637	2 637	2 637	4 222	4 281	4 458	4 553
19	0	0	0	0	0	0	0	0	0	0	2 296	2 296	4 578	4 256	4 082	4 028
20	0	0	0	0	0	0	0	0	0	0	0	1 996	3 890	3 529	3 445	3 437
21	0	0	0	0	0	0	0	0	0	0	0	0	3 291	2 917	2 903	2 927
22	0	0	0	0	0	0	0	0	0	0	0	0	11 223	23 978	28 248	29 873
220%	10 000	19 780	29 390	38 749	47 893	56 845	65 608	74 180	82 542	90 712	88 708	86 747	74 080	67 040	64 340	63 225

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Prem	Prem Paid
Claim?	0	0	0	0	0	0	0	0	0	0				
1												0	200.00%	0.00
2												0	160.00%	0.00
3												0	140.00%	0.00
4												0	130.00%	0.00
5												0	123.00%	0.00
6												0	117.00%	0.00
7												0	111.00%	0.00
8												0	105.00%	0.00
9												0	100.00%	0.00
10												0	95.00%	0.00
11												0	90.00%	0.00
12												0	85.00%	0.00
13	1											0	81.00%	0.00
14		1										1	77.00%	0.77
15			1									1	73.00%	0.73
16				1								1	69.00%	0.69
17					1							1	66.00%	0.66
18						1						1	63.00%	0.63
19							1					1	60.00%	0.60
20								1				1	57.00%	0.57
21									1			1	54.00%	0.54
22										1	1	2	54.00%	1.08
TOTAL	1	1	1	1	1	1	1	1	1	1	1	10	TOTAL	6.27
													Average	0.63

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Prem	Prem Paid
Claim?	1	0	0	0	0	0	0	0	0	0				
1												0	200.00%	0.00
2												0	160.00%	0.00
3												0	140.00%	0.00
4												0	130.00%	0.00
5												0	123.00%	0.00
6												0	117.00%	0.00
7												0	111.00%	0.00
8												0	105.00%	0.00
9		1										1	100.00%	1.00
10			1									1	95.00%	0.95
11				1								1	90.00%	0.90
12					1							1	85.00%	0.85
13	1					1						1	81.00%	0.81
14							1					1	77.00%	0.77
15								1				1	73.00%	0.73
16									1			1	69.00%	0.69
17										1		1	66.00%	0.66
18											1	1	63.00%	0.63
19												0	60.00%	0.00
20												0	57.00%	0.00
21												0	54.00%	0.00
22												0	54.00%	0.00
TOTAL	1	1	1	1	1	1	1	1	1	1	1	10	TOTAL	7.99
													Average	0.80
													Excess	1.72

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Prem	Prem Paid
Claim?	0	0	0	0	0	0	0	0	0	0				
1												0	200.00%	0.00
2												0	160.00%	0.00
3												0	140.00%	0.00
4												0	130.00%	0.00
5	1											0	123.00%	0.00
6		1										1	117.00%	1.17
7			1									1	111.00%	1.11
8				1								1	105.00%	1.05
9					1							1	100.00%	1.00
10						1						1	95.00%	0.95
11							1					1	90.00%	0.90
12								1				1	85.00%	0.85
13									1			1	81.00%	0.81
14										1		1	77.00%	0.77
15											1	1	73.00%	0.73
16												0	69.00%	0.00
17												0	66.00%	0.00
18												0	63.00%	0.00
19												0	60.00%	0.00
20												0	57.00%	0.00
21												0	54.00%	0.00
22												0	54.00%	0.00
TOTAL	1	1	1	1	1	1	1	1	1	1	1	10	TOTAL	9.34
													Average	0.93

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Prem	Prem Paid
Claim?	1	0	0	0	0	0	0	0	0	0				
1		1										1	200.00%	2.00
2			1									1	160.00%	1.60
3				1								1	140.00%	1.40
4					1							1	130.00%	1.30
5	1					1						1	123.00%	1.23
6							1					1	117.00%	1.17
7								1				1	111.00%	1.11
8									1			1	105.00%	1.05
9										1		1	100.00%	1.00
10											1	1	95.00%	0.95
11												0	90.00%	0.00
12												0	85.00%	0.00
13												0	81.00%	0.00
14												0	77.00%	0.00
15												0	73.00%	0.00
16												0	69.00%	0.00
17												0	66.00%	0.00
18												0	63.00%	0.00
19												0	60.00%	0.00
20												0	57.00%	0.00
21												0	54.00%	0.00
22												0	54.00%	0.00
TOTAL	1	1	1	1	1	1	1	1	1	1	1	10	TOTAL	12.81
													Average	1.28
													Excess	3.47

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Prem	Prem Paid
Claim?	0	0	1	0	0	1	0	0	1	0				
1											1	0	200.00%	0.00
2												0	160.00%	0.00
3												0	140.00%	0.00
4												0	130.00%	0.00
5												0	123.00%	0.00
6												0	117.00%	0.00
7										1		1	111.00%	1.11
8											1	1	105.00%	1.05
9							1					1	100.00%	1.00
10								1				1	95.00%	0.95
11				1					1			2	90.00%	1.80
12					1							1	85.00%	0.85
13	1					1						1	81.00%	0.81
14		1										1	77.00%	0.77
15			1									1	73.00%	0.73
16												0	69.00%	0.00
17												0	66.00%	0.00
18												0	63.00%	0.00
19												0	60.00%	0.00
20												0	57.00%	0.00
21												0	54.00%	0.00
22												0	54.00%	0.00
TOTAL	1	1	1	1	1	1	1	1	1	1	1		TOTAL	9.07

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Prem	Prem Paid
Claim?	1	1	1	0	0	0	0	0	0	0				
1				1								1	200.00%	2.00
2					1							1	160.00%	1.60
3						1						1	140.00%	1.40
4							1					1	130.00%	1.30
5			1					1				2	123.00%	2.46
6									1			1	117.00%	1.17
7										1		1	111.00%	1.11
8											1	1	105.00%	1.05
9		1										1	100.00%	1.00
10												0	95.00%	0.00
11												0	90.00%	0.00
12												0	85.00%	0.00
13	1											0	81.00%	0.00
14												0	77.00%	0.00
15												0	73.00%	0.00
16												0	69.00%	0.00
17												0	66.00%	0.00
18												0	63.00%	0.00
19												0	60.00%	0.00
20												0	57.00%	0.00
21												0	54.00%	0.00
22												0	54.00%	0.00
TOTAL	1	1	1	1	1	1	1	1	1	1	1	10	TOTAL	13.09

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Prem	Prem Paid
Claim?	1	0	0	0	1	0	0	0	1	0				
1												0	200.00%	0.00
2												0	160.00%	0.00
3												0	140.00%	0.00
4												0	130.00%	0.00
5												0	123.00%	0.00
6												0	117.00%	0.00
7										1		1	111.00%	1.11
8						1					1	2	105.00%	2.10
9		1					1					2	100.00%	2.00
10			1					1				2	95.00%	1.90
11				1					1			2	90.00%	1.80
12					1							1	85.00%	0.85
13	1											0	81.00%	0.00
14												0	77.00%	0.00
15												0	73.00%	0.00
16												0	69.00%	0.00
17												0	66.00%	0.00
18												0	63.00%	0.00
19												0	60.00%	0.00
20												0	57.00%	0.00
21												0	54.00%	0.00
TOTAL	1	1	1	1	1	1	1	1	1	1	1		TOTAL	9.76

Class / Year	0	1	2	3	4	5	6	7	8	9	10	TOTAL	% Std Prem	Prem Paid
Claim?	0	0	0	0	0	0	0	1	1	1				
1												0	200.00%	0.00
2												0	160.00%	0.00
3												0	140.00%	0.00
4												0	130.00%	0.00
5												0	123.00%	0.00
6												0	117.00%	0.00
7												0	111.00%	0.00
8											1	1	105.00%	1.05
9												0	100.00%	0.00
10												0	95.00%	0.00
11												0	90.00%	0.00
12										1		1	85.00%	0.85
13	1											0	81.00%	0.00
14		1										1	77.00%	0.77
15			1									1	73.00%	0.73
16				1					1			2	69.00%	1.38
17					1							1	66.00%	0.66
18						1						1	63.00%	0.63
19							1					1	60.00%	0.60
20								1				1	57.00%	0.57
21												0	54.00%	0.00
TOTAL	1	1	1	1	1	1	1	1	1	1	1	10	TOTAL	7.24