



Insights and Commentary on the Reinsurance and Insurance Markets  
*from Ruark Consulting LLC and Ruark Insurance Advisors, Inc.*

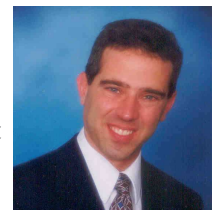
February, 2007

Famous or Not So Famous Quote:

***One cool judgment is worth a thousand hasty counsels. The thing to do is to supply light and not heat.***  
**-Woodrow Wilson**

### **VA Hedging Execution Risks**

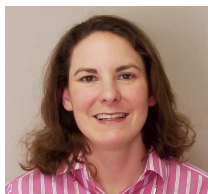
By Rich Tucker, FSA



Capital markets hedging of variable annuity guarantees has become a common risk management technique for insurance companies. Reduced availability of reinsurance over the years, at least for those companies who are not clients of RIA, left companies with the option of going naked or utilizing hedging. Hedging is obviously a better alternative when the risk profile is significant. My personal impression is that when a hedging program is first instituted at an insurance company, senior management often has the impression that it is a “silver bullet”, i.e., that variable annuity guarantees with a significant tail risk are transformed into much more predictable risks at predictable prices.

To the credit of everyone in the industry involved in these efforts, the hedging knowledge base and sophistication has increased dramatically over the last few years. The discussion is no longer one of persuading insurance companies that hedging should be employed. Rather, it is one of increasing the sophistication of hedging programs, as well as understanding the shortfalls of hedging programs. When I attended the SOA’s Equity-Based Guarantees conference last October, I was struck by the repeated discussions of a number of execution risks inherent in most capital markets hedging programs. My digestion of these execution risks put them into nine categories, as follows:

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### **Solving the Dental Network Puzzle with Competitive Intelligence**

By Ruth Ann Woodley (Ruark Consulting)  
 and Aaron Groffman (The Ignition Group)



In a unique workshop at the “Optimizing Dental Benefits” conference in San Francisco last November, RCL teamed up with The Ignition Group to demonstrate how dental PPO companies can optimize their network development using the competitive data from our two companies. The Ignition Group provides dental insurers with data on how their network’s participating dentists match up to competitors’, and RCL provides data on how the discounts in those networks compare. The workshop used actual data from several markets as case studies to show exactly how a company can figure out their strengths and weaknesses and develop a plan for improvement.

The workshop demonstrated the thought process to figure out what an optimal network looks like and how to achieve it. After choosing which markets a company should focus on, the next step is determining where they stand relative to the competition in those areas. Usually companies look at their network size and in-network discounts, but struggle to get credible information on how their results compare to competitors’.

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*Solving Puzzle - from page 1*

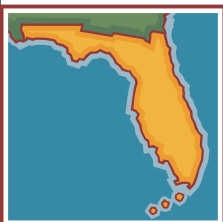
There is often a debate over which is more important – do you need to pay dentists more to have a bigger network, or is it more important to hold costs within the network as low as possible?

In our workshop, we focused first on *effective* discount, since that measure captures the net effect of these conflicting priorities in one number. Unlike in-network discount, which only measures a network’s percent savings on services performed by network dentists, the effective discount measures savings on *all* services regardless of where they are performed. It is essentially the in-network discount multiplied by the percent of claims that take place in-network, so it captures the balance of the two elements. Looking at how competitive effective discounts are also provides insight into how competitive pricing is.

**...looking at just in-network discount and size do not give a complete picture of how “good” a company’s network is.**

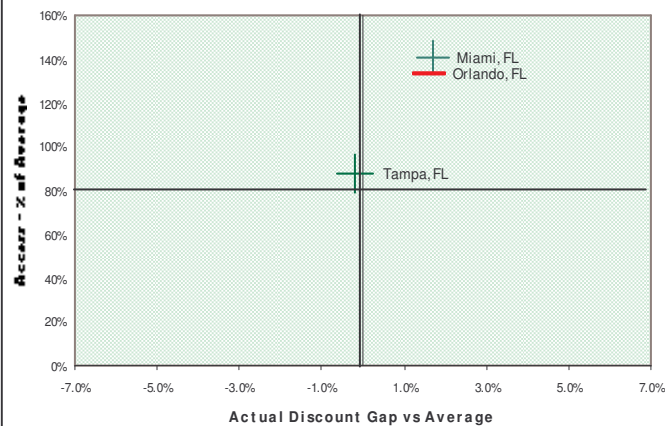
Once a company sees its effective discount position, it is still important to look at in-network discounts and network size data to understand the cause of that result. Is the in-network discount high, but network size so small that it is rarely used? Or is the network very large, but at such high fees that there are no significant savings?

We used the chart in the next column to show the interaction between discount and size, and the impact on effective discount, for one company. In this picture, points farther to the right represent higher in-network discounts, and closer to the top represent larger network size. The shape used in each point represents the effective discount result: a “+” means effective discount is very competitive, a “-” means it is not competitive. We’ve shown only a few points in this simple chart, but even these illustrate some of the possible situations.



The Miami and Orlando points are very close together and in the top right quadrant, meaning that the company’s in-network discount and network size are quite competitive in these two areas. But the symbols indicate that the *effective* discount is competitive in Miami but not in Orlando. Possibly the Orlando network is large but does not contain the most popular dentists or the right locations. Meanwhile, the

Tampa point is right in the center, representing average in-network discounts and network size. But it also indicates a very competitive effective discount, suggesting a balance of the right dentists at the right price. Even these few examples show how looking at just in-network discount and size do not give a complete picture of how “good” a company’s network is.



This kind of analysis also lets carriers decide exactly where to target their efforts. To fix deficiencies in network access a company can focus recruiting on dentists that participate in competitors’ networks, especially those dentists already seeing high out-of-network volume from their customers. If the chart shows that their discounts are higher than competitors then they may have to raise fees to do this recruiting; average or low discounts suggest that other problems have caused the recruiting gap. Reviewing the specifics in each market lets a company identify the root problems and plan accordingly.

The workshop proved to be very popular, and seemed to bring out many ideas about how to best use the kinds of competitive data that our two companies have made available. We also found interest in doing this kind of market-level analysis for companies on a custom basis to assess their situation, and are talking with clients about helping them develop such work. Every market is unique, and there is no one strategy that will work for all. We believe it is important to spend time reviewing the facts of each – including competitive data, your company’s history, and the perspective of staff close to the market – to develop tactics for each of your key markets. If you’d like to learn more, contact Ruth Ann at [ruthann@ruarkonline.com](mailto:ruthann@ruarkonline.com) or Aaron at [agroffman@ignitiongroup.net](mailto:agroffman@ignitiongroup.net).

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*VA Hedging - from page 1*

**Basis risk** – Derivate instruments are based on standard indices. Changes in derivative values will not match changes in actual variable annuity fund performance. How close will they be?

**Breakage** – This is the term for the difference between theoretically modeled hedge payoffs and actual hedge payoffs. Derivative models were built to be accurate over a period of weeks or months, but insurance companies have extended their use to multi-year time periods. One practitioner commented that their modeling goal was merely to get the sign of the modeled result correct.

**Mortality** – Most significantly for guaranteed minimum death benefits, a mortality level must be assumed when building the hedge program. Even if long term actual mortality is similar to expected, significant fluctuations period-by-period are likely to occur, creating a mismatch with the results of a hedging program.

**Policyholder Behavior** – Assumptions for lapse, annuitization, withdrawals and the like are needed to build the hedge program. In addition to baseline assumptions, the dynamic impact of each investment scenario on each assumption needs to be accurately modeled in order to determine the appropriate notional amounts for the hedging program. Differences between assumed policyholder behavior and actual experience will have a material impact on the effectiveness of the result of the hedge program.

**Real world vs. risk neutral modeling** – Capital markets hedging programs are modeled in the risk neutral world, while policyholder behavior exists in the real world. It is not clear how much error is created when these two methods are combined.

**Change in derivative cost over time** – Most hedging programs need to periodically rebalance the derivatives held. The ultimate cost of the hedging program is unknown because costs at each future rebalancing point cannot be predicted.

**Availability of long term hedge instruments** – Long term derivatives (10-15 years) have started to become available on a customized basis from investment banks. Insurance companies are the primary purchas-

ers, while hedge funds are the primary sellers. Some in the industry are concerned that the cost to insurance companies could increase if a supply / demand imbalance occurs.

**Ability to transact in volatile conditions** – Market liquidity in volatile conditions is questionable, which could create an unknown mismatch cost in an insurance company's hedging program.

**Significant resources required** – Whether it be for appropriate internal management, Sarbanes-Oxley compliance, or both, very significant internal expertise and resources are needed to create and maintain a capital markets hedging program.

Hedging programs are very useful, and I'm pleased to see that our industry's level of knowledge and sophistication is increasing rapidly. Of course, since RIA's business is the design and placement of variable annuity reinsurance programs, I'm also pleased that this information reinforces the value of a properly designed reinsurance program as one of the risk management techniques that any insurance company should employ.

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**Refocus 2007**—March 4-7 in Las Vegas, NV.

Tim and Rich will both be attending. Go to [www.refocusconference.com](http://www.refocusconference.com) for more information.

**SOA Reinsurance Section Project**—Tim is coordinating this project to draft sample language for Life treaties

**2007 Dental Discount Study**—RCL is now collecting data for this study. Contact Ruth Ann if you want to participate and haven't already done so.

**GUAA Meeting**—June 25-27 in Chicago. Ruth Ann will be presenting, along with Aaron Groffman, on the same topic as their article in this newsletter.