

A Statistical Approach to Annuity Suitability

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Hardly a month goes by without the NASD's division of enforcement -- or some other regulatory organization -- accusing a broker/dealer, financial advisor or insurance company of violating suitability requirements by selling a financial product that was not in the best interest of the client. Nowhere has this been more of an issue than in the market for Variable Annuity (VA) exchanges, a.k.a. Section 1035 transactions, which are named after the relevant portion of the Internal Revenue Code. Indeed, according to statistics provided by the National Association of Variable Annuities (NAVA), close to 73% of the \$114 billion in sales during 2002 for example, were exchanges of one VA to another. Sales often generate commissions of 3% to 7% of the premium invested and in the event of an exchange, might involve surrender charges to the client in the same order of magnitude. So, it is not surprising that regulators have taken a hard stance on these transactions and the intense level of scrutiny has filtered thru to compliance guidelines and practices.

On the other hand, carelessly dismissing all VA exchanges as being patently unsuitable is not in the best interest of the public either. Many such replacement transactions actually add economic value to the client and their loved ones. If done properly it can increase the guaranteed death benefits, and more importantly offer better longevity insurance, which is the *raison d'être* of the life annuity in the first place. In fact, one might actually argue that if the old VA has increased in value -- and does not have an automatic ratchet -- the financial advisor has a fiduciary obligation to exchange the product to step-up the death benefit to market values, assuming the fees to do not outweigh the benefits. The case is even stronger when the new VA -- the one being exchanged into -- has a better overall package of guarantees.

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Yet, I have heard many broker/dealers complain that the level of scrutiny imposed on VA exchange – and especially at the large firms where a clean reputation is most prized – far exceeds the scrutiny that would be imposed of placing an 85 year-old into a high-tech mutual fund. This will only serve to discourage advisors who rationally trade-off financial compensation against time, effort and potential liability, from recommending a product that might actually be in the best interest of society and the public at large.

So how does one go about striking a healthy balance between the perceived conflict of interest – a.k.a. unnecessary churning – without discouraging legitimate transactions? Is there an objective framework or methodology that can be uniformly applied to test or grade the merits of a given VA exchange?

I believe the answer to this question is yes. And, the key to help the industry resolve this issue can be obtained from another corner of the insurance industry, namely the market for Property and Casualty (P&C) market. Over the years their actuaries and risk specialists have developed statistical tools, under the label of scenario analysis, that quantify the liability implicit in their diverse coverage. P&C companies routinely stress test their exposure by simulating meteorological and geological scenarios and then quantifying these outcomes in terms of dollar payouts. The same ideas can be applied in the VA suitability arena. Each and every contemplated 1035-exchange could conceivably be put thru a number of forward-looking capital market scenarios to quantify the dollar payouts. *The objective merits of the transaction would then rest on the total number of scenarios over which the new product dominates the old one.*

Let me explain how this might work in practice. But first allow me to provide a quick refresher about the underlying economics of variable annuity policies.

Boiled down to the economic essence, a variable annuity is a collection of stocks, bonds and other securities held in large diversified portfolios. But, in contrast to generic mutual funds -- their close cousins -- they contain a number of implicit financial

guarantees, which I compare to *call and put* options traded on the derivative exchanges. Yes, the VA also provides for tax sheltered growth over time, which is another feature not available on mutual funds, but the decision to exchange one for another is not impacted by this factor. These financial options guarantee maturity, death and annuitization benefits that can all be viewed as a package or collection of financial options.

From a practical point of view, a variable annuity involves three possible 'exit outcomes', each associated with their own guarantee or unique value:

1. Lapse or surrender: When the VA is surrendered, the owner receives the market value minus any surrender charges, which depend on the number of years the policy was held.
2. Death: In the event of death, the beneficiary is entitled to the greater of the market value and some pre-specified guaranteed amount. Some policies automatically increase their death benefit each year, depending on market performance and pre-specified interest rates.
3. Annuitization: Every VA has a guaranteed annuity rate (GAR) that is based on the mortality tables and interest rates specific to the policy. Some policies have additional riders such as guaranteed minimum income benefits which improve the annuitization value.

Once again, think of each of these as a derivative security on an underlying variable. If stock markets collapse, life expectancy increases or interest rates decline, these options will be in-the-money and payout to either the beneficiary or annuitant. And while it is hard to predict whether or not these options will ever payout, they do have some ongoing minimal value.

Now back to our scenario analysis and how to evaluate annuity exchanges. Imagine for a moment that you knew with absolute certainty the annual returns from the SP500 (or for that matter, any stock or bond index) for the next 25 years. Furthermore, assume you knew your precise age of death. Both assumptions, of course, are quite far-fetched. But if you were *certain* both of these ‘future scenarios’ were to occur, I argue it would be trivial to determine which of the two annuity products would be better. This is how you would do it. You would grow the current value of the account by the various annual returns and then compare the death benefit under both policies – in the assumed year of death – against each other. The product with the higher value would ‘win’ this ‘scenario’. Now imagine doing this for 1,000 different scenarios. Each one generated by computer program that shuffles and randomizes past historical sequences so that they all look different, but provide possible outcomes for the next 25 years. The same randomizing and shuffling would be performed for the date of death, except that an actuarial mortality table would be used to determine the possible outcomes and their respective weights. What are we left with? In some of the scenarios the old guarantees (product) will be better, while in others scenarios the new guarantees (product) dominated. Compare the numbers and you have a probability that product B is better than product A. The same analysis would be conducted for each of the three possible ‘exit outcomes’ for the VA. Each scenario would have one product winning the lapse value, death value and annuitization value.

1,000 Scenarios for Your Financial Future: Which Product Resulted in Better Benefits?			
	Weighting	Old VA	New VA
Lapse & Surrender:	75%	750	250
Death:	20%	100	900
Annuitization:	5%	950	50
TOTAL:		630	370

The above table displays a stylized example of how such an analysis would be performed when comparing two VA policies, the old one and the new one. Here is how to read the information. Under 750 of the 1000 scenarios, the lapse and surrender value

of the *Old VA* policy resulted in greater financial value than under the *New VA*. Most likely this was because the new policy's renewed DSC schedule -- and possibly higher ongoing insurance fees -- meant that the amount of money the policy holder would be able to extract would be lower. In contrast, in the event of death, under these same exact 1,000 scenarios for the future, the new VA provided greater financial value compared to the old. This was a result of more refined (read: valuable) death benefits, ratchets, etc. Finally, if the policy were annuitized, the Old VA would result in more value since the implicit rates were better, etc.

In total, if we weigh each of the three possible outcomes by the weighting listed in the table, we arrive at the fact that under 630 scenarios, the old VA was better, compared to 370 scenarios under which the new policy was superior. So, where does that leave us? Is the exchange from old to new a suitable one? Well, I would argue that the probability the exchange will add economic value is only 37%, and hence the transaction is inappropriate. It should not be done. If, on the other hand, the weighting on the death outcome is increased to 90%, while the weighting on lapsation and annuitization is reduced to 5% each, simple math leads to 176 scenarios under which the old product is better and 825, under which the new one dominates. Is this suitable? Well since 80% of the time you are better off, a strong case could be made for suitability of the transaction. Ideally we would like to see 100% of the scenarios leading to improvement, but like all things in financial life, risk and reward are linked.

Well, given the critical impact of this outcome weighting, where does one obtain the appropriate numbers to use? In theory they could be agreed upon between the client and the advisor. If this leaves the process open to potential conflicts, then a better approach is to use actual *industry experience* numbers for the percent of VA policies that are surrendered, annuitized and paid-off at death. These weightings would obviously depend on the client's age and health and would be keyed off a relevant mortality table. The older the client, the greater the probability of death and hence the more weight placed on death. In fact, the above numbers roughly correspond with the weights for a typical 50 year-old buying a VA. Of course, a more refined approach would

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be to measure not only the number of scenarios in which A is better than B, but perhaps sum-up the cash flows as well.

I envision a transaction being analyzed by focusing on the probability the exchange will add economic value. If this number is greater than some mandated threshold – say 90%, for example, then transaction passes the statistical litmus test and is approved.

At this point reader might wonder whether regulators will ‘buy into’ this way of thinking about suitability and transactions, and it might take time. But I am confident this can be achieved. In fact a number of regulatory entities are in the process of adopting this way of thinking.

In sum, the definition of economic suitability is quite complex, yet I believe all parties will have an interest in developing a rigorous and objective basis for determining whether a particular transaction adds or destroys economic value.

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