



Fantasy-world Returns for Equity Indexed Annuities

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When research fails to meet the basic standards of academic rigor, its conclusions should be questioned. One such case is a recent paper, [Real-World Index Annuity Returns](#), whose conclusions you should trust at your own risk.

The paper purports to show that equity-indexed annuities (EIAs) outperformed an appropriate benchmark and relies on a sample of actual contracts obtained from insurance companies to prove its point.

The data presented support no such conclusion.

The paper also criticizes previous research on EIAs for relying on a series of “dubious” assumptions.

That criticism is unjustified.

The paper appeared in the March issue of the *Journal of Financial Planning* and was authored by Geoffrey VanderPal, Jack Marrion and David Babbel. VanderPal is an advisor based in Austin, TX. Marrion operates a web site and service that provides information to the insurance industry, mostly to help promote the sales of EIAs. Babbel is a professor at the Wharton School of the University of Pennsylvania who has consulted to the insurance industry. The authors said they did not receive any compensation for this research.

Let’s look first at their study of the so-called real-world EIAs and then at their critique of previous research on this topic.

Failing a basic test

A standard practice for evaluating any published paper is to ask the authors for their underlying data, in order to replicate and verify their results. I asked all three authors for the data they used to calculate the performance of the “real-world” annuities. Marrion told me that the insurance companies had provided data to them confidentially and they did not have permission to share the data with me.

Instead, they provided the names of all 27 insurance companies that submitted data. Our research staff emailed all 27 in early May, with the following results:

- 1 company said they did not participate in the study
- 3 companies said they were not willing or could no longer provide the data



- 1 company said they would be willing to provide the data (at that point we had already determined that we could not obtain enough data to verify the results, so we declined their offer)
- 1 company shared the data
- 21 companies did not respond

What we have, therefore, is a study that at best cannot be verified.

While you ponder that, consider that the study examined 172 policies. The average policy size for an EIA is \$50,000. Over \$100 billion of EIAs have been issued, so this study examined less than 0.01% of the EIA universe.

Moreover, the insurance companies chose which policies they submitted. There was no expectation, much less assurance, that they would randomly select the policies.

In fairness, the authors provide a number of disclaimers regarding their data. At the end of this article, I'll return to the question of whether those disclaimers sufficiently justify the publication of this study.

For the moment, however, let's assume that the data were a representative sample of real-world policies and turn to the authors' presentation of their results.

In table 1, they compare the performance of the EIAs in their sample to the S&P 500 without dividends. In a footnote to this table, they justify the use of this benchmark by stating that most EIAs are linked to this index when computing their payouts.

This is inappropriate for two reasons. The purpose of a benchmark is to allow investors to compare performance to an alternative investment with similar risk characteristics. No investor would choose the S&P 500 without dividends; if the S&P 500 is the right benchmark, then dividends must be included.

But the S&P is not the right benchmark. Bill Reichenstein is a business professor at Baylor University who has studied EIAs. Reichenstein has shown that the beta of a typical EIA is approximately 0.15, so an appropriate benchmark would be a mix of 85% risk-free Treasury securities and 15% equities (the S&P 500).

The use of an 85/15 benchmark is consistent with the investment goals of EIAs, which are to provide downside protection in bear markets and limited upside potential in bull markets. The use of an all-equity benchmark is not.

In a footnote to table 1, the authors state that their results are biased to favor the performance of the S&P 500 because, among other things, the performance they present for that index does not include taxes.



They fail to acknowledge, however, that the performance they measure for EIAs does not include taxes either. This omission is critical, since payments from annuities will be taxed as ordinary income, whereas the vast majority of returns on the S&P 500 will be taxed at the lower capital gains rate. Some returns on the S&P 500 will be dividends, which are also taxed at favorable rates, at least currently.

In figures 1 and 2, the authors compare EIA performance to the S&P 500 with dividends and, separately, to a 50/50 mix of the S&P 500 (with dividends) and Treasury bills. Two more problems are apparent, however, and both arise because EIAs typically contain onerous surrender penalties for the first 10 years a policy is owned. First, figures 1 and 2 contain five-year rolling returns. A long time horizon is necessary to assess the performance of any investment and, in the case of EIAs, that horizon must be at least 10 years.

Second, although the theory is mostly silent on this point, in this case I believe the appropriate risk-free rate should be the 10-year Treasury bond, not Treasury bills.

Even if we take the leap of assuming that the data were representative of real-world annuities, the authors needed to compare performance to the appropriate 85/15 benchmark on an after-tax basis, net of all fees, over a sufficiently long time horizon. Anything less than that tells an investor nothing that would help him or her make an informed investment decision.

Critiquing the authors' critiques

Let's now turn to the section of the study where the authors fault previous research regarding EIAs. Below are some of the claims the authors make, along with explanations of why their assertions are unfounded.

The authors criticized previous research, such as that by Reichenstein, for examining the performance of annuities using historical data prior to 1997, the year EIAs became available. In my correspondence with Reichenstein, he said his study used real-world contracts that represented what was available in the marketplace from 1998-2005. He modeled four contract designs and for each design considered a range of specific contract terms, and he did indeed assume that at least one of these would have been appropriate had EIAs been around in 1957, the beginning of his historical data series. That is precisely the type of analysis that should be applied to EIAs – examining their performance using realistic, long-term data series.

The authors state that no study has been published that compares the costs of EIAs to those of mutual funds. They fail to acknowledge, however, the Reichenstein ("Financial analysis of equity-indexed annuities," Financial Services Review 2009) calculated the costs of EIAs by analyzing the financial statements of the insurance companies that sell



them. He conservatively estimated those costs to be 200 basis points annually, which is far more than that of a comparable 85/15 portfolio.

The authors criticized Reichenstein for his use of the Ibbotson Associates data set, claiming that dataset is rebalanced monthly. This data set has been used in hundreds if not thousands of studies. As stated in each year's Classic Yearbook, Ibbotson (2011) says, "one-bond portfolios are used to construct the intermediate-term government bond index. The bond chosen each year is the shortest non-callable bond with a maturity not less than five years, and it is 'held' for the calendar year." Neither Ibbotson nor Reichenstein makes the assumption that the authors allege.

The authors assert that consumers have several layers of protection against the possibility that sellers of EIAs would not act in their best interests. This is a serious concern, since EIAs are sold by insurance companies, whose agents are not held to the same fiduciary standard as Registered Investment Advisors.

One of the study's authors, Babbel, however, took a different position on the issue of consumer protection in a 1999 [article](#) on life insurance:

"Perhaps the area of greatest concern in the area of actuarial risk is the misalignment of incentives between owners of the insurance firm and its sales and marketing staff. ... The typical arrangement is to pay commissions for sales of new policies, with the commissions on a multi-period contract heavily front-loaded. ... This creates a tremendous incentive for agents to sell as much business as possible, whether it is profitable for the company or not. It also creates strong incentives to replace existing policies, whose commissions rates have dwindled to the low single-digit percentage range, with new policies that pay commissions ranging from 20 to 100% of the first year premiums. Sales managers and marketing personnel are also often rewarded based on volume of sales. Even senior management may sometimes have their compensation tied to sales growth."

How can Babbel argue in 1999 that insurance salespeople are primarily commission-driven, yet in this article argue that they have a fiduciary duty to their clients?

The authors also criticized previous research for using unrealistic product structures, such as a study by Patrick Collins, et al. ("Equity Indexed Annuities: Downside Protection, But at What Cost?" *Journal of Financial Planning* 22, 5; May 2009).

Collins, et al., used contract specifications largely drawn from a Moody's Credit Research Report published in 2001. Although the authors did not cite this report, here is what Marrion wrote about it in 2002: "Moody's Investors Service published a Special Comment report in November of last year titled *Equity Index Annuities: Complexity Personified*. The report is a fair representation of the potentials [sic] and concerns associated with an insurer's decision to offer index products."



The problem is that EIAs are extremely complex and there is no definitive resource to rely on for detailed product information. Marrion admits this on his web site: “Even though all index annuities use the same basic building blocks, with over 30 crediting methods in use it is difficult to determine if one annuity’s long term index participation reflects overall market changes, and direct comparisons are difficult.”

Publishing with disclaimers

Clearly, the authors were aware that their study would be vulnerable to criticism. Roughly 6% of their paper (based on a count of words) was given over to a series of disclaimers regarding their data and methodology. These are too voluminous to reproduce in full here, but a full list can be found at the end of this article.

The inclusion of those disclaimers, no matter how frequent, does not give the authors the license to have published their flawed study. If the standards of academic research were relaxed to allow publication of papers that relied on such disclaimers, we would soon find journals filled with articles about newly discovered asset classes promising 30% risk-free annual returns.

I spoke with Lance Ritchlin, the publisher and editor of the *Journal of Financial Planning*. He assured me that this paper had been peer reviewed, but he could not say whether the reviewers had sought to verify the underlying data used in the study, as I did. On his decision to publish the paper, Ritchlin said, “If something is published, it doesn’t mean it’s right; just that it’s worth considering.”

When considering this study, don’t lose sight of the bigger picture. By the authors’ own admission, EIAs provide downside protection against market declines with limited upside potential in bull markets. That return profile will appeal to certain very risk-averse investors, particularly those who are indifferent to the risks of carrier default and surrender penalties. But the return profile of an EIA can be replicated, either with an 85/15 portfolio, as Reichenstein suggests, or with some other combination of Treasury securities and either index funds or options, as other authors have advocated. That leaves a very small universe within which EIAs are appropriate.

When determining if your clients fit into this slice of the market, I recommend you give this study little weight, if any.

In closing, I’ll add a disclaimer of my own: While I’ve tried to address the major problems with this research, I’ll bet astute readers can identify additional flaws in the study – or points of disagreement with our analysis of it. If you do, let us know.

Disclaimers contained in the authors’ study



- *Our study is exploratory, because although it is based on actual contracts and actual crediting rates, our policy data set is neither randomly selected nor comprehensive based upon data provided by 15 EIA carriers.*
- *[The data in Table 1] are not intended to be a prediction of how index annuities will perform in the future, nor are the results intended to be representative of overall industry performance.*
- *There are several limitations with the data in Table 1. The main one is that they are derived from carriers that chose to participate and that chose the products for which they reported returns. This could have imparted some bias in returns, and may differ from what a larger, more random sample would have produced for the periods.*
- *[The annuity used for Figure 1] is not intended to be representative of anything except itself.*
- *And the data reflect results across a very small spectrum of time: only looking at 1997–2010, and then only at one day out of each year.*
- *These returns should not be viewed as representative. As mentioned earlier, the annualized range of returns in Table 1 is from annuity carriers that chose to submit their return data, and although overall a majority of index carriers did provide actual return data (reaching 83 percent of all carriers selling FIAs at one point), self-reporting bias may have resulted, skewing the returns higher than would be seen with a more comprehensive data set.*
- *We cannot say whether our data are representative of all EIAs, although we assembled the largest database of actual returns that has yet been used in a published study.*

Note: In the paper, the authors used referred to fixed indexed annuities (FIAs). We replaced that abbreviation with EIAs above. The terms are synonymous.

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