Motor Insurance: Strategy Beyond Pricing

10th General Insurance Conference 2018

Singapore Actuarial Society

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Agenda

- **Introduction**
- Pricing vs costing
- Case study I : use test
- Case study II : industry benchmarking
- Case study III : demand elasticity modelling

Evolution of motor tariff liberalisation

Tariff

- Tariff rates published by the regulator
- Coverage usually has to be in-line with those prescribed by the regulator

Partial liberalisation

- Flexibility in product offering
- Compulsory products are still subjected to tariff while rates of voluntary products are determined by the insurers
- Business plan/ pricing analysis to be submitted to the regulator for approval

Full liberalisation/ Open Market

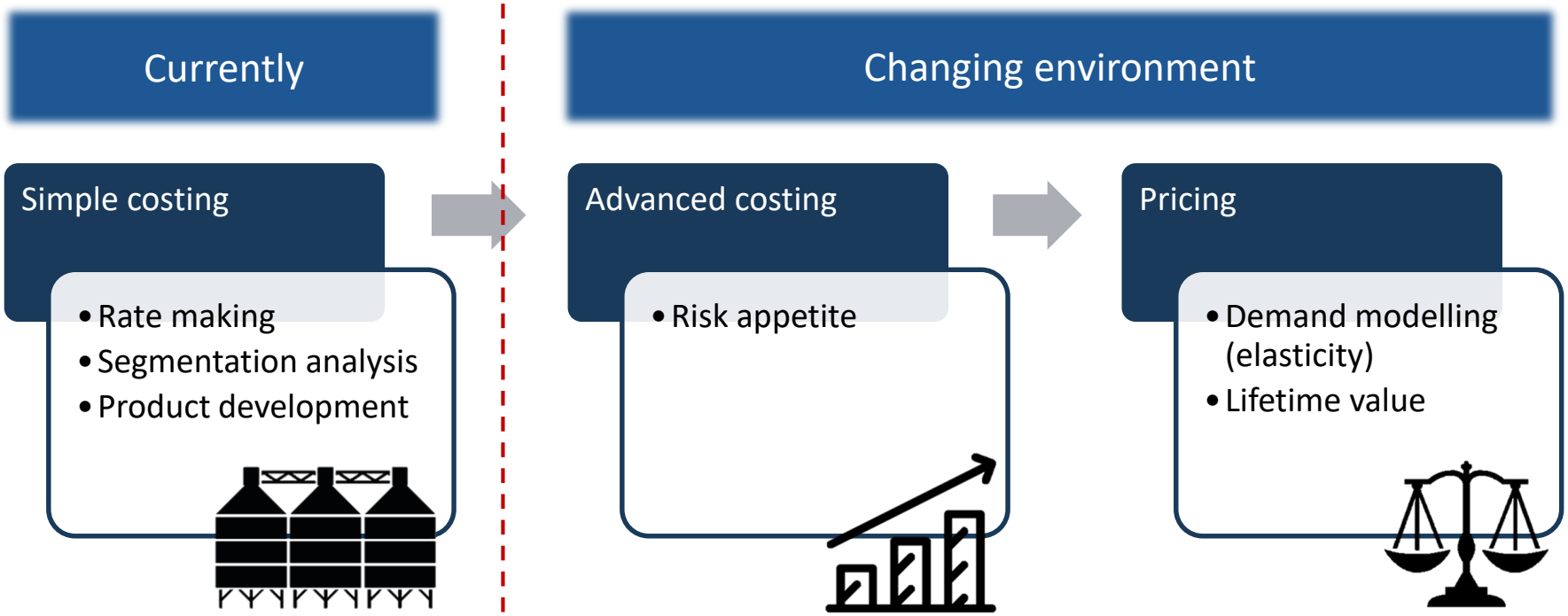
- Free market pricing
- No restrictions on product design

Tariff to free market – what should change?

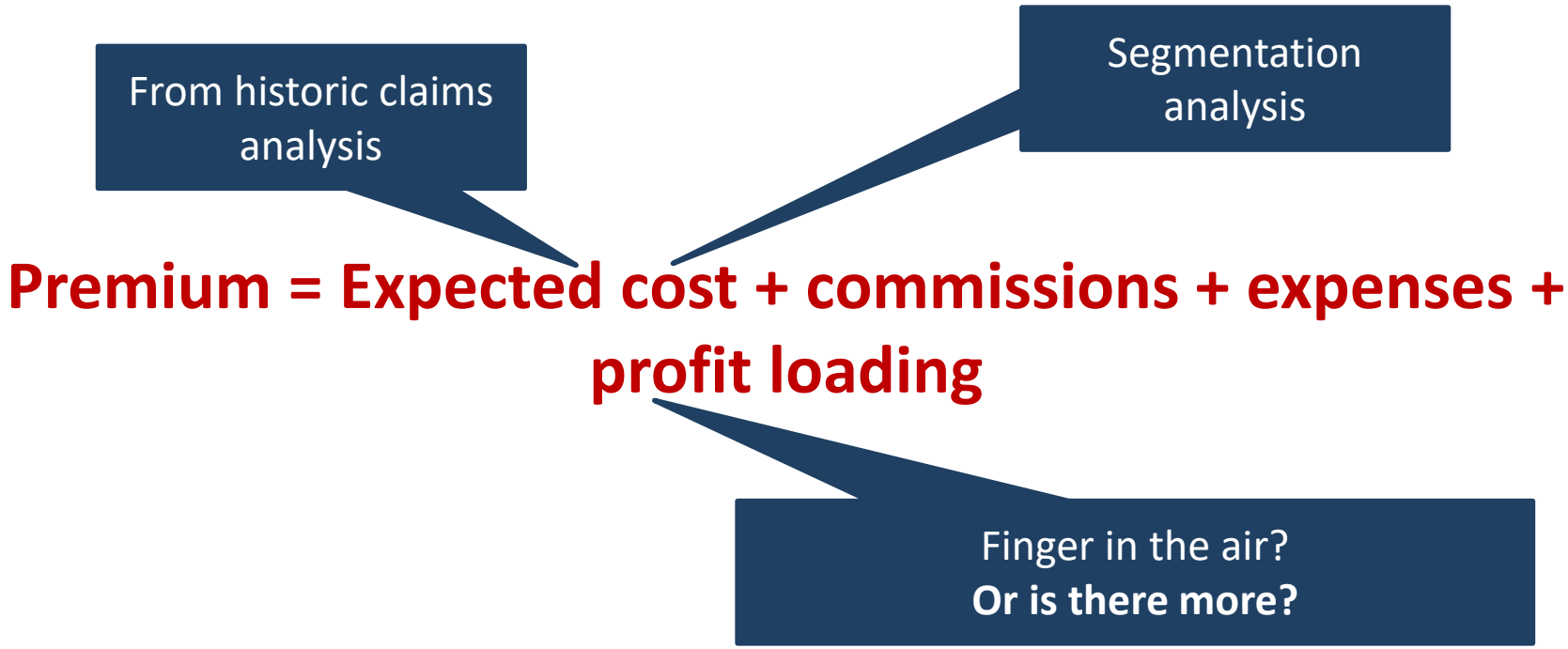
- Market will become competitive – in some situations commoditised
- Insurers can't be all things to all people
- …but can be the best things to some people by:
  - Identifying the strategy for you
  - Pricing appropriately

Pricing Actuaries

- Changing regulatory and competitive environment means actuarial pricing function has to take a more central role.



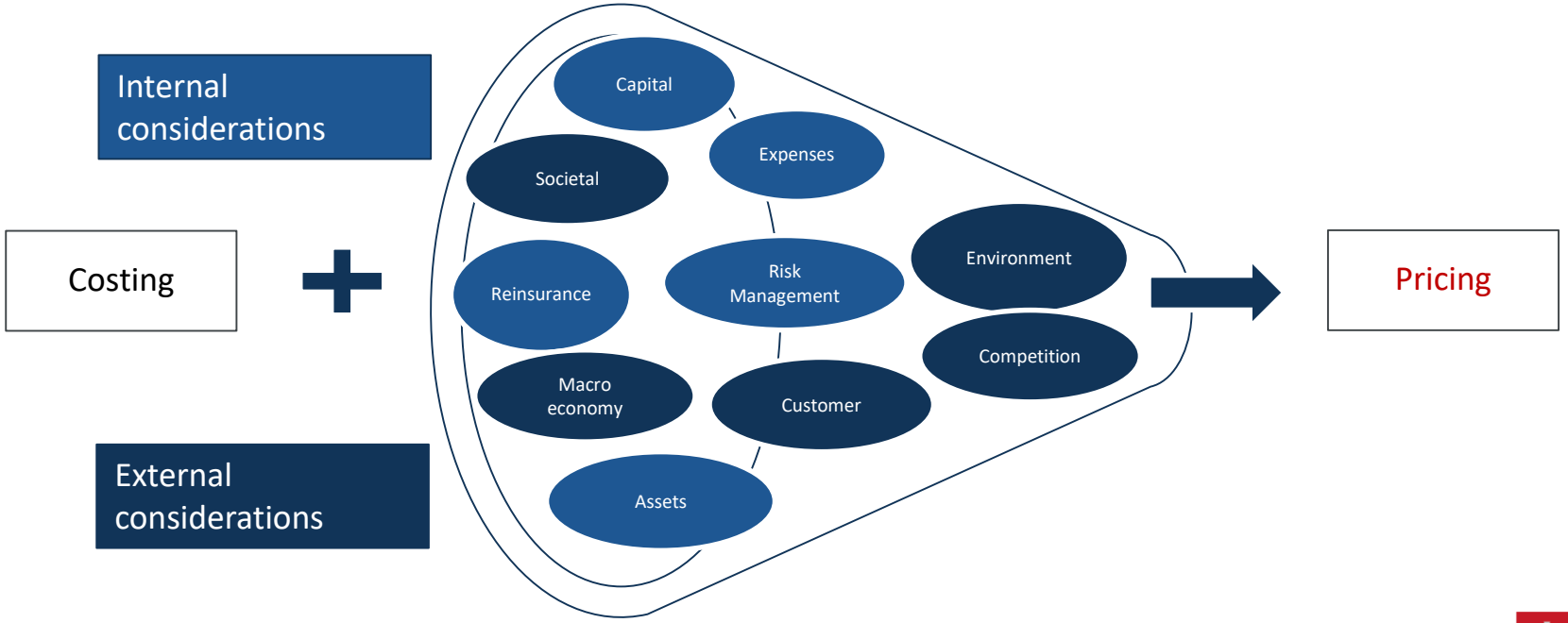
Redefining pricing



- This is a costing rather than pricing!
- Costing vs pricing, what's the difference?

Redefining pricing

- Costing is a single view of what premium should be
  - Assumes claims experience as the most important factor to determine premium
- Price is what someone is willing to pay for a product or service
  - Should be central to a company's strategy and management



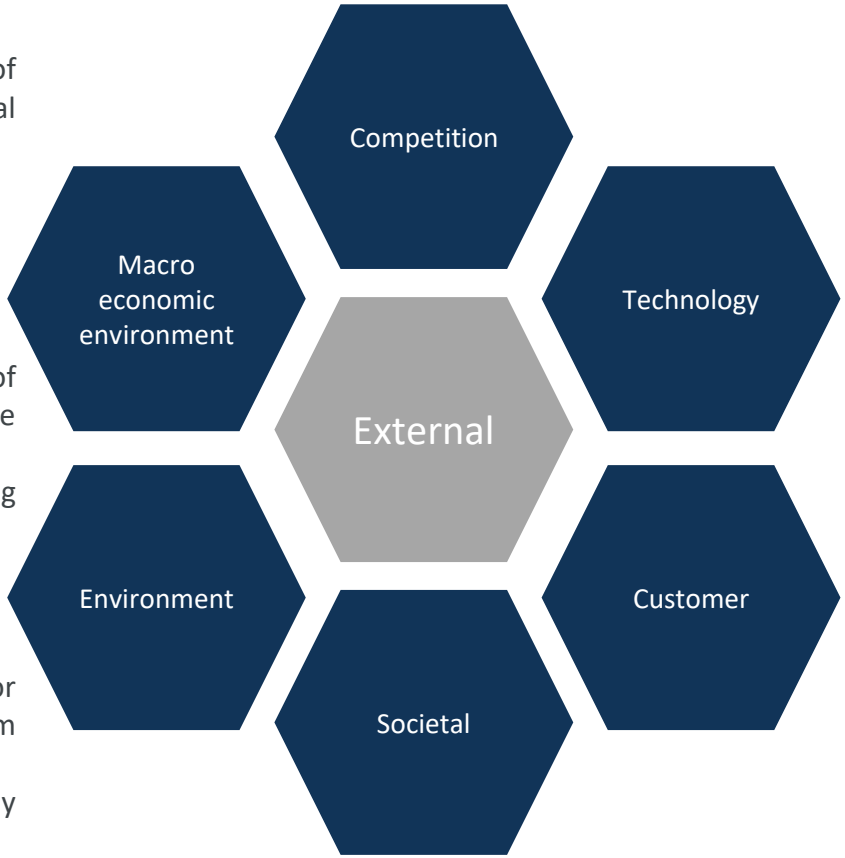
Internal considerations

- **Capital optimisation**
  - How much business can be written without affecting regulatory capital position
  - Utilise total balance sheet economic capital models and/or business planning projections/ stress testing
- **Reinsurance**
  - Allowance for reinsurance costs, i.e. charge more for classes which require lots of reinsurance
  - Optimise price such that little reinsurance is required
  - Feeding data/insights from reinsurers to price more accurately

- **ALM risk**
  - matching of cashflow amounts and timings
  - Better matched assets means there is more room to reduce premiums
  - Charge lower premiums to less volatile lines of business as easier to match with assets
- **Company strategy**
  - Different segments have different risk profiles; pricing should reflect these difference
  - Is retention important? High value customers vs low value customers

External considerations

- **Claims inflation**
  - CPI or AWE?
  - Different types of inflation, i.e. medical costs, legal inflation
- **Interest rates**
  - Opportunity costs of purchasing insurance changes
  - Return on assets backing liabilities
- **Business cycle**
  - Greater demand for insurance in a boom environment
  - Demand falls as economy slows



- **Competition**
  - Position relative to competitors; lead or follow competition?
  - Is the market commoditised? Is innovation for everyone?
  - What premium to charge where insurers appetite meets demand
- **Customer**
  - Willingness to pay
  - Product differentiation
  - Dynamic pricing
  - Demand elasticity

How can we capture all these in our pricing?

- Profit testing
- Capital modelling
- Business plan modelling/ Stress and scenario testing
- Demand/ Supply modelling
- Economic scenario generators
- Competitive market analysis/ Industry benchmarking
- Catastrophe modelling

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Case study I : capital modelling

- Solvency II is the long awaited insurance regulation in Europe
- A central premise of the ‘internal model’ approach is the use of an economic capital model in the management of the business
- This includes the developing of a strategy and pricing
  - understanding consequence of future actions (e.g. banca or direct distribution, reinsurance activities
  - understanding how to minimise risk and maximise bottom line

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Case study I : capital modelling

Develop an economic capital model	• A stochastic model assessing the business on a "total balance sheet approach
Stress & scenario testing	• Use the model to assess different scenarios for new business, e.g. adverse claims experience, changing asset returns • Use model to test multiple strategies
Calibration of premium	• Use resultant outputs to profit test different premiums

Case study I : capital modelling

- Regulatory pressure has pushed insurers into thinking about their business in a more analytical way
- Requires advanced skills and deep knowledge of their business
- Alternative approaches are possible, i.e. business plan forecasting can be used to optimise premiums

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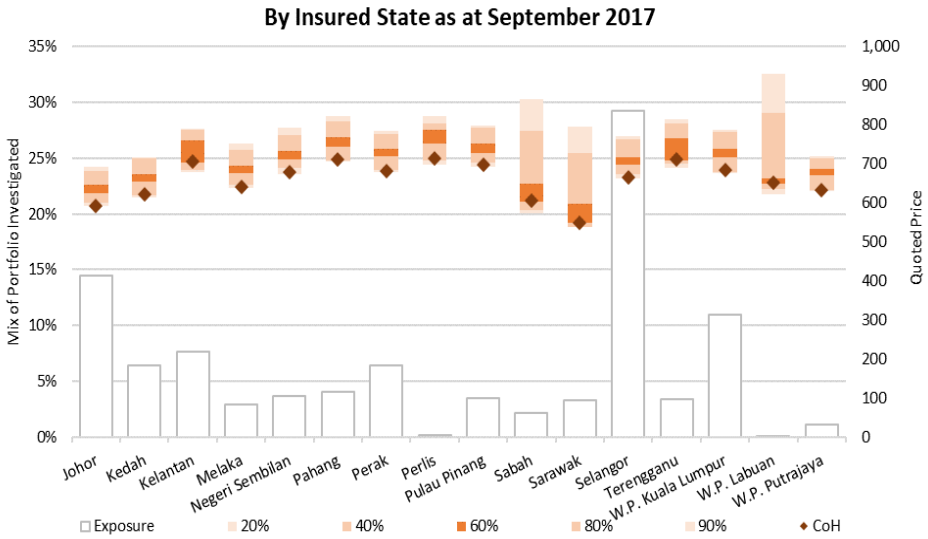
Case study II : industry benchmarking

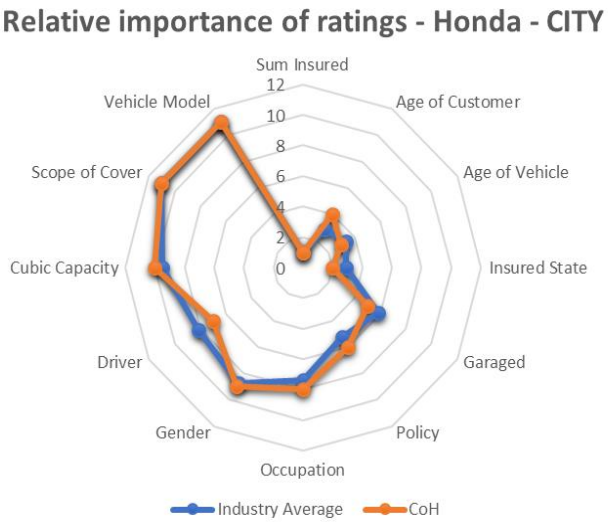
- How do you check that premiums are appropriate compared to the competitors?
  - In some markets, digital distribution, i.e. aggregators makes it easy to collect competitor pricing
  - Otherwise, mystery shopping can be expensive and resource hungry
  - Difficult to assess validity of premiums
- Industry-wide benchmarking studies help to alleviate these issues

Case study II : industry benchmarking

- A number of studies have been running to help insurers benchmark their premiums against their competitors
- A number of approaches used, from mining aggregator data to collecting premiums from participating insurers
- Examples include: *marketfinesse* in Australia, *NMG's* motor benchmarking in Malaysia
- Insurers able to use their results to assess their premiums and strategy.

Case study II : industry benchmarking

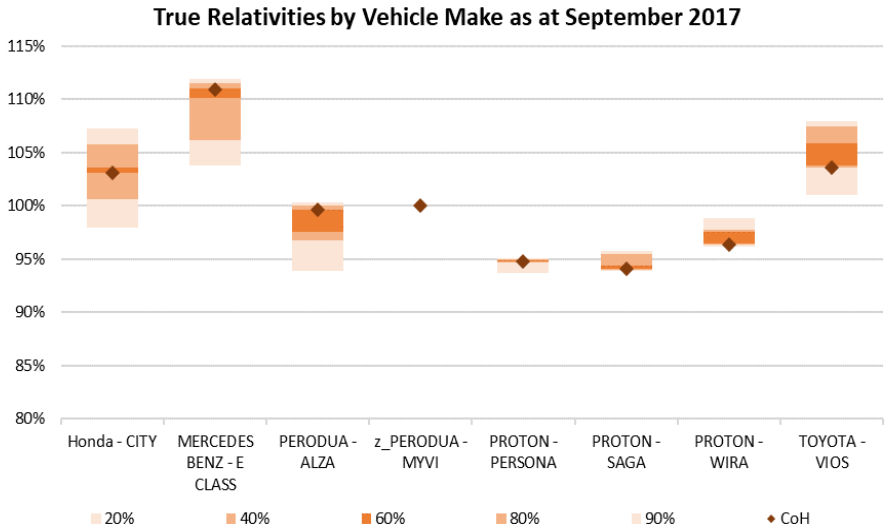


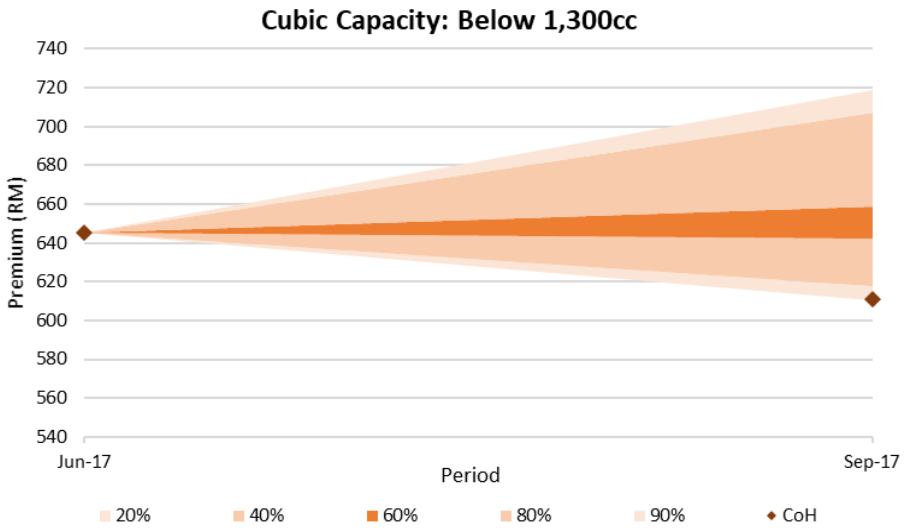


- **One-way relativities**
  - East Malaysia, i.e. Sabah, Sarawak, W.P. Labuan has lower average premiums as compared to West Malaysia
  - However, East Malaysia has higher variability in premiums as compared to the West Malaysia

- **Ranking of factor importance**
  - *Sum insured* is the most important factor among all, followed by *Customer Age* and *Insured State*
  - *Number of drivers* is less important than *Gender* at the industry level

Case study II : industry benchmarking





- **True relativities**
  - Honda City premiums are about 3% higher than Perodua Myvi
  - Proton Persona and Proton Saga are priced similarly

- **Longitudinal analysis**
  - Post liberalisation of tariff in September 2017, insurers charge 1,300cc risks based on varying views
  - The strategy of this participant is to position itself at the bottom 20%ile of the market

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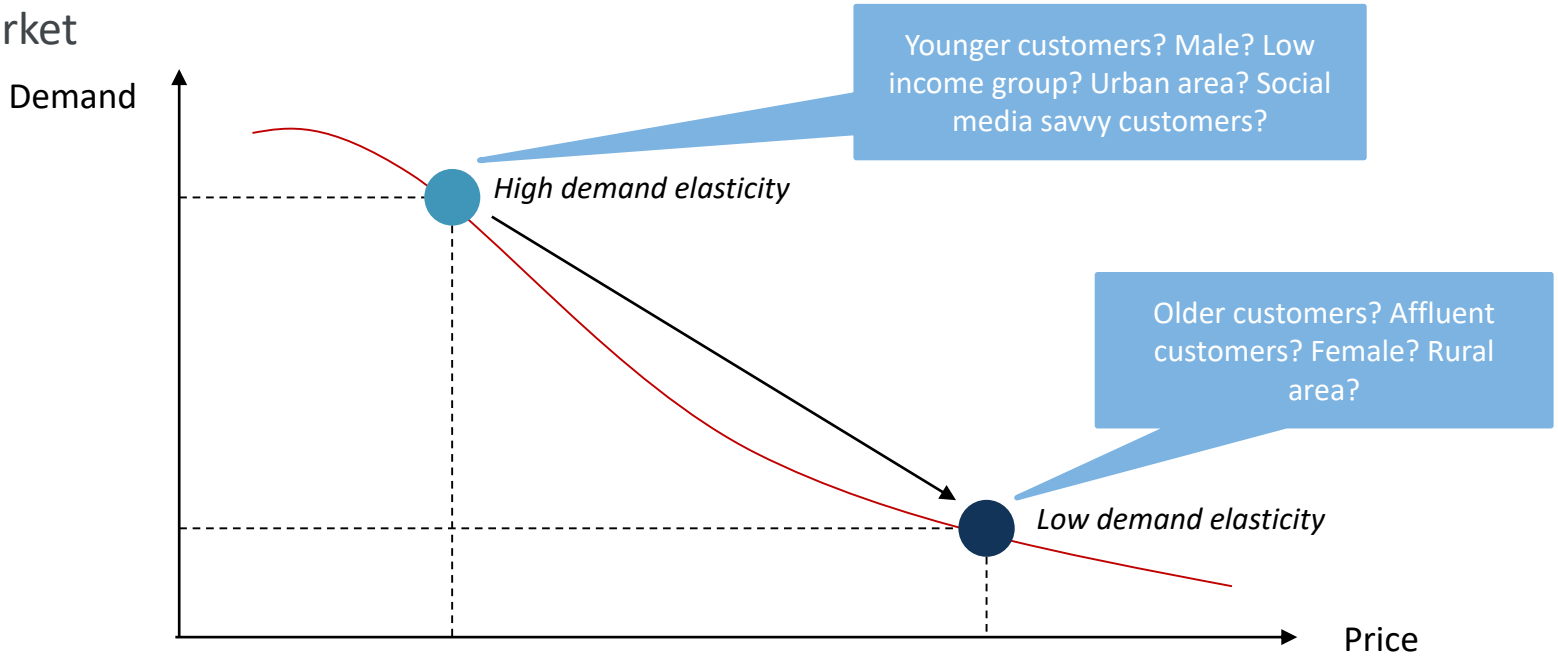
Case study III : demand elasticity modelling

- Understanding the characteristics of your customer base is crucial to pricing strategy
  - How much can we make on any one customer?
  - What is the maximum price difference can we allow for between two customers of similar risk profile?
  - Which group of customers is more sensitive to the price change?
- Modelling the ***demand elasticity*** allows us to explore the propensity of potential customers purchasing products as well as existing customers renewing their contract

Case study III : demand elasticity modelling

- Pricing is a function of costing and demand elasticity
- Determine the optimal price to charge based on appetite for retention or target market

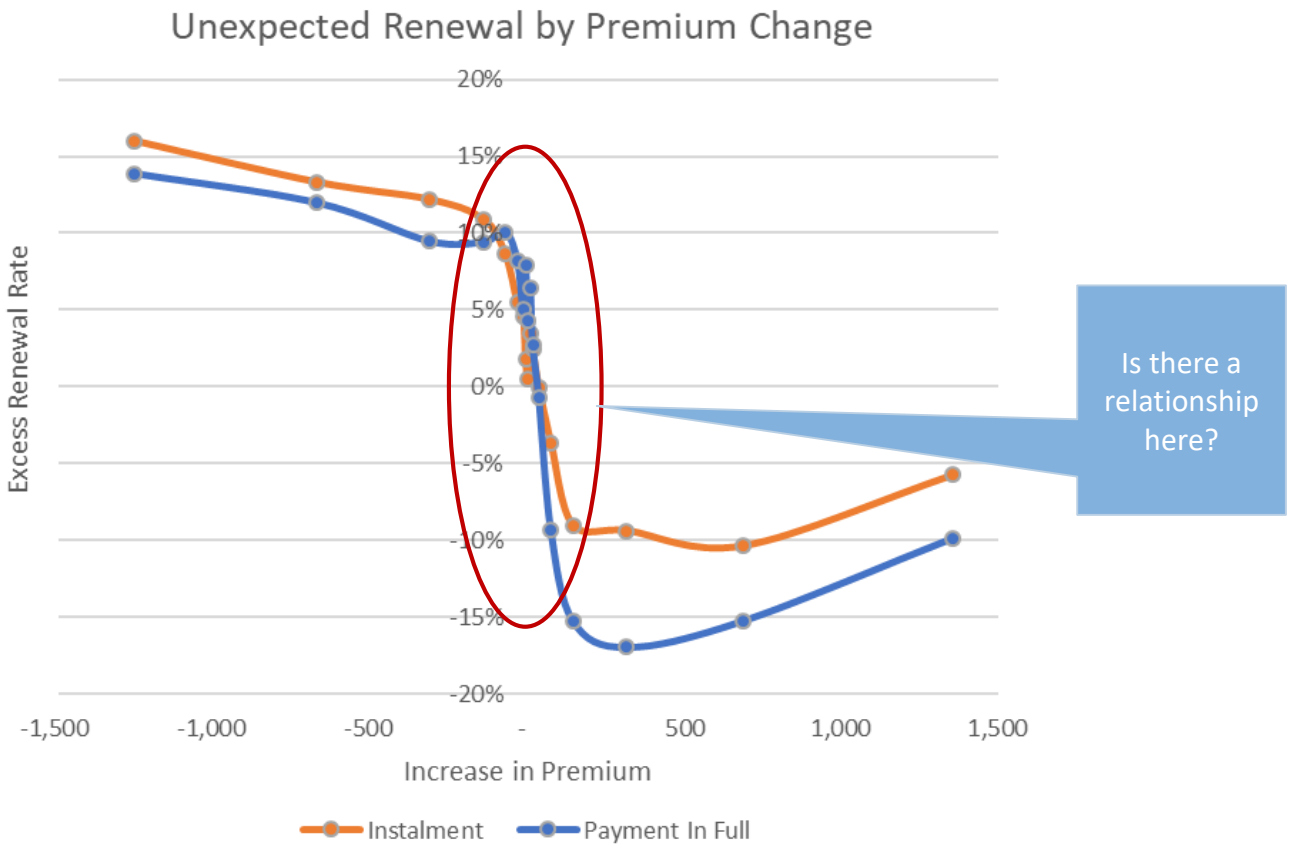


- Demand
  - Quote conversion rate for new business
  - Retention rate for renewal business

$$\text{Elasticity} = \frac{\%\ change\ in\ demand}{\%\ change\ in\ price}$$

Case study III : demand elasticity modelling

- A motor insurance retention study for a UK broker
- Consumers are most responsive to changes in premiums between +/- GBP100 range



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