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Developing motor insurance business – the actuarial approach

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Introduction

- Apply the actuarial approach towards developing motor insurance.
- In early 1970s, general insurance market share of less than 2 percent
- In 2007, NTUC Income was the largest general insurer. The market share for motor insurance exceeded 30%
- It achieved a profitability that is better than the industry for most years.



Strategy

- Secret of success: basic principles of insurance pricing.
- Premium = cost of claims, marketing, administration and profit margin
- Investment income deducted from cost of claims, by using the discounted value.
- Follow the approach used in the construction of the premium for life insurance products.



Three phases of business development

- 1985 – lower expenses
- 1994 – actuarial rating based on claim experience
- 2003 – managing the claims.



Phase One – Lower Expense

- Motor insurance premium was calculated at 2% of the sum insured (value of the vehicles).
- Some underwriting was done to load the premium or increase the deductible
- The market rate of commission paid to agents was 15% of the premium.
- Average expense ratio (excluding commission) was about 25% of the premium.



- NTUC Income had an efficient on-line computer system.
- Insurance agent use a computer and modem in the office to dial up to access the computer records.
- Reduce the premium rate by about 10% compared to the market. Due to the use of the shared facilities, it operated at lower expense ratio.
- A few large agents placed a large proportion of their business with NTUC Income.
- Profitability was marginal, similar to industry average. Business growth was significant.



Phase Two – Actuarial Analysis

- Around the early 1990s, NTUC Income adopted the technique of actuarial pricing based on the claim experience.
- Portfolio of about 200,000 motor cars. Two calendar years of experience
- An experience record is extracted for each policy year, showing several risk characteristics. exposure period and incurred claim.
- The experience records are summarised to obtain the average claim for each risk characteristic.
- Handling the interaction between the risk factors was a challenge.



- We used an iterative method.
- We compute the expected premium to be compared with the actuarial premium.
- Where the interaction was significant, the rating factors are adjusted and the results are re-calculated.
- This process can be carried out a few dozen times, to get the best fit.
- Subsequently, adopted a method based on a stronger statistical foundation.



- The first insurance company to adopt the actuarial rating method around mid 1990s.
- A few companies introduced the actuarial rating method initially. After a few years, the remaining companies changed to this method.
- The adoption of the actuarial rating experience leads to premiums that reflect the claim experience more closely and offer a margin of profit.
- This strategy allowed us to grow our business and more importantly, profitably.



Management of claims

- During the years 2000 to 2002, the insurance companies suffered a combined loss of more than \$200 million.
- This was due to increase in the frequency and amount of the claims.



- The results of NTUC Income were better than the industry.
- However, there was still a large loss in 2002 - \$31 million.
- Problems: inflated repair cost, escalating injury claims and legal expenses.
- By mining through the claims data, it was possible to identify the workshops and lawyers that contributed to the inflated claims.



Measures to combat inflated claims

- Tender of repair
- Motor repair cost software
- Direct settlement of third party claim
- Pro-active handling of injury claim
- Strategy to handle legal cases.



Tender of repairs

- Insured has to reports an accident at an independent assessment center
- Leaves the vehicle for us to arrange the repair.
- Invite panel workshops to tender for the repair.
- The tender is usually awarded to the lowest tender.
- Save average of 20 percent using this method.
- Maintain satisfactory quality of repair



Motor Repair Cost software

- Introduced a new system to estimate the repair cost for motor vehicles.
- Purchase a database system from a research organisation in the United Kingdom.
- Our surveyor identified the damages to the vehicle and entered the parts into the software. The software estimates the cost of repair.
- Our surveyor finds the software to be user friendly and flexible.



Direct Settlement of Third party claims

- 50% of third party claims were submitted through a lawyer appointed by the workshop.
- The claim was increased by an average of 30% to 50% due to the legal fees.
- We approached these workshops and work out an arrangement for them to submit the claim directly to us
- The workshop benefited from easier and faster settlement of the claim.



Pro-active handling of injury claim

- Injured person approached a lawyer to handle the injury claim. Legal fees 35% of total claims.
- The injured person had to wait for about 12 months to have the claim finally settled.
- We approached the injured person immediately. Offer advance payments for medical expenses and loss of income.
- Get independent advice on general damages.
- Settle claim promptly and fairly, reduce legal expense.



Strategy to handle legal cases

- Depended on our lawyer to handle the legal case in court.
- The third party lawyers were submitting more claims through the court.
- We discovered a court process called "offer to settle".
- A higher proportion of cases settled at an early stage, resulting in significant cost savings.



Conclusion

- Actuarial techniques were employed in the management of the motor claims – analysis of expenses, claims, and claim management
- As NTUC Income has actuarial resources to manage its life insurance business, it is quite natural to use the actuarial know-how to manage the motor insurance business.
- The use of the actuarial techniques contributed to the successful development and management of the business to achieve growth and profits.

