Auto Insurance Pricing Crisis

By: Daniel Finnegan, Ph.D. and
Sean Moffat, MBA, CPCU

Summary:

The average auto insurance consumer can obtain a 40 percent price discount by price shopping on the Internet. In an industry with average profit margins equal to three to five percent of premium, Internet shopping represents not merely a threat to profitability but a promise of major financial losses.

Consumer insurance shopping on the Internet will collapse auto insurance pricing. The resulting financial crisis will affect all auto insurers, regardless of whether or not they sell on the Internet. In this research report we identify the origin of the emerging crisis as an inherent outcome of current auto insurance actuarial and pricing methods. We demonstrate how auto insurance underwriting and sales practices exacerbate the problem. Finally, we identify business practices likely to differentiate winners and losers in the emerging new economy.

Quality Planning Corporation Research Report

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The average auto insurance consumer can obtain a 40 percent price discount by comparison shopping on the Internet. In an industry that averages profit margins equal to three to five percent of premium, Internet shopping represents not merely a threat to profitability but a promise of major financial losses.

In this research report we document the pricing chaos the Internet brings to auto insurance pricing. We trace this chaos to current pricing and actuarial practices. Following through the sales cycle, we demonstrate that current sales and underwriting procedures lack the precision and discipline necessary to guarantee profitability and successful risk management. Finally, we present a list of business practices likely to differentiate winners and losers in the emerging new economy. In the upcoming few years we are expecting significant turnover in leading auto insurers.

The Current Market

The insurance industry is already in trouble. Stock prices have fallen dramatically since the start of 1999. Many carriers have lost 40% or more of their market value. Underwriting results have deteriorated to the tune of 3 to 6 percentage points in the last year with many carriers seeing much greater deterioration. As a whole, carriers are in a particularly weak condition to withstand the comparative shopping effect.

Many carriers have lost 40% or more of their market value.

While the Internet has been a boon to many business sectors, the opposite will be true for insurance companies. Comparative shopping on the Internet will allow consumers to shop quickly and select a carrier that gives them the best price. Customer loyalty to the insurance company or to an agent is rapidly disappearing and a growing percentage of consumers are buying on price alone. If the quoted price is still not low enough, the "web" will coach him on how to answer the underwriting questions in a manner that will obtain a lower price.

The consumer doesn't need to know anything about rating plans to obtain major discounts. All he or she has to do is select the lowest price. As we demonstrate below, every one percent increase in the number of insureds shopping on the Internet translates to an eight percent drop in industry profitability.

Other factors compound the situation. We'll take you through the dynamics of the unfolding problem and outline the steps insurance carriers will need to take to avoid financial disaster.

As a preview to the components of our findings, let's consider a hypothetical, but typical, insured named Bob who is currently paying $1,500 per year for auto insurance (which is the proper price for his policy). By utilizing RealQuote.com (a free Internet site), Bob can easily identify an insurance carrier that will sell him the same coverage for 40% less than he is currently paying. This lowers his cost to $900.

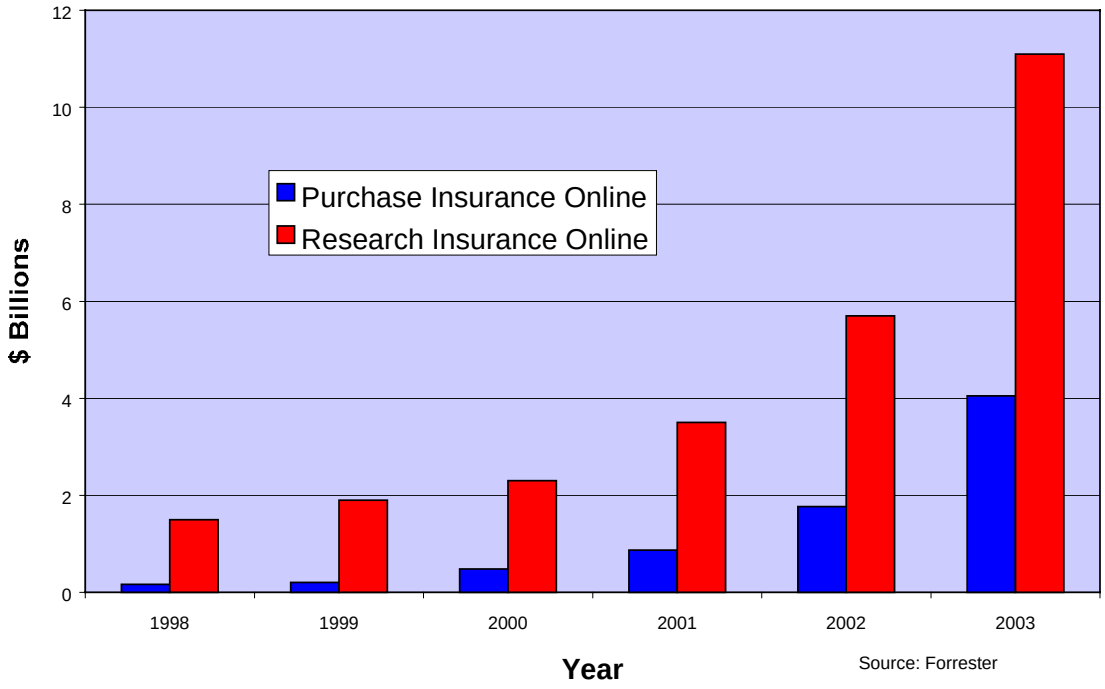
Bob then visits a Lycos website to find out how to "adjust" his answers to insurance questions. Finally, Bob phones six agents of the new insurance carrier and asks for quotes. Between what Lycos taught him and taking advantage of the "creativity" of the agent who quotes the lowest price, Bob is able to shave an additional 20% off his insurance premium. This lowers Bob's cost to $720. While getting his policy for less than half price is a great deal for Bob, the financial implication for insurance carriers is ominous.

Insurance Activity on the Web

Contrary to expectation, purchasing insurance is one of the least likely activities for consumers on the Internet. At present, only a tiny fraction of insurance is purchased via the Internet. A majority of

"While few people are buying insurance on the Internet, the number shopping for good deals and then purchasing off-line, is far greater"

Chart 1: Internet Effect on Insurance Sales



insurers (60%) have invested *less* than half a million dollars in web technology[1]. Only 12% of insurers sell on the web. Only 15% of web users can name an insurance website, while 84% can name a book site. We just aren't seeing rapid movement in this area. So why are we convinced that the Internet will have such a dramatic effect on auto insurers?

While few people are *buying* insurance on the Internet, the number *shopping* for good deals and then purchasing off-line, is far greater. (See chart 1 above.) Of those shopping for insurance online, 78% are shopping for auto insurance[2]

Consumers can obtain price quotes for many companies that do not sell through the Internet. Thus comparative shopping on the Internet affects all auto insurers, regardless of whether they sell on the Internet.

Wide Range of Prices

We conducted a study of auto insurance information available on the web. Table 1 (next page) displays typical results for four consumers price shopping on the Internet.

High to low prices range from 2.5 to 1 to 15 to 1. More importantly the average consumer can obtain a price discount of 40 percent from current insurance rates simply by spending 20 minutes on the Internet. In all cases, it was possible for the consumer to obtain a low price from a recognizable major company. Comparative price shopping does not force the consumer to compromise brand name quality.

". . . average savings for all consumers is approximately 40%, yet auto insurance profit margins are typically between 3 and 5%."

Prices for all the companies listed were received in a matter of a few minutes from a free website, RealQuote.com. Other sites provide similar services and additional insurance pricing sites are expected.[3]

Effect of Comparative Shopping on Insurance Profits

While some consumers can save less and others considerably more, the weighted average savings for all consumers is approximately 40% of the premium they are currently paying.

[1] Source of statistics: Forrester Research
[2] *The Industry Standard*, May 10, 1999

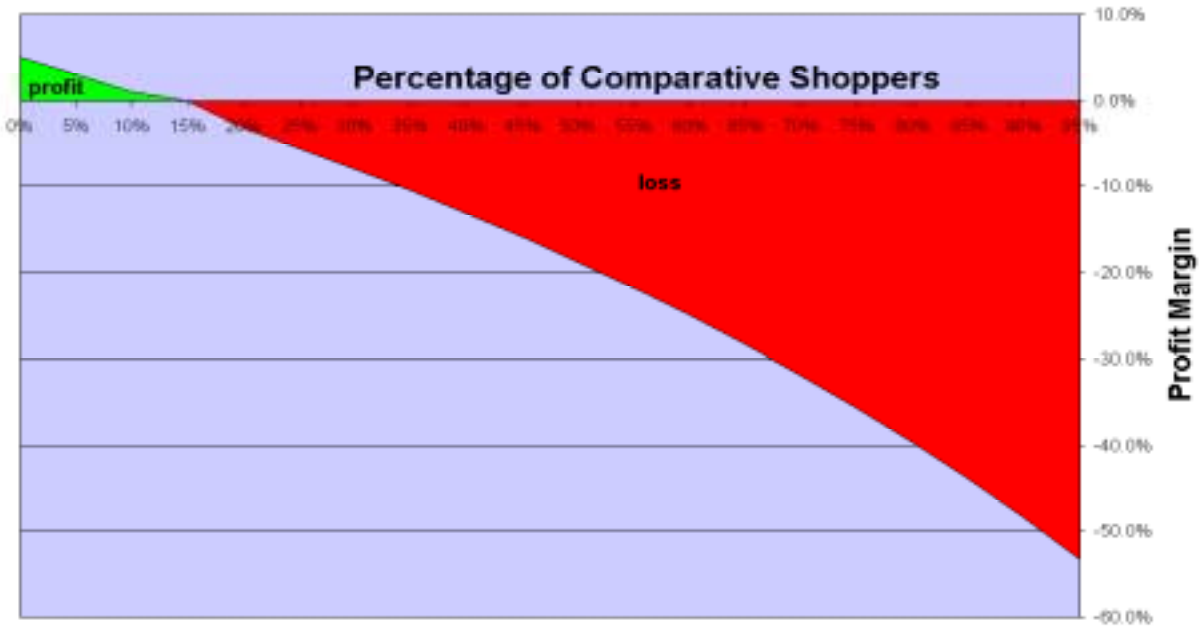
[3] LowestPremium.com, which is beginning national rollout, reports 50% average auto premium reductions.

Table 1: Example Price Comparisons								
	Case 1		**Case 2**		**Case 3**		**Case 4**	
Average Discount	**44%**		**31%**		**48%**		**42%**	
Minimum	**Nationwide**	**591**	**Colonial Penn**	**745**	**Electric**	**490**	**Travelers**	**2,912**
	Electric	601	21st Century	750	SAFECO	676	Hartford	4,196
			Alliance United	786				
			AIG	787				
			Metropolitan	848				
			Mercury	860				
	Allstate	728	Cal Eagle	881	State Farm	678	Colonial Penn	4,648
			Electric	892				
			California Capital	896				
			SAFECO	899				
			GEICO	902				
	SAFECO	916	General Accident	907	Colonial Penn	694	State Farm	4,899
			Arrowhead	951				
			National Auto	962				
			National General	966				
			Hartford	967	Nationwide	852	SAFECO	4,957
			Liberty Mutual Fire	984				
			CSE	991				
			Nationwide	1,011				
Median		**1,067**	**Kemper American**	**1,019**	**Cincinnati**	**937**		**5,016**
	State Farm	1,218	State Farm	1,019	GEICO	1,057	Nationwide	5,078
			TravCal	1,041				
			Commerce West	1,043				
			Century National	1,050				
	GEICO	1,268	Allstate	1,056	Farmers	1,138	GEICO	5,090
			ALLIED	1,115				
			National Alliance	1,131				
			Grange	1,134				
	Colonial Penn	1,452	Fireman's Fund	1,271	Progressive	1,160	Allstate Insurance	5454
			Orion Auto	1,280				
			Superior Choice	1,346				
			CSAA	1,403				
			Leader Standard	1,450				
			Farmers	1,521	Allstate	1,229	National General	6,930
			Superior	1,533				
			Prudential	1,548				
			FIC	1,594				
			Windsor	1,844				
Maximum	**Progressive**	**1,515**	**Workmen's Auto**	**1,852**	**National Alliance**	**1,235**	**National Alliance**	**8,535**

Case Descriptions:

- **Case 1** is a recently divorced twenty-one year old woman living in New York City. She drives a 16-year-old car forty thousand miles per year and commutes 40 miles to work. She has a recent speeding violation (75 in a 55 mph zone).
- **Case 2** is a retired couple living in their own home in Oakland. They drive a ten-year-old full sized car for pleasure, including monthly trips to their vacation house in Mount Shasta. They have no recent violations or claims.
- **Case 3** is a young couple that has recently become homeowners in Columbus, Ohio. Prior to immigrating to the US, neither drove. The husband drives a five-year-old car eight miles to work and has one at-fault accident. The wife doesn't work and has a two-year-old moving violation.
- **Case 4** is a middle aged well-to-do couple owning an expensive home in Miami, Florida and seeking high insurance limits. Only the husband works, but he doesn't use either of their expensive five-year-old vehicles for commuting. Neither has any tickets or claims, but they have a teenage son who has just started driving.

Chart 2: Auto Insurance Profit Margins
As More Consumers Shop for Price

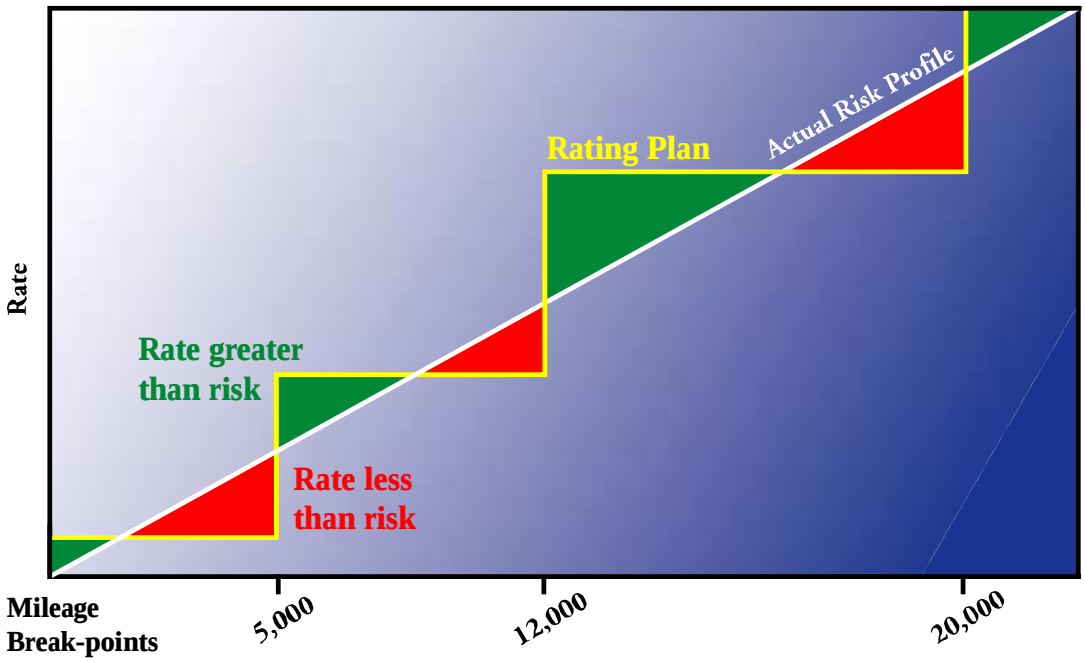


Clearly, the Internet represents an emerging price disaster for auto insurance. Chart 2 (above) shows the impact of consumer shifts on industry profitability. For example, if 30 percent of consumers were to comparative shop, insurers would be losing money at the rate of about 8% of premium or approximately $11 billion annually. Prior experience with the travel and stock trading industries show that percent shopping online can balloon in a very short period.

Insurance Pricing Methods

Stair-step rating. Insurance carriers do not know their costs in advance of selling a particular policy. Insurance prices are set by the expected results of a group of insureds. In any given year, most auto insureds will have no claims, but the costs of claims

Chart 3: Example of "Stair-step" Rates



must be spread over all insureds. To deal with this, insurance carriers create pools of insureds and estimate costs for the pool. But pooling methods vary from carrier to carrier. Grouping policies into pools is done by creating different "buckets" or "steps" on rating elements, such as age of the drivers, years of driving experience, cost of vehicle, annual mileage, location, violations, and accidents of the drivers.

Typically wide steps are used for the groupings. For example, drivers under age 25 may be grouped together, or annual miles from 5,000 to 10,000 may be grouped together. Grouping causes "stair-step" rates. Chart 3 (above) illustrates how "stair-step" rates collect more than adequate premium over part of the "step" and less than adequate premium over the other part of the step.

". . . you don't have to know anything about rating plans – picking the lowest price takes care of this for you."

Different cut-points. Each carrier picks its own dividing lines. Suppose one carrier, A-OK Insurance, groups annual mileage from 5-10,000 and 10-20,000 while a second carrier, Buddy Insurance, groups 5-12,000 and 12-18,000. If you drive 11,000 miles annually, you would be at the less risky end of A-OK's higher priced range and at the riskier end of Buddy's lower priced range. So A-OK would charge you more than you deserve, and Buddy will charge you a little less than you deserve. If you were shopping based on the cut points between groups, you would likely select the carrier in which you are most often just under the top end (riskiest) cut point on each rating element. Unfortunately for the carriers, you don't have to know anything about rating plans – picking the lowest price takes care of this for you.

The following simplified example (table 2) illustrates how a single carrier might rate two similar people.

Table 2: Rating example of similar risk profiles with very different premium

	Alex	***Bruce***
Car	Same	
Driving record	Same	
Address	521 Oak Street	601 Oak Street
(They live one block apart in same neighborhood.)		
Zip code	94102	94117
Age	25	24
Mileage per year	10,000	11,000
Calculating Premium		
Base rate	$800	$800
x Mileage factor	0.7	1.0
x Geographic factor	0.9	1.4
x Age factor	1.3	1.7
= Total Premium	$655	$1,904

Despite the fact that Alex and Bruce have nearly the same profile, Bruce's premium is almost three times the premium Alex is charged. The only reason for the difference in premium is the placement of the insurance carrier's cut points: territories divided by zip codes, lower rates at age 25, higher rates over 10,000 miles. In this example, Alex is at the risky end of the "step" just shy of the cut point for higher rates. Bruce may need to find a company that cuts at age 24, 12,000 miles, and uses different geographic territories. Comparing prices will locate the company for him.

Different weights. The rating is actually more complicated than the example above. Not only do carriers select different "cut points," they also weight each rating element differently (e.g., some put more emphasis on mileage, others on driver experience or territory) and they may use different rating elements (e.g. some carriers only look at commute mileage and don't rate on annual mileage.) So if a consumer's risk profile is at the high end on a rating element, the consumer will likely get a lower price from a carrier that doesn't emphasize that rating element. Again, the consumer doesn't need to know the weak points in the rating plan.

The Internet Makes It Easy To Cheat

Comparative shopping used to be a pain-in-the-neck, so few people bothered to do extensive research. The Internet has made it very easy. Lycos has a web page called "How to Answer When the Inquisition Starts," which coaches the consumer in answering the insurance carrier's questions. A sample of the "good" answers are: "Yes, I'm married," "No, I don't have any roommates," and "I drive under 7,500 miles per year." The resulting misrepresentations further deprive the carriers of premium commensurate with risk.

One of the unfortunate side effects of the anonymity of Internet quoting is that consumers can reverse engineer the rating plans to their advantage. They can vary their reported risk profiles to find out what distortions would reduce their premium. For example, the consumer may wonder, "what if I were a year or two older," or "what if I listed my address at a friend's place a couple of blocks away in the next zip code," or "what if I say I telecommute 3 days a week," or "what if I were married." Each of these small changes could have a significant impact on the consumer's insurance premium. The Internet makes it easy to learn what to say. This was much harder to do when the consumer had to face an agent.

Rating Errors

Some rating errors creep into the carrier's data from purposeful misrepresentation by the insured, failure to obtain changes, and failure to ask for comprehensive information. Insureds are far more likely to report changes that have a positive effect on their rate than changes that will cause their premium to go up. Errors are far more likely to result in too low a premium charge than in over-charging. In total, rating errors cause carriers to miss approximately 10% of premium revenues. Regardless of the cause of the rating errors, the effects are the same: lost revenues, contaminated data, poorer quality insureds, and increased vulnerability to comparative shoppers.

Types of errors include wrong garage location, unlisted drivers (particularly teenagers and drivers with poor records), drivers rated on wrong vehicles, misstated annual and/or commute mileage, missing traffic violations, inaccurate marital status, incorrect vehicle ownership, and overstated age and/or years of driving experience. Table 3 (next page) gives a sample breakdown of rating errors we found from re-underwriting almost a million policies from multiple carriers.

Table 3: Source Of Rating Error As A Percent Of Premium4	
Incorrect or missing Vehicle Information	2.1%
Incorrect Usage of Vehicle	1.5%
Incorrect Commute or Annual Mileage	1.4%
Incorrect Garaging Location	0.3%
Incomplete Driving Record	1.4%
Missing Young Driver(s)	1.7%
Other Missing or Incorrect Driver Information	1.6%
Total Error	**10.0%**

Effect of Sales Agents

Live sales agents represent an important potential defense against rating error. Face-to-face contact with a potential insured aids in eliciting correct rating data. Unfortunately, competitive sales pressures can also lead to a minority of sales agents actually promoting sales at the expense of rating accuracy. For carriers that fail to maintain front-end underwriting discipline, the problem can be severe. We conducted a "mystery shopper" exercise with one

[4] Rating error varies greatly by carrier based on rating plan, book of business and business practices

carrier. We selected twelve local agents for the carrier and provided the same rating information to each agent. The prospective insured was a twenty year-old female city resident with one speeding violation who was driving a 16-year-old low value car forty thousand miles per year. Quotes for minimum coverage ranged from $411 to $2,198 per year for the same carrier with no two quotes exactly the same. (See table 4 below.)

Table 4: Annual Premium – Quotes Received Carrier "A"					
$411	557	695	740	936	1,034
1,296	1,432	1,552	1,616	2,000	2,198

One agent stated outright that he could "lie a little" and would "work with you on these things." A second agent refused to accept the annual mileage figure of 40,000 and substituted 15,000. The range of prices is startling given that the information provided to each agent was identical and given that a single carrier's rating plan should have been consistently applied.

Although this particular example is much more extreme than we generally find, it demonstrates the pricing risks associated with a failure of underwriting discipline.

"One agent stated outright that he could 'lie a little'…"

In another study we obtained rate quotes over the phone from agents of six carriers. The six carriers were all major household names. Most agents for most carriers cited similar prices. However, for every carrier there was at least one agent willing to distort rating data. Table 5 (below) shows the percentage "discount" from the highest price quoted to the lowest.

Table 5: Carriers					
B	**C**	**D**	**E**	**F**	**G**
40%	21%	62%	40%	51%	25%

A few of the agent comments are of interest.

- "Know what I tell my clients? Don't tell me 'til they're eighteen." (Carrier B)
- "Forty [thousand miles] is too high. Let's say twenty." The agent later lowered it to 17,000 because "all the companies care about is commute" (Carrier C)
- "Your quote is so high because of your son. If we took him off … it would be [much less]" (Carrier D)
- "Do you have children in [the suburbs] that we could say we garage it at?" (Carrier F)
- "[Premium is] $1100 per year if mileage is 8,000. Forty thousand is too, high. I don't even want to say twenty thousand." (Carrier G)

Agents changed primary drivers by vehicle, driving histories, driving school history, and student grades.

The unauthorized "discounts" created by some agents hurt the carriers twice. First, the carriers are deprived of premium that they should be collecting for those insureds. Second, errors are introduced into the data, making it more difficult for the carrier to devise a good rating plan. That leads to wider rating bands and increased vulnerability to comparative shoppers. Increased competition from the Internet may pressure agents into being more "creative" in their collection of rating information as a way to get the price down enough to secure the insured's business.

Early Warning Signs

Early signs of the emerging disaster can already be seen. From the third quarter of 1998 through the third quarter of 1999 auto premium per insured vehicle declined 3 percent while claim costs rose 3 percent[5].

For individual auto carriers, signs of comparative Internet shopping effects will, of course, show in high first-year loss-ratios on Internet sales. However, when consumers are pricing on the Internet but buying directly, effects will appear through increasing loss-ratios for all new business. To the extent Internet price shopping causes existing business to leave, effects will be seen through increased turnover and rising loss-ratios for the entire book of business.

Winners and Losers

Risks to the auto insurance industry are substantial. We anticipate that Internet price shopping will create a whole new competitive environment with a new list of winners and losers. Opportunities will abound for carriers that rapidly and effectively respond to the new environment. Those that fail to respond must expect rapidly deteriorating financial results.

[5] Fast Track

We believe that the winners will be characterized by superior pricing, underwriting, and sales practices. In Appendix A we present some questions needed to evaluate insurer vulnerability to the auto insurance pricing crisis. Here we identify business practices associated with superior performance.

Superior Pricing. Detailed price comparisons must be conducted by carriers if they are to avoid adverse selection through Internet shopping. A wide range of policies must be comparatively priced. Each carrier should determine what would happen if there was a sudden influx of business in types of policies where they are a low price leader. Conversely, they should also determine what would happen were they to lose substantial business for types of policies where other carriers offer price advantages. Such analyses tend to result in finely-tuned pricing plans with fewer, narrower stair-steps and more attention to risk management on a policy-by-policy basis.

Superior Underwriting. Tighter and more precise pricing requires superior underwriting. To write the right business at the right price has, as its prerequisite, the requirement that rating data be accurate. If the data is not correct, then new rating plans will be built on sand and doomed to the same pitfalls.

The pervasive rating errors we have found in our underwriting reviews show how modern information verification and management technologies offer a key competitive advantage. In the new economy it will be necessary for carriers to periodically analyze existing policies for probable errors and take corrective action.

"If the data is not correct, then new rating plans will be built on sand and doomed to the same pitfalls"

With most auto carriers renewing on the order of 90% of their policies, the renewal book of business is the carrier's primary asset. Technological innovations make it possible to address the errors in the renewal book economically and almost immediately.

Verification methods fall into four major categories:

- Computerized database checks to determine the logical consistency of rating information and compare it to external sources. Modern database technologies provide a complete set of benchmark standards to determine if, in aggregate, mileage is underreported, teenage drivers are not listed, moving violations are not reported, and so on. We have identified over 100 benchmark standards.
- Insured surveys can be made significantly more effective by incorporating modern interviewing and verification techniques that promote accuracy in reporting.
- Sales agent pattern checks to detect agent practices associated with rating errors.
- Procedural vulnerability checks for systematic errors. This includes such things as analysis of claim data, renewal procedures, sales incentives, and interpretation of purchased information (such as CLUE and MVR data.)

The results of some of the underwriting audits we have conducted for different auto carriers illustrate the need for correcting rating information:

- Annual mileage underreporting error rates ranged from 25 to 60 percent.
- Based on accident claims involving young drivers, we found the rate of unreported youthful drivers ranged from 20 to 30 percent, resulting in average premium losses of almost 50 percent on these policies.
- Garaging location was misreported in 10 to 14 percent of applications reviewed, resulting in average rating errors as high as 30 percent and net total premium losses of 3 to 4 percent.
- Policyholders who have changes in rating factors that are likely to increase their premium are less likely to respond to annual policy renewal surveys than policyholders without any such changes.
- Less than 40 percent of accidents are reported to police and departments of motor vehicles.

Superior Sales. In an environment of pricing problems and declining insurance agency income, it is necessary that agents provide added value and improve data integrity. Success depends on positioning sales forces so that they promote the goal of writing the right business at the right price.

The carrier must identify the sources of rating errors. It is necessary to determine which agents are providing correctly rated policies and which may be undermining underwriting goals. A carrier must ask itself whether the compensation to agents rewards the agent regardless of the quality of information gathered (and thus underlying risk characteristics) or are agents rewarded for precise rating and penalized for missing or erroneous rating data?

Successful carriers will mobilize their sales agents to collect more accurate information. Carriers need to be able to measure the accuracy of rating information by agency and award those that add value.

One major auto carrier we worked with proved the advantages of positioning their sales force to promote data integrity. The initial audit of underwriting data showed 11 percent of premium lost to rating errors. Programs were initiated to provide the sales force with the tools, training, and incentives to accurately rate policies. Current rating errors have fallen to under one percent of premium, giving them a major competitive advantage.

Competing to Win

At the end of the day, the factors that will determine which auto insurers prosper in the new economy and which fail are no different than those that determined winners at Lloyd's 17th century coffee-house—superior risk management through superior information and analysis.

The Internet empowered consumer will require auto carriers to analyze risk much more precisely than ever before or face severe adverse selection. A much higher level of rating and data accuracy will become a prerequisite to survival.

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