

## The Derivatives that Power Index Annuities

By Kerry Pechter      Thu, Jun 20, 2019

*FIA owners can pick from an array of choices as cryptic as those on a roulette table. But if they don't understand options, how can they evaluate these safe but esoteric insurance products?*



Fixed indexed annuities (FIAs) are among the safest but also the most esoteric of consumer financial products. The insurance agents who sell them, it's often said, rarely understand them in depth. FIA owners virtually never do. To fully appreciate the complexities of FIAs, you have to talk to the actuaries who build them.

For this third part of RIJ's series on FIAs, we'll explore their mechanics with two actuaries, one retired from the global actuarial consulting firm, Milliman, and one who works on FIAs at Milliman today.

Historical performance data is spotty, but FIAs appear to deliver long-term returns somewhere between the returns of bonds and equities. They do that with call options that capture part of the gains of an equity index but none of the losses. Since so few people grasp derivatives, few people fully grasp FIAs.

FIAs mystify most people for another reason. Once a year, owners can pick from an array of choices as cryptic as those on a roulette table. These choices will determine the owner's returns, but he or she is hard-pressed to guess how they will perform, other than that they can't lose money.

A quarter century or so after FIAs were invented (by Genesis Financial for Keyport Life and Lincoln Benefit Life in 1995), FIAs have still barely penetrated broad public awareness. But they are emerging as a "goldilocks" tool that addresses older Americans' financial needs (and anxieties). And so FIAs deserve an increasing amount of attention.

### **A lesson in options**

We don't have room here to explain all of the different variations in FIA construction. So, as a simple hypothetical example, we'll describe the steps in the creation of a one-year point-to-point crediting strategy that offers the return of the S&P500 Index up to a cap with no

risk of losing principal.

Imagine a 55-year-old man or woman buying an FIA contract with a payment of, say, \$100,000. The issuer of the contract invests perhaps \$97,600 of that into the pool of fixed income assets that comprises the insurer's general account. It will earn about 4% a year.

The insurer still has \$2,400 (\$100,000 minus \$97,600) to play with. If this were a fixed deferred annuity, \$2,400 plus appreciation (\$2,500) would be credited to the client. But this is an indexed annuity, so the plot takes a different turn. The insurer buys an option strategy or "hedge" with the \$2,400.

"An indexed annuity is just like a fixed annuity, but with a non-traditional way of crediting interest," said Noel Abkemeier, the retired Milliman actuary who has worked on various FIAs for life insurers since 1995. "All other characteristics are the same. Instead of giving you the 2.50% at the end of the year, we're using 2.4% to buy a call at the beginning of the year, and that will produce your result."

In this case, for a one-year point-to-point crediting strategy with an upper limit or cap on the potential gain, the insurer buys a "call spread." It's actually a pair of options. In one coordinated transaction, the insurer buys an "at-the-money call" (in this case, the right to the index return on \$100,000) from an investment bank and sells the bank an "out-of-the-money call" (the right to the index return on \$100,000 plus the cap). The two options form a bracket that defines the upper and lower limits of what the annuity owner can gain (up to the cap) or lose (nothing).

What determines the height of cap? In this case, the cap was 5%. That's how much upside the insurer's \$2,400 (his "option budget") would buy at today's options prices. But the prices of one-year calls can fluctuate depending on changes in the one-year risk-free interest rate, the estimated volatility of the index, or the dividend yield of the index. If option prices were lower on this particular day, or if the insurer decided to increase its option budget, the cap might have been, for example, 7% or 8%.

"Once you know your option budget, you can go to the capital markets and ask, 'What kind of an option can I buy today for that much money?'" said Tim Hill, an actuary who regularly works on FIAs at Milliman. "If I have 2.4% of principal to spend, I might find that, in today's market, I can afford to buy a 5% cap."

If the index gains only 3% over the one-year crediting period, the annuity owner earns 3%. If the index falls below its level at the beginning of the year, the insurer receives no value

from the call and writes off the \$2,400 as a sunk cost. If the index rises by 7% by the end of the year, the insurer collects 7% on the at-the-money call but pays out 2% on the out-of-the-money call that was sold. That leaves a 5% net gain for the annuity owner.

But that example illustrates only one of the many ways that the insurer can spend its option budget in search of profit. Let's say that the insurer wants to buy a single at-the-money call, allowing the owner to capture all of the index growth on \$100,000 in the coming year. But that option might cost \$5,000. If the insurer's option budget is only \$2,400, its actuary might pick an option that buys all of the index growth, but only on \$45,000. In this case, the owner has a 45% "participation rate" instead of a 5% cap.

### **A hundred indexes**

The possibilities are endless. Another crediting method is the "spread fee method." In that case, the insurer credits nothing on the first 3% or 4% of the index gain and credits the annuity owner with everything beyond that. (The insurer does not keep the 3% or 4%; that is simply priced into the option cost.) If the index goes up 20%, the owner nets 16% or 17% for the year. Even though the insurer usually (but not always) spends the same option budget on every crediting method it offers, there's no way to predict which of the crediting methods will produce the highest gains after a year.

"Today there are twelve different ways of calculating indexed interest on these products, over 100 different indices on which to base your gains, and four different methods of limited indexed interest—cap, participation rate, spread, forced asset allocation model," said Sheryl Moore, president and CEO at Wink, Inc., the life insurance and annuity analysis firm. "The average number of indexed crediting method choices on a single product is 4.4, according to our data."

As a rule of thumb, Abkemeier said, the participation story appeals to people who look to FIAs for a piece of equity returns ("You get up to 45% of the market!"), while the cap story appeals to people who are hunting for yield in excess of a fixed-rate annuity or a CD ("You can earn up to 5% when the 10-year Treasury pays 2.9!"). The spread fee approach is attractive to individuals who want to capture the benefits of a spike in the index return.. FIAs are versatile enough to serve any of these types of clients.

There's an additional wild card in these products: the renewal rates. If the cost of options rises (falls) over the course of a contract year, and the issuer may reduce (increase) the cap in order to stay within the option budget.

### **Exotic indexes**

There are other variables that contribute to the complexity of FIAs. As mentioned above, there are now over 100 indexes offered. About half of all FIA premium is allocated to the S&P500 Index, but insurers increasingly offer newly-invented indexes that are based on a combination of both stocks and bonds or indexes that contain dynamic rebalancing methods that target a volatility level that's lower than the S&P500 Index.

Because of their lower volatility (that is, they are likely to generate a narrower range of returns over time), options on their performance are cheaper than options on the S&P500 Index. So, for the same option budget, the insurer can buy a higher cap. But the cap is higher because the index has less upside potential.

"An 8% cap on a volatility-controlled index is probably no better than a 6% cap on the S&P500 Index since they are rooted in the same hedge budget," said Abkemeier .

Many FIA contracts offer purchasers a premium bonus. Given that they appear on some of the most popular contracts, they must be successful in stimulating sales. But since there are only so many pennies in a dollar, the bonus has to be paid for by reducing a benefit elsewhere in the product. Bonuses can be misleading; they might not be fully available to the client until after a deferral period.

### **There's a free lunch (sort of)**

Some have criticized FIAs for offering contract owners what they call "manufactured" returns. At an annuity conference a few years ago, an executive from a large independent broker-dealer said that its advisors are not allowed to sell FIAs for that reason. Milliman's Tim Hill doesn't buy that criticism.

"The gains are synthetic only in the sense that you're not technically investing in the market," he told RIJ. "It's the investment bank that creates the payoff. But there's no arbitrary nature to it. The premium gets invested in corporate bonds and you use a portion of it to buy the option."

But there is a kind of free lunch here, Abkemeier said. "Call options are priced on the basis of the risk-free rate of return, and that's less than the long-term equity premium," he said in an interview. "They tend to pay off more than you put into them. So the deck is stacked in your favor."

“This advantage is greatest when the crediting method uses a spread fee and least when the crediting method uses a cap. A product with a participation rate falls in between. An FIA is a good investment when you compare it with a fixed rate annuity.”

*Next week: The fourth and final article in our series on FIAs will focus on their ability to generate guaranteed lifetime income.*

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