

The Value of the Actuarial Control Cycle in a Non-Tariff Based Insurance Market

By Dave Finnis

Abstract:

As has been demonstrated many times around the world, deregulation, and in particular the removal of premium tariffs, has the potential to destabilize insurance markets. Actuaries have a role to play in minimizing this danger through application of a discipline via a series of controls, especially to the risk pricing and premium rating process.

The paper examines the way in which the actuarial control cycle can be applied to create the required discipline, and introduces the concept of “rate strength” to provide a benchmark for the adequacy of premium rates and examines how technical pricing strength, price elasticity and market competition may be balanced to create a healthy open-market.

Key words:

IRDA, de-tariffication, actuarial control cycle, sophisticated pricing models, rate strength.

1. Introduction

The Indian non-life insurance market is undergoing a gradual process of change. This process includes the provision of increased opportunities for market entry and involvement by a greater range of corporate entities, both nationally and internationally. Additionally, the Insurance Regulatory and Development Authority (IRDA) is extending the ability of these entities to manage individual risk by removing existing tariffs on premium rates. Understandably, this de-tariffication process is a gradual one because of the need to retain overall controls on the market. The aim of this short paper is to demonstrate that the actuarial profession can play a role in the control process by assisting with pricing and premium rating and by dampening down the amplitude of the insurance cycle that might be expected to accompany the liberation of the market. The paper is deliberately a practical one, and excludes development of the technical support modelling required for the process.

1.1 A Case Study – Australia

More than 30 years ago in Australia, the Trade Practices Act removed a raft of industry-based tariffs on premium rates, particularly in the commercial insurance sphere. Since removal of tariffs on premium rates the average industry profitability has been poor. (As an example, the private sector of the industry’s average annual return on capital in the 20 years from 1979 to 1999 has been estimated at less than 12% - before tax¹, marginally greater than the return that could have been achieved from investment in Government Bonds over the same period). Interestingly, there is some evidence that profitability levels actually worsened in the 1990s when compared to the previous decade.

Only in the last 3 or 4 years has industry profitability been raised to levels commensurate with the risks being undertaken. Whilst it can be argued that a number of factors are affecting profit levels, including the aftermath of the insolvency of HIH – Australia’s second largest non-life insurer at the time of its demise –, increased local ownership of the business (with perhaps a greater focus on the need for appropriate profitability) and “normal” insurance cycle effects, there is a strong case to be made that application of actuarially-driven discipline in the management of premium rating and the underwriting of risks in general has played a major part in the turn-around.

1.2 Other Global Evidence of Effects from Loosening of Controls

Many other examples exist from around the world of systems that have suffered from the removal of tariffs, or other controls on premium rating and setting. A number of Asian nations are experiencing the financial volatility allied to the removal of tariffs. The UK underwent a similar transition to that of Australia in the 1960's. In the USA a "file and write" procedure has been established for many insurance classes as an alternative control mechanism to tariff rating.

1.3 Control Requirements

The IRDA is imposing a number of important controls on the market, emphasising the need for independent and informed underwriting processes and specific pricing techniques. The actuarial control cycle should form an important integral part of these processes.

2 The Need for Discipline in the Insurance Underwriting and Premium Rating Process

Insurance is, in broad terms, the business of managing risk, and the attaching uncertainty of financial outcomes, on behalf of the customer. Part of the business involves the trade-off of risk against return – essentially the higher the risk, the greater the return to be expected. Any means of controlling the level of risk without affecting the achievable return is an obvious benefit to the insurance industry and which can be manifested in a number of ways, ranging from a reduced need for capital to greater confidence in the offering of products.

The underwriting process, and premium rating in particular, provides the focus of measurement of uncertainty in the insurance process. Uncertainty in claims outcomes can easily be translated into inadequate reserves. In turn, if not managed correctly, and if the market provides the freedom, inadequate reserves can contribute to inadequate pricing. (Most of us have been reminded at some stage of Warren Buffet's axiom: "To under-reserve is to under-price"²).

A strong discipline is needed to combat the pressure on prices and loose underwriting driven by the uncertainty endemic in the business. This discipline clearly needs to encompass areas in which risk is identifiable and can be broken down into "chunks" of similar size, but also types of insurance in which risk is more nebulous and where layers of risk may be included or excluded from insurance coverage.

2.1 The Insurance Cycle

The insurance cycle (or underwriting cycle) is a somewhat apocryphal concept. The cycle can be defined in a number of ways, but essentially it is a recognition that there are forces at play in the insurance world that cause regular increases and decreases in the levels of profitability within the business. Logically, given the numerous, and varying, factors to be taken into account in the make-up of financial outcomes from insurance business, it is naïve to assume that such outcomes may be generated by simple cyclical behaviour. Nevertheless, statistically speaking, the evidence for cycles is there (see table below³):

Country	Estimated period of underwriting cycle (years) across all classes of business
Australia	4.7
Canada	6.7
Denmark	Not statistically significant
Finland	Not statistically significant
France	8.2
Germany	7.8
Italy	7 to 12

Japan	7.7
New Zealand	6.4
Norway	Not statistically significant
Sweden	6.3
Switzerland	5.4
UK	6 to 8
USA	6.1

Drivers of the insurance cycle include competitive behaviour in the market, which may in turn be influenced by factors such as the extent of capital to support the market and other external inputs such as the frequency and severity of catastrophe activity or any trends affecting the cost of risk or the underlying risk itself. These can, nevertheless, be treated as second order issues when assessing the stability of financial outcomes from the insurance market.

A primary driver of the underwriting cycle is its link with the level of premium rates. Clearly, any period of inadequate profitability is linked closely to inadequate premium rating. Therefore, it follows that a discipline focused on maintaining adequacy in the premium rate structure can also reduce the amplitude of the insurance cycle.

2.2 Rate Filing

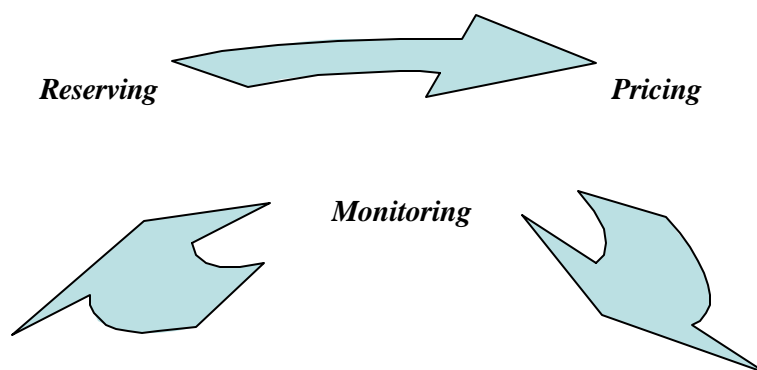
One means of applying the appropriate discipline to the premium rating process is to establish a rate filing system. Rate filing can take a range of forms. At one end of the range is the strict “file and write” procedure in which premium rates and support for those rates (whether statistical or otherwise) are filed with a central body (e.g. Government regulator) by the insurer. Rates to be applied to areas of business are then effectively certified by the central body. Towards the other extreme is the “file and use” approach, for which the central body/regulator needs to be assured only that the insurer has the means to appropriately rate the business (and hence is free to rate as it sees fit).

Undoubtedly, a rate filing procedure adds discipline to premium rating. Arguably, however, it also has the potential to introduce costly and ineffective administrative processes and, depending on how it is applied, the possibility of killing off initiative in premium rating.

In the following sections it is argued that the actuarial control cycle can supply an effective driver of the underwriting and premium rating process that can, if necessary, support a rate filing requirement without the by-product of inefficiency.

3 Application of the Actuarial Control Cycle

Like the insurance cycle, the actuarial control cycle is something of a mythical beast. However, in respect of the non-life insurance premium rating process the means of application of actuarial discipline can be represented as an application of the control cycle in the following way:



The key points are the connection between reserving and pricing – i.e. that the full available knowledge on claims liabilities and run-off is applied in the pricing of the risk – and the need to measure outcomes against expectations. Application of this discipline in a rigorous and consistent manner leads to requests for, and in turn production of, additional data, which can be input to the process to enable a continually improving process. In fact, as the discipline becomes embedded, there will tend to be a reversal of the cycle's direction so that the detail in the pricing function helps support the reserving process.

3.1 The Technical Base

In order to obtain the required rigour and consistency of application, the premium rating process needs a strong framework. Wherever possible, and in the vast majority of cases, this framework should be statistically sound.

Such a technical base is relatively straightforward to define in areas of insurance for which units of risk are reasonably standard and where claim frequency is high enough to provide enough data for the use of a statistical model as the main source of input to the premium rating system. Examples of such insurance include personal lines of business, such as private motor insurance and domestic property as well as some areas of small commercial property insurance.

For areas of insurance in which risk is less easy to identify in standardised “chunks” and for which data is less easily available, more individual thought is required in order to create the appropriately rigorous statistically (or otherwise sound) model. This broader approach requires application of the measure of Rate Strength⁴.

3.2 Rate Strength – from Concept to Tangibility

The concept of Rate Strength is a simple one. Essentially, it is a means of assessing the ability of the premium for a particular policy, or group of policies, to meet the requirements of the business (i.e. to cover the cost of claims, expense and an appropriate profit margin). If the Rate Strength is 1.0, then the premium for policy, or group of policies, meets the financial requirements exactly. A Rate Strength of more than 1.0 suggests that the premium is more than adequate, and similarly Rate Strength of less than 1.0 indicates a technical inadequacy to meet the target financial needs.

Putting this concept into practice is less easy for the majority of non-life insurance, because of the tendency for most risks to be difficult to measure statistically. It is relatively straightforward, however, for business such as personal lines because of the ability of the actuary to construct a statistically sophisticated, and hence unbiased, model for the calculation of the claims costs for detailed risk cells within the business.

This differentiation leads to a, somewhat artificial, but practical means of addressing the application of a discipline, incorporating the use of Rate Strength, to two different areas of non-life business, which, for want of better terms, are defined in the two examples that follow as Strong Statistical Support (or SSS) and Weaker Statistical Support (or WSS)

4 A Control Cycle Example – Personal Lines Insurance Pricing

In the following section is described an example of the use of an actuarial discipline for classes of business that enable Strong Statistical Support.

4.1 The Aims of the Pricing Discipline

The primary aim of the pricing discipline is to support the achievement of the target return on capital (ROC) balanced against premium growth and business mix targets.

4.2 The Means for Meeting the Aims

The ability for the process to meet the aims requires:

- a consistent and practical way of expressing ROC requirements
- a robust and detailed statistical model of the risks; and
- detailed knowledge of budgeted business development

Generally speaking it is reasonable to express the ROC in terms of the relevant Combined Operating Ratio (COR), where COR is the loss ratio plus the expense ratio. Care needs to be taken in allocating expense by product group, but assuming this can be supported, for instance, by a functional cost analysis it should be possible to demonstrate the equity of such an apportionment.

The pricing model needs to be statistically sophisticated. This description excludes the use of “one way analysis” (i.e. testing for the effects of changes to the value of a single, albeit, strong risk factor) or even “two way analysis” which allows for interaction between two factors, since these methods fail to make allowance for correlation effects from important (and un-measured) other relevant factors. Globally, generalised linear models (GLMs) have been established as the most popular means of modelling the risks for premium rating purposes. A GLM framework allows explicit assumptions about the nature of the data and its relationship with predictive variables. The method of solving GLMs is also more technically efficient than other iterative approaches. In addition GLMs provide statistical diagnostics to assist selection of significant variables and for validation purposes. The Casualty Actuarial Society has recently bolstered its examination syllabus to include a detailed guide to the use of GLMs⁵. Practical development of such models can be taken on in-house in a well-equipped insurer. Alternatively, software packages exist (for instance, Watson Wyatt’s “Pretium” package) upon which to base the modelling.

It is important to note that, no matter how sophisticated the underlying model, it must be allied with maintenance of high underwriting standards, since if rules are not well-defined, and followed closely, past experience becomes a poor predictor of future outcomes.

Business planning and budgeting needs to be consistent with the detail in the pricing model, otherwise it is impossible to rationalise profitability with growth at the level of detail required.

It is also important to monitor closely the transition from tariff to market-determined rates, since existing cross-subsidies will need to be recognised and dealt with. Almost certainly this will mean a re-balancing of the portfolio and will have an impact on strategy. There will be an implied potential advantage for larger companies, based on scale. However smaller

companies are still able to compete through greater nimbleness and knowledge of niche areas of the market.

4.3 Risk Analysis Overview

Separate analysis is required for each individual product (or sub-risk within product for the larger product classes). The pricing model needs to be utilised to find the appropriately significant claim frequency and claim size “signals” across risk groupings. Policy and claim data need to be synchronised. Risk premiums can then be calculated in each defined risk grouping as (claim frequency x ave.claim size) with appropriate allowance for recoveries.

Rating factors for the business would be defined from a combination of the use of “textbook” factors (such as age and gender of driver, type of car, location for motor insurance, and age and gender of occupant, type of construction and address for home insurance) and assessment of output from the statistical model used as on a diagnostic basis.

4.4 Expense Management

To meet the needs of a sophisticated statistical rating model, details of expenses need to be similarly sophisticated. This will require a breakdown of expense by type (into variable, fixed and even “semi-variable” – e.g. expense that may be essentially fixed over the short term but may be variable over the medium term as the size of the portfolio and type of portfolio management changes). To obtain this level of sophistication requires a detailed analysis, usually on a functional cost basis, and a further review of the allocation of the “cells” of expense that emerge.

4.5 Data Management and Analysis

The importance of this aspect of the analysis is difficult to over-emphasise, as the data management system provides the basis for the control process. Data quality is paramount, so validation tests are a major part of the management process. Strict controls should apply over the use of each clearly-defined data field. As discussed earlier, it is important to match policy and claim data by period and type, such that individual claims can be sourced accurately to their relevant policies. Bad and/or scanty data stands out in a deregulated marketplace as the sign of a price discounting strategy maker.

Data also needs to be carefully managed to ensure sufficient flexibility on issues such as changes excess amounts, treatment of large claims and catastrophe event analysis.

4.6 GLMs and Other Modelling Techniques - Practical Usage

By searching for signals in the data after removing correlation that can distort results, generalised linear models remove bias by essentially performing regression in a number of dimensions. GLM’s specify that claims costs have a distribution around the average value that is a simple function (e.g. exponential) of a linear combination of rating factors. Each rating factor has a range of value and, usually, each value is designated a number of points based on experience. Premium rates can therefore be calculated relatively easily by the use of such a points basis.

Decision trees can also be helpful, particularly in determining the appropriate base level for grouping of data into rating sub-categories. Smoothing techniques (e.g. spatial smoothing) can also be utilised to avoid any intuitive anomalies in the final rates (e.g. huge differences in rates for adjoining geographical area.)

New business also rates separate treatment from renewal business, as claim frequency for this business tends to be higher. Additionally, the expense of setting up new policies is more expensive. However, unadjusted technical rates are rarely applied, as otherwise business growth would be difficult (or, given competitive pressures, largely impossible!) Therefore new

business tends to be subsidised by renewal business. This flags an important liaison between actuary and underwriter, which needs a strong qualitative support. A means of monitoring this subsidy effect and an appropriate “payback” period is needed. This is an example of the type of practical adjustments that may be made to technical prices to allow for competition, price inelasticity and other effects.

4.7 Implementation Strategies

As mentioned earlier, implementation of risk-based pricing is likely to have a major impact on the balance of the portfolio. For this reason, the insurer will examine a transitional approach to the revised technical pricing basis to prevent radical changes to the portfolio. Such an approach is likely to include subjectively chosen caps and cups on premium changes to individual policies. Such a policy should be implemented with care as, with poor management control, it would be easy to lose “good” risks and retain a greater share of “bad” risks. The strategy would therefore be accompanied by an analysis of propensity to renew and may be assisted by a scenario analysis of various potential responses to the change. Alternatively the insurer may opt for the “big bang” approach (i.e. to apply technical rates immediately under the new structure). Such an approach has its own dangers related to the potential loss of a major portion of the portfolio and the absorption of a large amount of new business. Relationships in the business may also be endangered by such a radical, once-off shift in rates

In practice, the appropriate strategy will be dependent on a number of market-based factors, including the IRDA’s approach and activity from competitors. In any case, the new strategy will need close and detailed monitoring to allow the insurer to adapt to the changing market place.

5 An Example of Control Cycle Use in Commercial Insurance

Although some classes of commercial insurance lend themselves towards the strong use of a sophisticated statistical model based on frequency and average cost of claim outcomes, the majority of business is more difficult for two main reasons:

- claim frequency tends to be smaller (and hence the robustness of the model suffers from scarcity of data)
- unit of risk is not so clearly defined (and hence modelling is more difficult)
- Each business class needs to be treated differently. For some (e.g. small business property insurance), statistical models are relatively strong, whilst for others they are significantly weaker.

The concept of “rate strength”, together with supporting actuarial discipline, is suggested as the means of overcoming this relative disadvantage.

5.1 What is Rate strength?

Rate strength assesses whether an individual policy’s premium is sufficient to cover all costs attaching to the policy over the policy term. It is calculated as:

$$\frac{\text{Achieved premium}}{\text{Statistical premium}}$$

Rate strength above 1.0 indicates that premiums being charged to policyholders exceed the statistical estimate of what needs to be charged to achieve (long term) target profit. The opposite is true if rate strength is below 1.0.

Rate strength is determined for each individual risk at the point that its policy is underwritten by the insurer. A total portfolio view is obtained by aggregating the risk level results.

The *achieved premium* is the gross premium paid to the insurer by its policyholders (excluding any levies and/or direct taxes) in respect of risk. It includes terrorism levies.

The *statistical premium* represents the premium that the company's actuary calculates it needs to be charged to deliver target profit over the long term (e.g. 7 to 10 years).

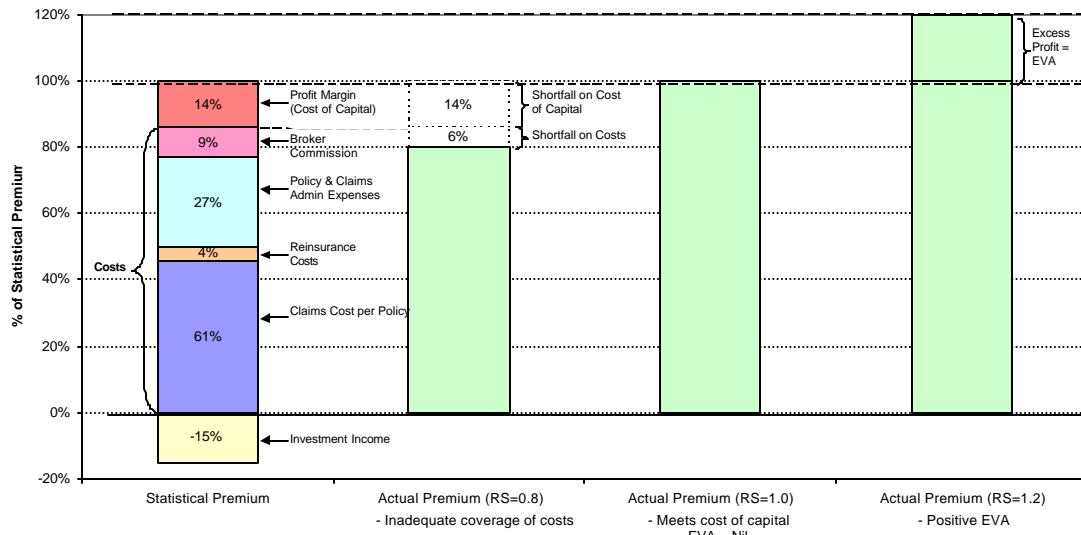
This target profit, upon which the profit margin is based, can be represented in a number of ways, including, for instance, as a return on capital support requirements for the business)

In respect of business for which statistical modelling is under-developed, simplified statistical rates are developed. These rates respond only to a limited number of the key determining factors for the relevant business. Such rates need to be carefully monitored, as any change in the business mix is likely to affect the rate strength.

5.2. How is the Statistical Rate determined?

The components of the statistical rate are illustrated below:

Chart 1: Relationship between Statistical and Achieved Premium



Key points to note are:

- I. Claim Cost per policy – Calculated as claim frequency x Average Claim Size for three different claim types: working, large and (natural peril) claim events.
- II. Reinsurance Costs – An allocation of the cost of treaty and facultative reinsurance cost to each portfolio.
- III. Policy (distribution and underwriting) Expenses - An allocation of the latest budgeted expenses to each portfolio
- IV. Claims administration expenses – Derived from analysis of budgeted claims expenses and reserving assumptions.
- V. Broker Commission – Based on commission actually paid to brokers on policies incepting during the relevant period.
- VI. Investment Income – Income received from the investment of premiums between the date of premium receipt (by the insurer) to the average date of claim payment for each portfolio.
- VII. Profit Margin – Profit required to deliver long term targeted return on capital¹.

6 Conclusions

The key conclusions to be obtained from the above discussion are that:

- a) actuarial modelling and management can be applied in sufficient detail to strongly aid a disciplined approach to underwriting and premium rating in a de-tariffed insurance market; and
- b) the actuarial discipline is flexible enough to be able to deal with a complete range of non-life insurance classes, from those for which data is rich and risk is relatively easy to define to those for which fewer data are available and units of risk are more elusive.

7 Acknowledgments

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8 References

The numbers below relate to the superscript references in the text:

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2. Quotation from Warren Buffet, Berkshire Hathaway, *Speech, 1995*
3. "An International Analysis of Underwriting Cycles" by Cummins and Outreville – *Journal of Risk and Insurance 1987*
4. "Background on Rate Strength", Extract from IAG Internal Document, 2005
5. "A Practitioner's Guide to Generalised Linear Models" by Anderson et al – *Casualty Actuarial Society Examination Syllabus Section 1 2005*

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Agenda

- Historical example of the effects of removal of tariffs on underwriting and pricing techniques
- Reasons behind the use of a detailed, disciplined, actuarial control process
 - ▶ The insurance cycle
 - ▶ Basic pricing concepts
- Application of the actuarial control cycle in principle
- The control cycle as applied to personal lines products (e.g. motor)
 - ▶ A strong statistical model
- Application to commercial products
 - ▶ Discipline and modelling
- Conclusions through questions and discussion



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How Non-Life Insurance Pricing is Evolving in Australia




1974	1974 - 1999	1999-2004	Today
<ul style="list-style-type: none"> - Tariff Abandoned - Associations Disbanded 	<ul style="list-style-type: none"> - Experience rating - Statistics used to develop Book rates - Some actuarial involvement with personal lines pricing 	<ul style="list-style-type: none"> - Actuaries involved in Pricing to prove Premium pool adequacy - Development of is 1ST stage Statistical rates <ul style="list-style-type: none"> - 2003 "Fire" - 2004 Liability - 2004 Accident - Rating Strength Concept developed in 2003 	<ul style="list-style-type: none"> - Statistical rates for Motor - Optimising Portfolio mix to deliver return on capital - Understanding customer profitability

- Pricing techniques continue to change
















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The Need for Discipline



- The Insurance Cycle
 - ▶ Fact, not fiction (based on statistical evidence)
 - ▶ Need to better understand the drivers
- Market Regulators' Management Duties
 - ▶ Rate filing
 - ▶ Data requirements

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Basic Concept – Risk Pricing



Risk Based Pricing

- Risk is capable of definition and quantification using a fact-based approach
- Aiming for or potential to achieve depth of data, scale, expertise in market
- Large risks assessed and accumulation of exposure monitored
- There will be awareness of cross subsidies - However, large scale cross subsidies are not sustainable and must be managed/monitored

Disciplined Underwriting

- We don't write business we don't understand
- 'Say what we do' – principles, processes to follow
- 'Do what we say' - Post Implementation Reviews,
- Business Units write down reasons any departure from principles and brief UPPCO when material



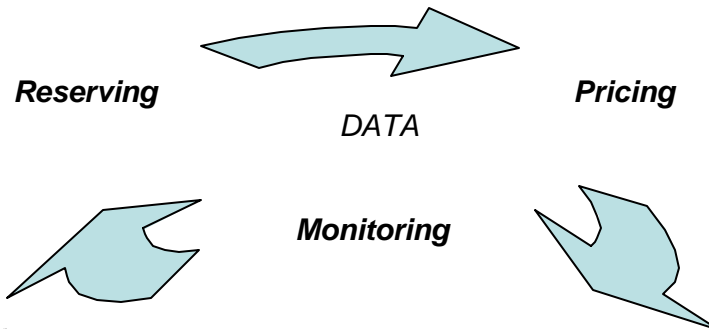
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The Control Cycle



Improving data access and use is central to the process



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Purpose and Values feed into Pricing Principles....

Possible Key Themes:

- Paying claims and going beyond the claim
- Pricing Risk
- Minimising Cost
- Reducing Risk in the Community?

Organic Growth

Risk Selection
Pricing
Claims
Distribution
Relationship Management
Customer Service
Investment
Change Management
Risk Management
Leadership

Honesty
Transparency

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Balancing the different objectives

Underwriting and premium control mechanism focuses on supporting pricing to ensure success for the long term...

Target Return on Capital
Awareness of risks

Manage Costs – Efficiently in that optimize money available to pay claims
Reduce Risk – Influence community risk management
Ensure insurance is affordable, available and commensurate with community standards (eg personal accountability)
Inform community decisions
Financially viable
Stable Institutions
Cross subsidize community groups(some) but not unfairly discriminatory

Price Risks – Reasonable price and equitable sharing of risks with like risks
No unsustainable or unjust long term cross subsidies
Pay claims

Pay claims
Help them get on with life restored to pre-injury/incident condition or as near as Easy to deal with
Fair
Cross subsidize if it means getting their benefits?(short term/long term?)

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Personal Lines Risk Analysis Overview



- Separate analysis for each product
- Policy data
- Claim data
- Find claim frequency signal across risk groups
- Find average claim size signal across risk groups
- Risk premium in each risk group = claim freq * ACS
- Allow for recoveries
- Rating Factors (for instance for motor insurance):
 - ▶ Age
 - ▶ Gender
 - ▶ Address
 - ▶ Type of Car
 - ▶ Sum Insured
 - ▶ Driving record (if allowed)
 - ▶ (etc)



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Data



- Data quality is paramount
- Free format fields almost impossible to work with
- Data validation tests upon data entry are vital
- Test data quality before policies begin to be written not after analysis is required
- Each data field has defined range of entries
- Each permitted entry is unambiguous
- All possible (valid) values must be allowed
- Discrete values: e.g. age
- Continuous values: e.g. sum insured
- Policy data must match period of claim data
- Claims must be able to be matched accurately to policies
- Scanty data is difficult to model and probably implies a price taker strategy



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Expenses



- Fixed expenses: rent of premises, lease payments on computers, Corporate centre costs, compliance costs
- Variable expenses: commission, levies, taxes, cost of sales staff salaries, claims expenses, reinsurance costs
- “Semi-variable” expenses: decision on how to treat expenses that change with longer term business volume-related factors
- Fixed expenses can be expressed as a fixed amount per policy
- Variable expenses are generally expressed as a % of premium (including grossing up the fixed expense amount per policy)
- Usually require a functional cost analysis to split expenses into fixed and variable and by product and activity type
- Then decide how strict the allocation will be



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Generalised Linear Models



- Find “signal” in data after removing correlation that can distort one way table results
- Essentially regression in many dimensions
- Looking for statistically significant trends
- GLM analysis removes subjective bias
- GLMs specify that the claims have a distribution around the average value that is a simple function (such as an exponential) of a linear combination of the rating factors. Each rating factor has a range of values e.g. age, area, vehicle type etc and each value is assigned a number of points based on its experience.
- The premium for each risk is then calculated by adding the particular points of its rating factors and using the total in the model



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Other Issues



- Decision trees divide the population into segments based on the measurable characteristics so that the claims result is as consistent as possible across the segment.
- Decision trees are useful for tasks such as grouping suburbs into rating areas
- Area rating: where are boundaries?
- Vehicle rating: Huge number of vehicle makes, models, years of manufacture. What granularity is practical?
- What granularity can the business rating engine cope with? Need to know this before analysing at a lower level than can be implemented in the computer system.
- A measurable signal from rating factors which are too granular to be implemented in the rating engine will be re-spread into other rating factors
- New business tends to have higher claim frequency than renewals (even when comparison is normalised for other rating factor values)



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Pricing not the only factor



- Overall success in pricing depends on pricing AND Rational and Consistent underwriting rules
- Perfect pricing allied with imperfect underwriting rules is a guarantee of failure to meet targets. Has been known to cause insolvency.
- Moving from tariff to market determined basis requires recognition of cross subsidy and competitive opportunities to re-balance portfolio and manage cross subsidy to meet Aims
- Larger scale implies the chance for larger companies to meet ROC targets with cheaper premiums than smaller competitors
- Provided larger company is at least as efficient as smaller companies
- Larger companies can spread fixed costs over more policies than competitors

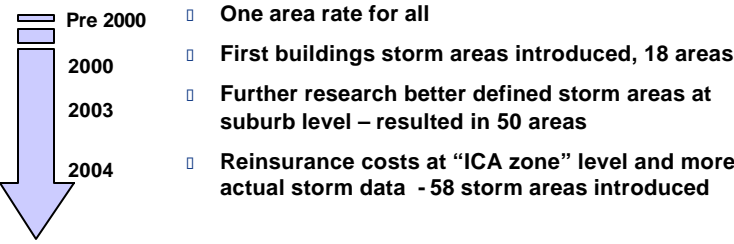


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Example 1

Storm Pricing: Continually evolving the approach (eg personal lines)



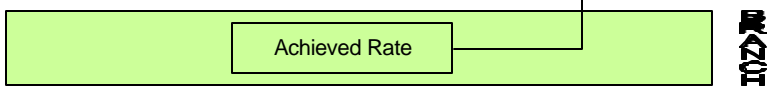

- Pre 2000 □ One area rate for all
- 2000 □ First buildings storm areas introduced, 18 areas
- 2003 □ Further research better defined storm areas at suburb level – resulted in 50 areas
- 2004 □ Reinsurance costs at “ICA zone” level and more actual storm data - 58 storm areas introduced

This allows us to compare to a market price (e.g. tariff) and see the attractiveness of segments

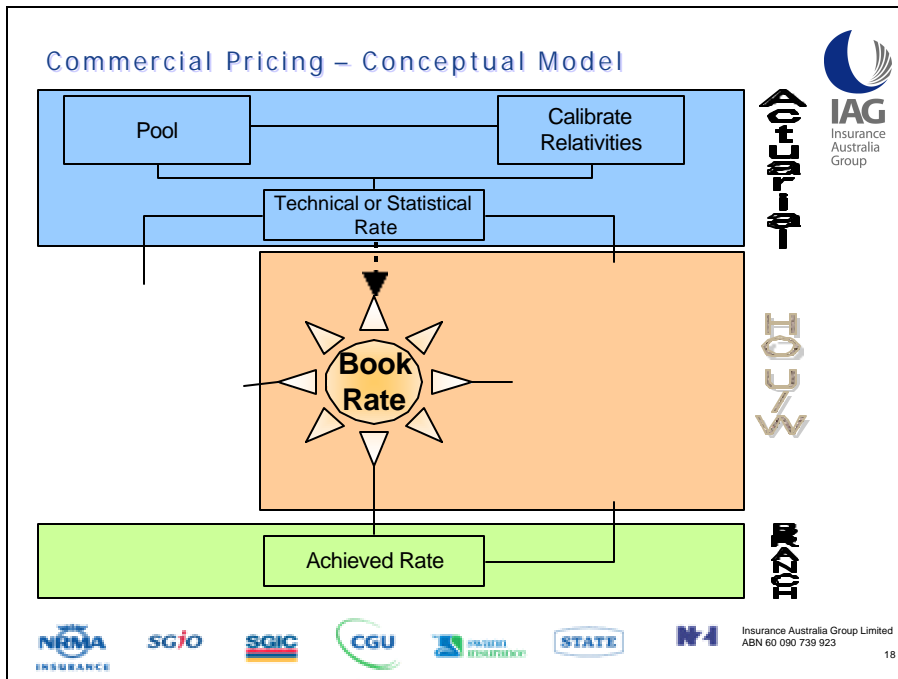
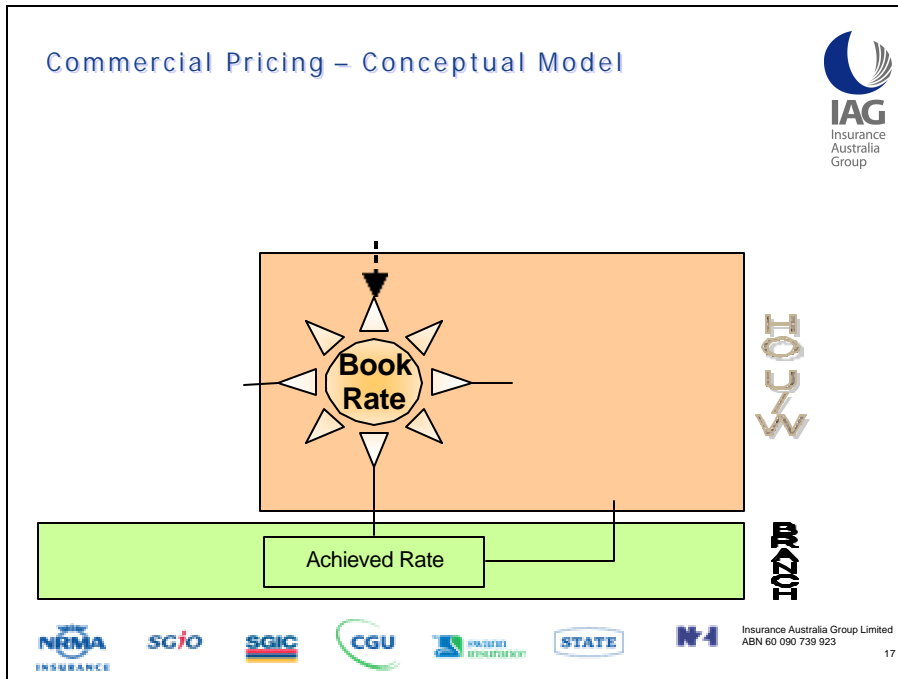


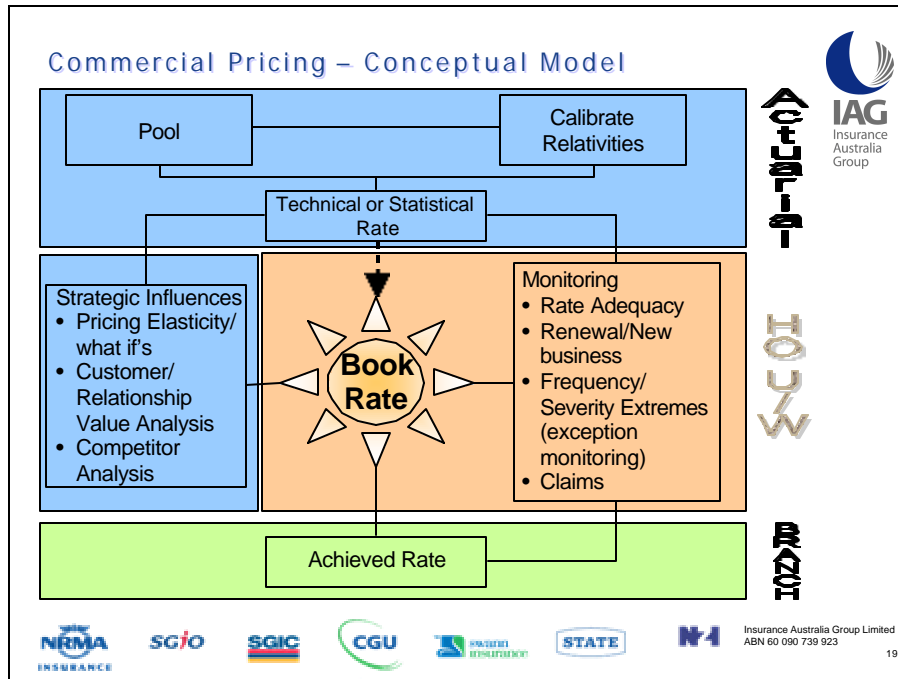
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Commercial Pricing – Conceptual Model

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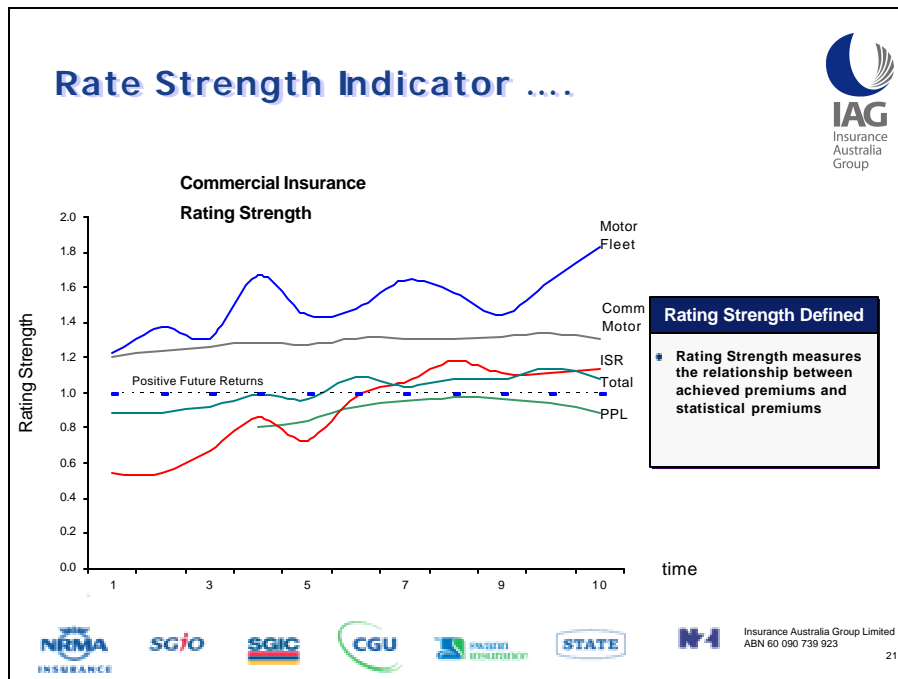
Rate Strength – One of a Range of Regular Reports...

- Rate Strength - long term measurement of premium pool adequacy. It factors in the cost of events which may or may not happen in any one year.
- Divides the achieved “premium pool” by the premium pool derived from the statistical rate.
- Rating strength of 1.0 implies a premium pool of sufficient strength to achieve long-term ROC requirements after paying all claims and expenses.

Logos for member companies are listed at the bottom: NRMA, SGIO, SGIC, CGU, IAG, STATE, and N1. The IAG logo is also present in the top right corner.

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Why not use a Different Approach?

- Why not follow competitor prices? (control is with the market not the insurer)
- Why not simply look at portfolio level? (possible, especially if data is scanty, but less control)
- Why not just follow policy level granular data? (may not match strategy, and statistical modelling falls down if not enough data)
- Why not look at last year's claims? (recent, but may be an abnormal year)
- Could we look at last 5 year's claims? (more data, but maybe changes since then)
- Could we set at purely technical price? (may lose policies, and cross-selling opportunities)

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About the Author:

Dave Finnis

Insurance Australia Group (2002 – Current date) (Senior Actuary)

Working with IAG incorporates a number of developmental responsibilities including:

- managing development of, and projects involving, the internal DFA modelling structure
- reinsurance reserving techniques; and
- construction of Financial Condition Reports for all areas of the Group's business
- response to the adoption of international accounting standards
- supporting the actuarial and other technical aspects of the Group's merger/acquisition activity

Group's representative on a number of Insurance Council of Australia Committees and Working Groups, including:

- Data Collection Steering Committee
- Actuaries Liaison Committee
- Asbestos-related Claims research

Macquarie University (2003 – Current Date)

Lecturer for the General Insurance element of third year unit of the actuarial studies course at the University. (Part-time)

Tillinghast-Towers Perrin (Consultant 1990 – 1993, Sydney GI Unit Leader 1993 – 1995, Australian Practice Leader, GI, 1995-1998, Asia Pacific Practice Leader in General Insurance 1998 – 2002)