Pricing When Only The Customer Can See

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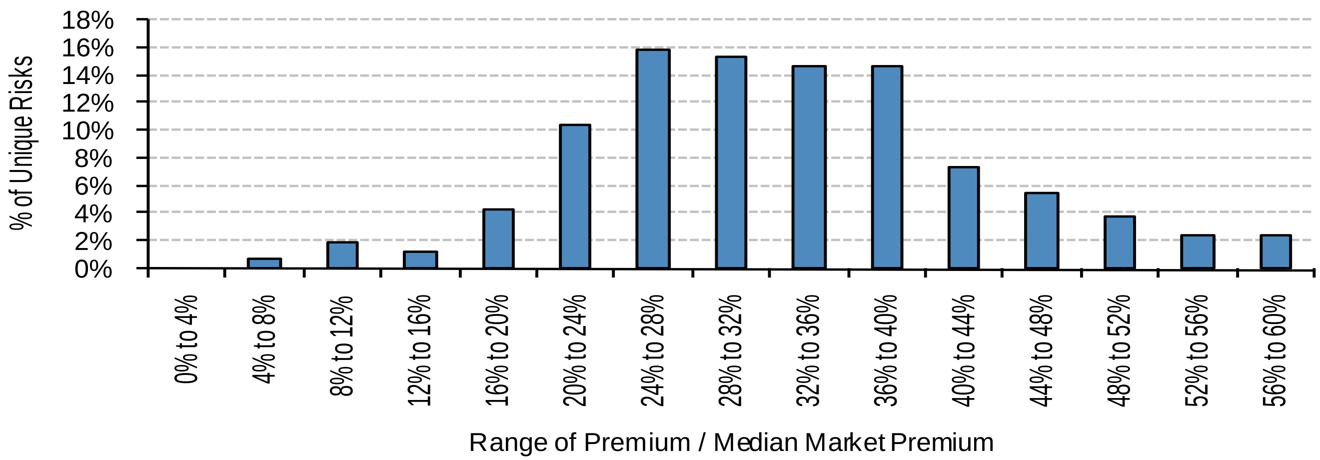
Agenda

- **Use of technology -** how it is changing distribution
- **Trends in distribution in other industries**
- **Personal Insurance** – developments in the Australian market, trends from overseas
- **Commercial Insurance** – the current landscape, changes coming & trends from overseas
- **Winner's Curse** – what is it, implications for the insurance industry
- **Strategies for insurance industry stakeholders**

Variation in Premium Rates in NSW motor– 4 insurers (Max – Min)



Source: JP Morgan study

Technology has changed distribution and business models in many industries

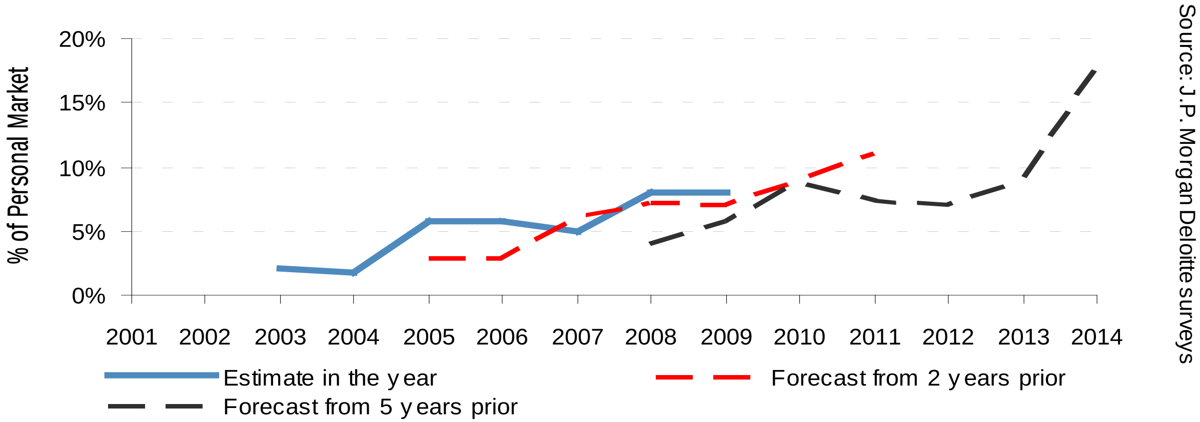
How is technologies changing distribution business models?	Industries we observed

- **Potential to reduce costs**
- **Some manufacturers are going direct.**
- **Price transparency and comparability has increased**

- **Retail**
- **Airlines**
- **Financial Services**
  - **Life Insurance**
  - **Health Insurance**
  - **Banking**
- **Travel agencies**
- **Betting agencies**
- **Media**

Personal Insurance – changes in distribution, the emergence of the internet

Internet channel expected to grow



New insurance players utlising the internet

- Pay as You Drive Insurance / Real Insurance
- Youi
- Budget Direct (Auto & General)
- Progressive
- The Buzz (IAG's online offering)
- Bingle (SUN's online offering)

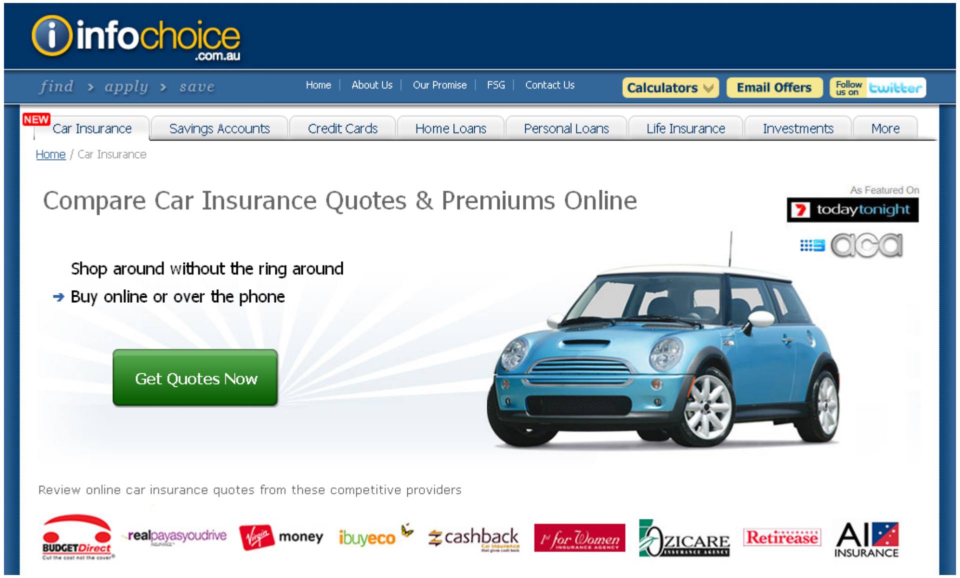
Growth in the affinity channel

- Auto & General partnering with Australia Post
- Auto & General partnering with Virgin Money
- QBE with Myer
- QBE with some industry superannuation funds
- Wesfarrmers with Coles
- Wesfarrmers with Kmart Tyre and Auto

Aggregator platforms have not taken off in Australia

Some online aggregators emerging – limited participation from most insurers

- **Large ‘incumbent’ insurers not signing up**
- **Some ‘challenger’ insurers have signed up, namely, Auto & General and Real Insurance**
- **Limited brands = limit comparisons made**
- **Direct online appears to be the dominant internet distribution method**



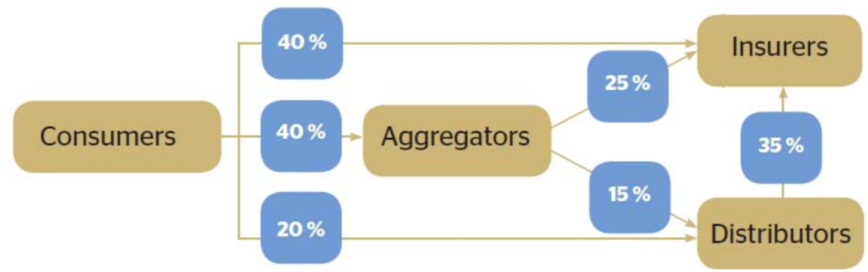
Source: infochoice.com.au

Personal insurance distribution trends overseas

UK motor market has 'embraced' aggregators

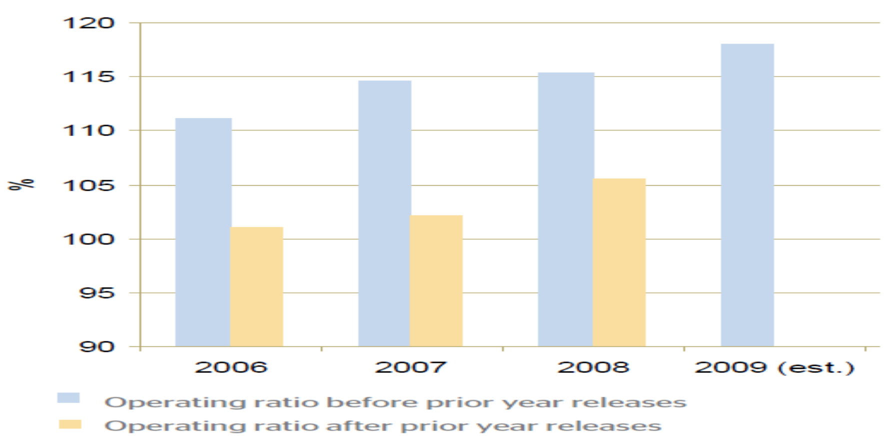
- **Aggregators are the dominate channel with most underwriters participating**
- **Customers cite price as the most important reason for switching – loyalty is low**
- **The customer relationship is with the aggregator rather than the insurer**
- **Flow through to market profitability**

40% of UK motor business is written through aggregators



Source: "Pricing perspectives on an aggregated future" - EMB

Combined ratios have been poor in the UK



Source: "Recipes for Future Success"" - EMB

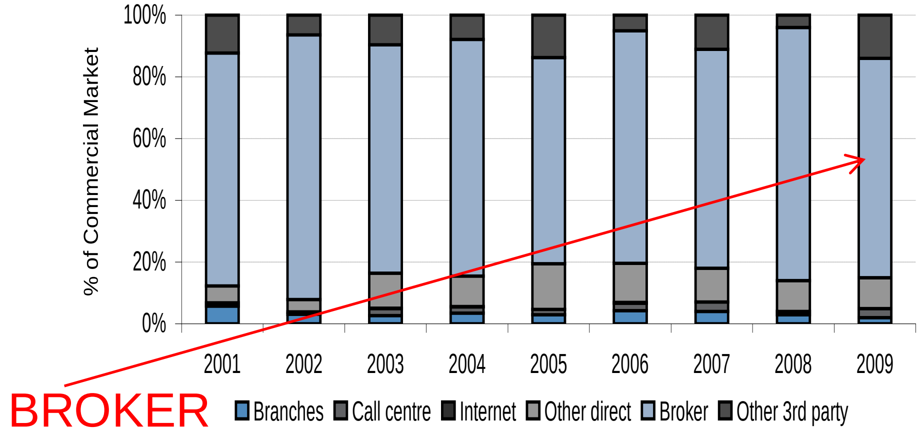
Internet distribution relatively low elsewhere

Country	Primary Distribution	Online Distribution
United States	Call centres and branches dominate	Internet sales growing off a low base. No aggregators, only referral portals
Continental Europe	Agency based distribution model dominates	Internet sales are still low
Canada	Independent brokers dominate	Aggregator use is low

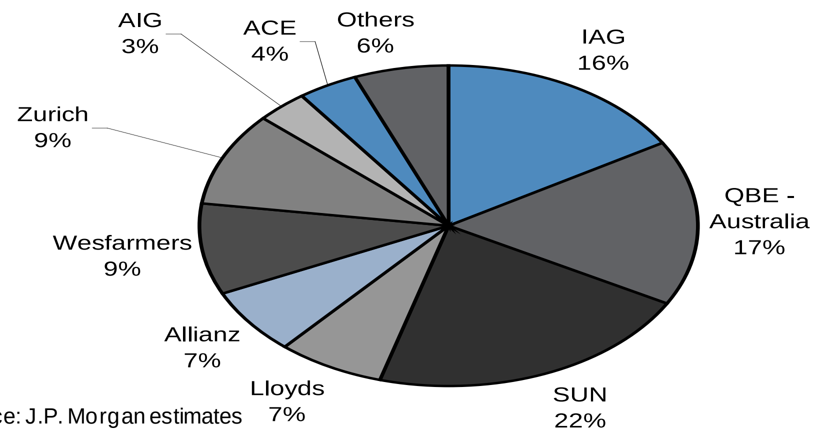
Source: Authors

$12bn - Commercial Insurance – broker dominant – the current landscape

Brokers is the dominant distribution channel

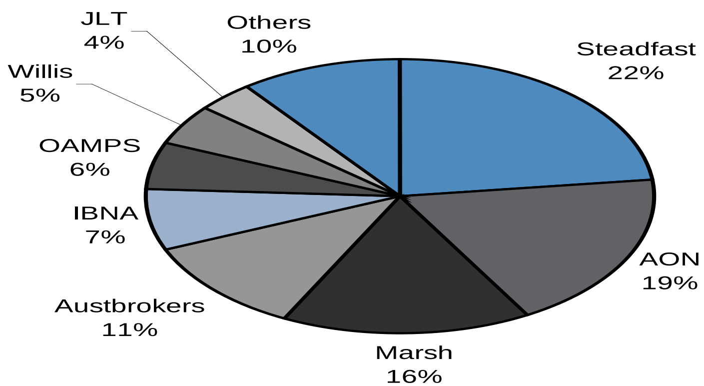


Commercial market is fragmented



Source: J.P. Morgan estimates

A few broker groups dominate the market



Source: J.P. Morgan estimates

Commercial Insurance - the market is segmented

Commercial insurance market segments

Market Segment	Key Underwriters	Distribution	Premium Calculation	Contestable Platforms
Corporate & Global Market	- Self Insurance - Lloyds Syndicates - Global Commercial Players	- Brokers - Self Insurance	- Self Experience Rated - Significant Price Negotiation - Relationships key	- Highly Unlikely
Middle Market	- QBE - Zurich - ACE - Chubb	- Brokers	- Self Experience Rated - Price Negotiation - Business Shopped	- At least one contestable platform is being launched
SME Market	- CGU - QBE - Vero - Zurich - Allianz	- Brokers - Tied Agents - Direct	- Algorithm Based - Underwriters have some disc/load authority	- A number of broker groups are launching contestable platforms

Source: Authors

What are contestable platforms?

- **Systems owned by brokers**
- **Instant price comparability**
- **May have consistent policy wording**
- **Claims service guaranteed**
- **Products offered:** Commercial SME packages, some brokers will also offer intermediated personal lines, D&O, standalone liability and commercial motor (non-fleet)
- **Result – possible commodisation of insurance products?**

Proposed SME Commercial Contestable Platforms

Broker Group	Steadfast	AON	AustBrokers
Platform	Steadfast Virtual Underwriter	EMBS	- iClose
Policy Wording	Standardised by Steadfast	Standardised by Aon	Insurers retain control of PDS
Underwriting Questions	Standardised	Standardised	- Determined by Insurers
Underwriters on Platform	Unlimited	?	Majors only

Source: Authors

How have the insurers reacted?

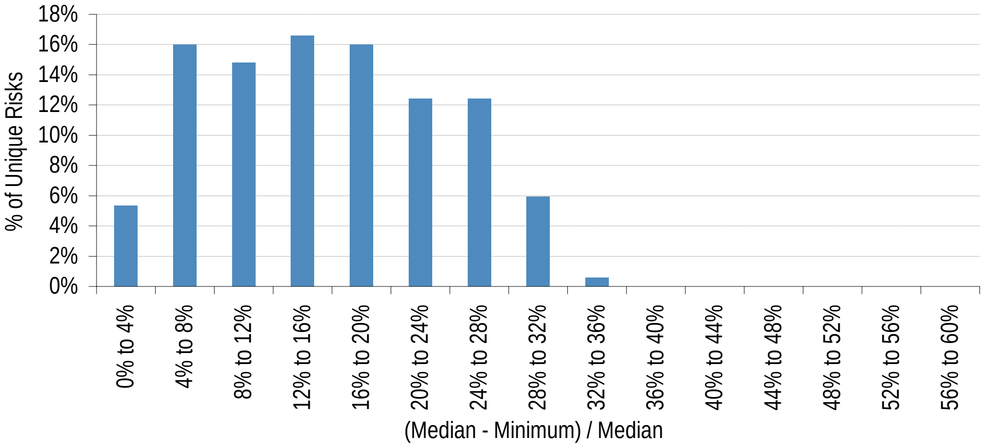
Reasons for joining	Concerns raised by insurers
• Brokers 'own' the customer relationship	• IT connectivity is not an immaterial cost
• Commercial insurance is fragmented	• Fear of commoditisation of insurance products
• Reduce the need for manual underwriting	• Greater price transparency
• Potential cost savings	

Unique challenges in insurance

Insurance has some unique traits

- Cost of production is uncertain
- Price variation exists
- Price is the most visible differentiating factor

Premium variation in NSW comprehensive motor



Source: J.P. Morgan Study

What is the winner’s curse?

Definition

Winner’s Curse: “A tendency for the winning bid in an auction to exceed the intrinsic value of the item purchased. Because of incomplete information… bidders can have a difficult time determining the item's intrinsic value. As a result, the largest overestimation of an item's value ends up winning the auction”

- Investopedia

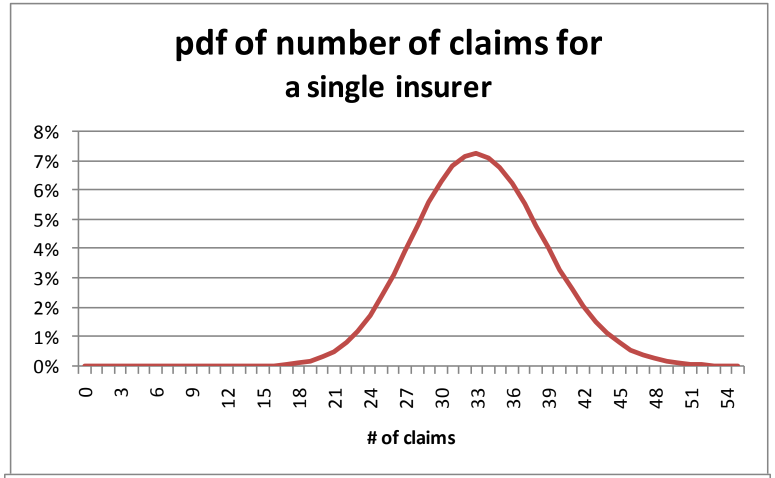
Key pre-requisites for the winner’s curse in insurance

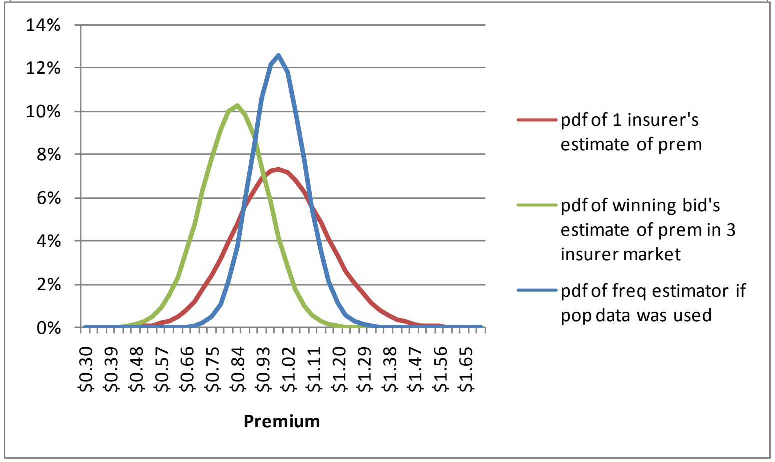
- Uncertainty in cost of claims
- A competitive marketplace where the cheapest premium offered wins the business

Winner's Curse in Insurance – a simple example

Consider this example

- Simple example
  - 3 insurers each with 333 risks
  - 10% claims frequency with a Poisson distribution
  - Fixed claims size of $10
- True cost of the policy is 10% x $10 = $1
- Stylised competitive marketplace
- Distribution of the winning bid shown below –
  - Calculated as 1 – [1-F(x)] ^3
  - Winning risk premium is $0.83
  - But the true risk premium is $1!
- The winner's curse is here!





Source: Authors

Insurance – impacted by the Winner’s Curse

Implication for insurers?

- Your absolute price is important
  - Profitability requirements
  - Covering the expected claims cost
- But winner’s curse makes the relative price important as well!
  - Aggregators
- Each insurer would be at the mercy of the cheapest market price
- Strategies to deal with the winner’s curse? Discussed later

Why do premiums vary so much?

Lots of reasons…

Issue	Portfolio cost	Differences in the relative risk assessment of sub-segments	Premium algorithm differences	Corporate cost differences	Strategic differences	Other issues
Sub-Issue	Natural Hazard Costs	Statistical issues	Rating factors used	Cost of capital	Renewal pricing	Policy coverage
	Estimate of long tail base		Rating levels used	Expense structure	Demand optimisation	Claims management
	Inflation assumptions		Rating algorithm	Investment Strategy	Customer lifetime value	
					Marketing adjustments	

Source: Authors

Simulation of Insurance Marketplace

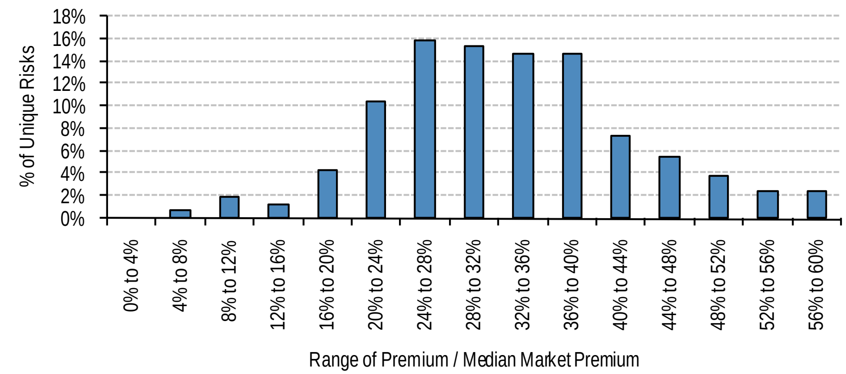
Model Structure

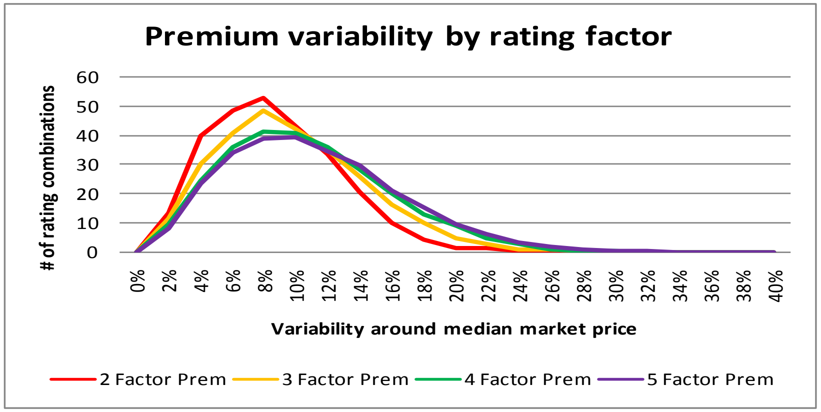
- Market is for 1 product and consists of 3 insurers
- Size and risk mix of the total industry does not change over time
- There are 5 rating factors which influence both frequency (poisson) and size of claims (lognormal)
- Premiums are calculated annually using the previous 3 years claims experience.
- We can manipulate the risk mix and the number of rating factor each insurer uses. ("Hidden rating factors")
- All insurers estimate premiums the same way using a log-linear model.

Customers propensity to shop is controlled by the 5 rating factors plus price change

Customers score each insurer based on the price difference with their current and insurer reputation (Market share) and choose the insurer with the best score.

Comparison of actual versus modelled premium variability





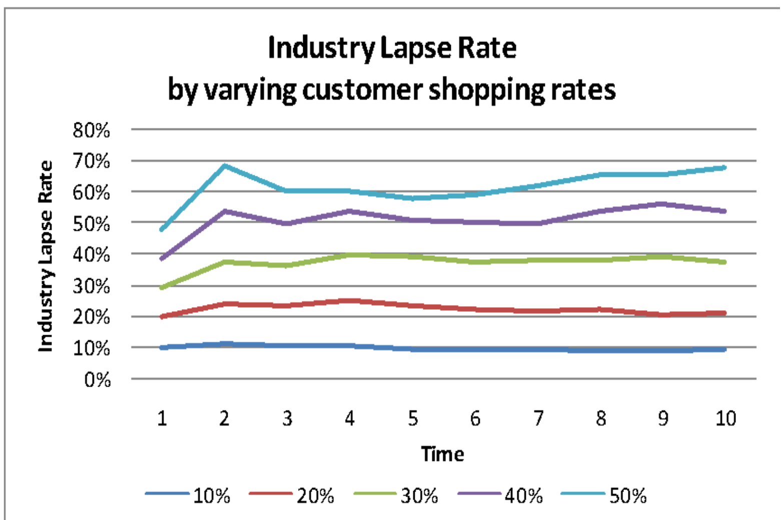
Base Case: What would happened if there was an increased propensity to shop

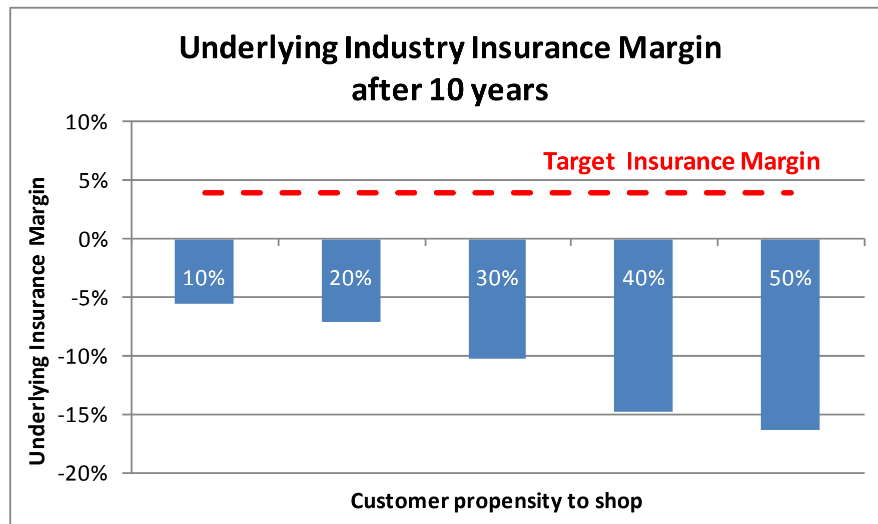
Scenario description

- **All insurers price use 5 rating factors and have the same mix of business at the beginning of the projection**
- **Brand and Product completely commoditised. Customer preference for an insurer is purely a function of price**
- **We increase the propensity to shop**

Summary of results

- **There is a sharp deterioration in industry profitability as customers pick off the cheapest insurer in each segment.**
- **There is a permanent increase in the lapse rates as customers continue to pick the cheapest insurer at renewal**





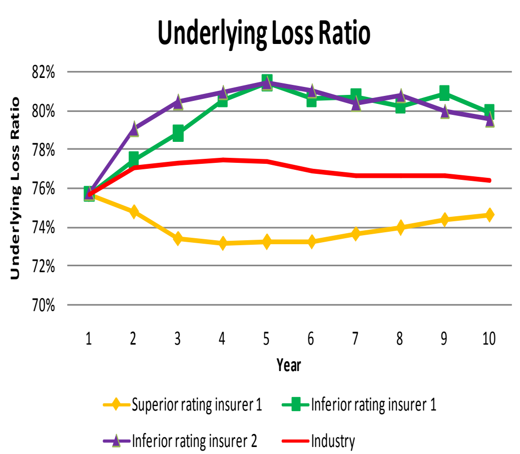
Pricing granularity: A single insurer increases the granularity of pricing

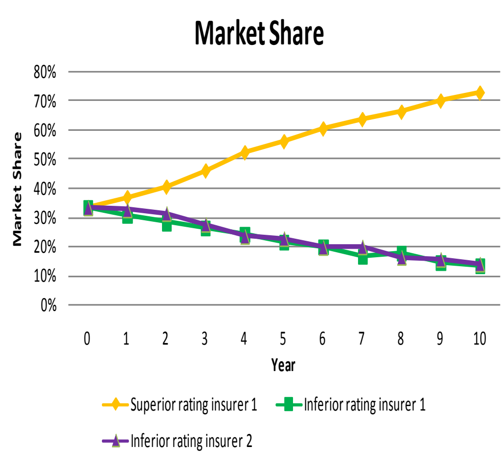
Scenario description

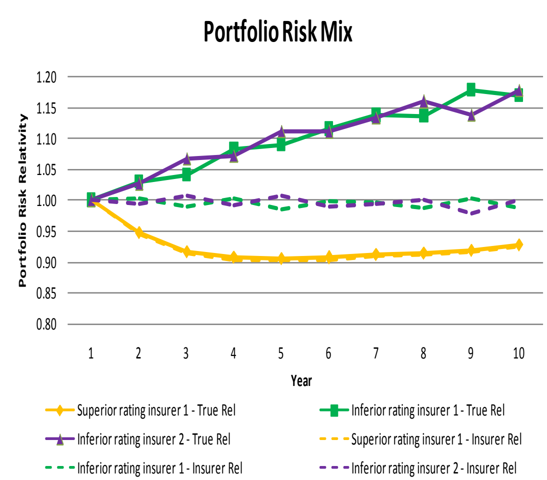
- **Insurer with superior rating uses 5 rating factors**
- **The remaining two insurers use 2 rating factors**

Summary of results

- **Insurer with superior rating structure achieves a lower loss ratio, increases their market share and has a more accurate understanding of their risk mix**







Pricing granularity: An industry arms-race in pricing granularity

Scenario description

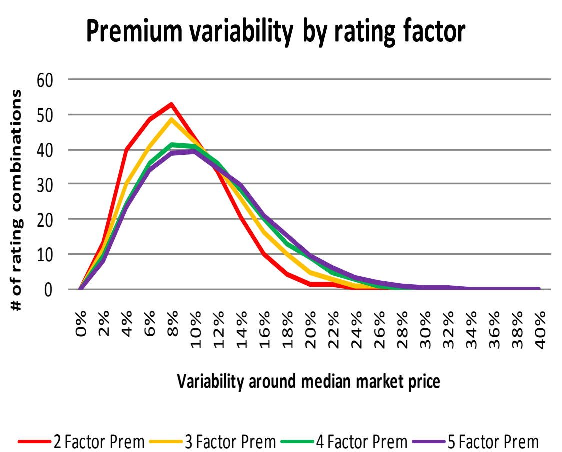
• **All insures increase the granularity of their pricing by moving from 2 rating factors to 5 rating factors**

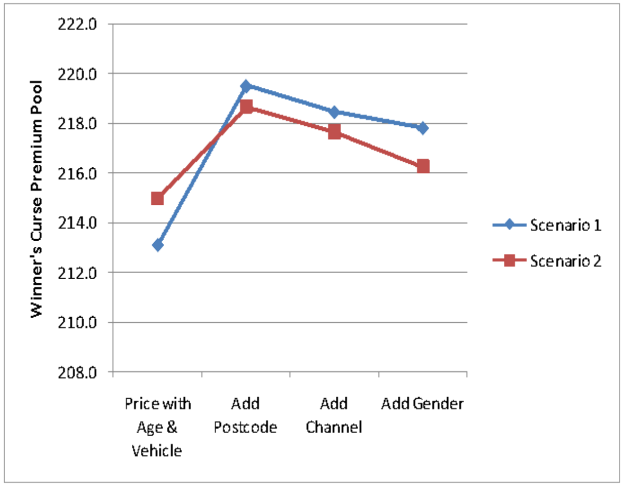
Summary of results

Introduction of new rating factor could result in two outcomes:

•It reduced winners curse when factor added removed some of the biases in insurers rates. The explicit recognition of the hidden rating factor led more consistency of pricing between insurers.

•Caused a deterioration in winners curse when the factor added was not significantly responsible for price variation in a cell, and its introduction further increased the variance of prices between insurers due to increase in estimation error.





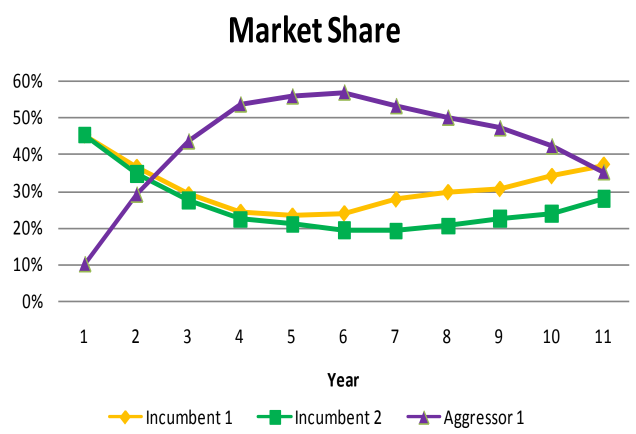
Impact of discounting

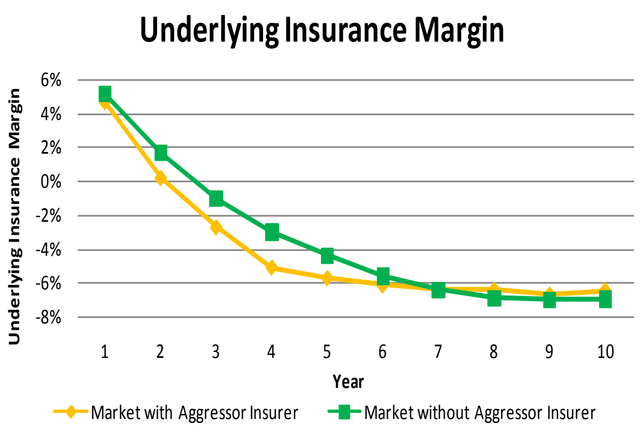
Scenario description

- **Profit margin for aggressive insurer is 0% while incumbents use 5% for three years**
- **Aggressive insurer reverts back to 5% profit margins at the end of the three years**

Summary of results

- **Aggressive insurer rapidly builds market share, however, losses this share when the profit margin is increased.**





Strategies

Distribution based strategies

- Opt out of the aggregator platform
- Combine aggregator platform with traditional distribution channels
- Acquire or start your own aggregator

Strategies

Pricing based strategies

- The consequences of naïve or inaccurate pricing relative to peers is greater than ever. Therefore, matching the pricing sophistication of peers is a minimum.
- There is a first mover advantage to pricing granularity
- However an industry wide arms race could exacerbate existing price differences.
- All players benefit from having a sophisticated understanding of the pricing differences between themselves and their competitors
- Large insurers have an incentive to protect their rating structures
- Smaller players have an incentive to deconstruct
- Smaller insurers can even the playing field by introducing new powerful rating factors
- Further research needs to be carried out to examine the contribution of various types of statistical errors to the observed differences in insurer prices?

Strategies (Continued)

Monitoring based strategies

- **Understand how your premiums compare relative to the market**
- **Be wary of the new business that you attract and have appropriate monitoring**
- **Ensure that your pricing analytics, business decision and rate implementation can respond quickly**
- **Understand how the propensity to shop/ elasticity is changing**

Strategies (Continued)

Product Design//Customer proposition based strategies

- **Insurers need to differentiate on non-price factors .**
  - **Once customers are educated in price comparison it may become a permanent feature of customer psyche**

- **Marketing needs to emphasize non-price factors such as:**
  - **Service**
  - **Claims handling**
  - **Financial stability**
  - **Product features**

- **Companies need to encourage and reward loyalty**
  - **Multi-policy discounts,**
  - **Tenure based discounts,**
  - **Discounts based on renewals**

Strategies (Continued)

Industry Led Strategies

- Charge increase profit margins
  - Industry wide acknowledgement of winners curse risk
- Standardisations of classification systems and underwriting questions
  - Particularly in commercial insurance
- Sharing of data for high risk segments
  - Through bodies such as the ISA or APRA

Cost based strategies

- Insurers with a lower cost base have a significant advantage
  - Economies of scale
  - Better claims management
  - Lower management expense
  - Lower cost of capital (including reinsurance)

Wrap up -

- Changes are coming in distribution increasing contestability
- Currently substantial variation in premium rates exists: - for various reasons
- Winner's curse is a major risk for the insurance industry in this situation
  - Lapse rates could be set to rise:
  - this could impact the claims, lapse and profitability experience that the actuary sees
  - standard internal based pricing approaches – may not be enough to offset impact
- Implications:
  - Increasing explanatory power of rating structure important for an individual insurer – but increased market sophistication can increase variation in rates.
  - Actuaries need to consider in their pricing, loadings etc to offset winner's curse
  - Need to monitor competitors– be more than just inward looking on rates
  - Be wary of changes in market structure and approaches of competitors
  - Consider business options – restrict channels; consider product design differences.

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- Dante Botha