

# Rethinking Retirement

The Role of Fixed Index Annuities  
in an Optimized Portfolio



## ABOUT THE AUTHORS

### // WADE DOKKEN



Wade Dokken is Co-Founder and Co-President of WealthVest Marketing, alongside his partner, Lincoln Collins. WealthVest designs, markets, and distributes private pension solutions focused on high consumer value. Wade was among the founding U.S. executives and served as National Sales Manager, Chief Marketing Officer, and CEO of American Skandia, a \$43 billion variable annuity company. Dokken oversaw the sale of American Skandia by Goldman Sachs to Prudential Insurance in 2003. Dokken is also the author of “New Century, New Deal,” a public policy analysis of the challenges facing Social Security in the coming decades. Dokken’s career started at PaineWebber in 1984.

### // JACK MARRION



Jack Marrion is president of a research consultancy that publishes the Index Compendium newsletter, the consumer education materials of Safe Money Places, and the Advantage Compendium research studies. He is frequently referenced by regulators and in SEC rule filings relating to annuities, as well as appearing as an expert witness.

In 2006, the National Association of Insurance Commissioners asked him to address their annual meeting and teach regulators the realities of index annuities. He was invited back in 2009 to talk to the NAIC about the effects of aging on senior decision-making.

He has an MBA from the University of Missouri and has conducted doctoral studies in the area of cognitive bias in decision-making.

### // LINCOLN COLLINS



Lincoln Collins is a senior financial services executive with an entrepreneurial spirit. He led the launch of the Hartford Life Limited, Europe as the Chief Executive Officer, and within four years, generated sales over \$1.25 billion and was a top-ten provider of both variable annuities and private pensions.

Prior to The Hartford, Lincoln helped launch American Skandia as employee number 14 in 1988. He was the leader of Skandia’s strategy and product development teams before being named Chief Operating Officer. Lincoln played a major role in the development of the annuity platform, mutual funds, 401(k), and variable life product lines.

### // ERWIN KALVELAGEN

Erwin Kalvelagen is a graduate of VU University of Amsterdam with a Doctorate of Science in Econometrics. He is currently the owner of Amsterdam Optimization Group, providing services related to mathematical programming (optimization) models and their application to real world problems. Erwin Kalvelagen and the Amsterdam Optimization Group contributed to the mathematical findings in this piece.

# FOR THE LAST 30 OR SO YEARS, INTEREST RATES IN THE U.S. HAVE BEEN TRENDING LOWER.

For the last 30 or so years, interest rates in the United States have been trending lower. Since the value of outstanding bonds, which have higher interest rates, tends to increase when interest rates decline, long-term bond investors have reaped the benefits of a three-decade bull market in bonds.

## // TODAY, HOWEVER, INVESTORS ARE IN A QUANDARY.

Nominal interest rates (rates before inflation) on benchmark 10-year Treasuries are near 2% and real rates (rates after inflation) are near zero.<sup>1</sup> Clearly, there is little room for rates to fall further. In fact, it seems likely that rates will begin to rise. This, in turn, will increase portfolio risk as outstanding bond values tend to decline in a rising interest rate environment.

Uncertainty about the future of interest rates has many advisors assessing the performance potential of portfolio components. Are investors better off holding onto their bonds? Or can risk-adjusted performance be improved by adding equity-linked fixed income alternatives, such as fixed index annuities (FIAs), to portfolios?

To help answer this question, we measured the performance of portfolios comprised of different combinations of stocks, bonds, and FIAs to determine the various risk-adjusted returns.

<sup>1</sup> US. Federal Reserve - Selected Interest Rates: [<http://www.federalreserve.gov/releases/h15/current/#fn10>]  
<http://www.prnewswire.com/news-releases/vars-ranks-the-best-performing-variable-annuity-contracts-74684777.html>

## EXECUTIVE FINDINGS

### // METHODOLOGY

We constructed portfolios with different weightings of stocks (S&P 500 Index with reinvested dividends), bonds (long-term corporate bond total returns), and FIAs (index annuity returns without reinvested dividends, capped at current levels).

Then, we measured each portfolio's historic performance – from 1950 through 2013, a period that encompassed a wide range of financial market conditions – by calculating ex-post Sharpe ratios.

The Sharpe ratio helps determine whether a portfolio's performance can be attributed to wise investment decisions or excessive risks. The higher the Sharpe ratio is, the better the portfolio's risk-adjusted performance. As a general rule, portfolios that perform well provide higher returns without taking too much additional risk.

### // OUR KEY FINDINGS WERE THAT:

- / Investors, who want to avoid losses in the years immediately before retirement or during retirement, may be able to reduce overall portfolio risk and optimize performance by adding FIAs to their portfolios. During periods of rising interest rates, the value of outstanding bonds usually falls.
- / During periods of rising interest rates, adding FIAs and reducing or eliminating bond exposure helped improve risk-adjusted performance. The study found that adding index annuities to a portfolio and reducing the percentage of bonds helped improve Sharpe ratios. We may be on the cusp of a period of rising interest rates.

From 1966 to 1981, a period of rapidly-rising interest rates, introducing FIAs to portfolios increased Sharpe ratios – indicating an improvement in risk-adjusted portfolio performance.

# EFFICIENT FRONTIER AND OPTIMIZED PORTFOLIOS

## // THE EFFICIENT FRONTIER

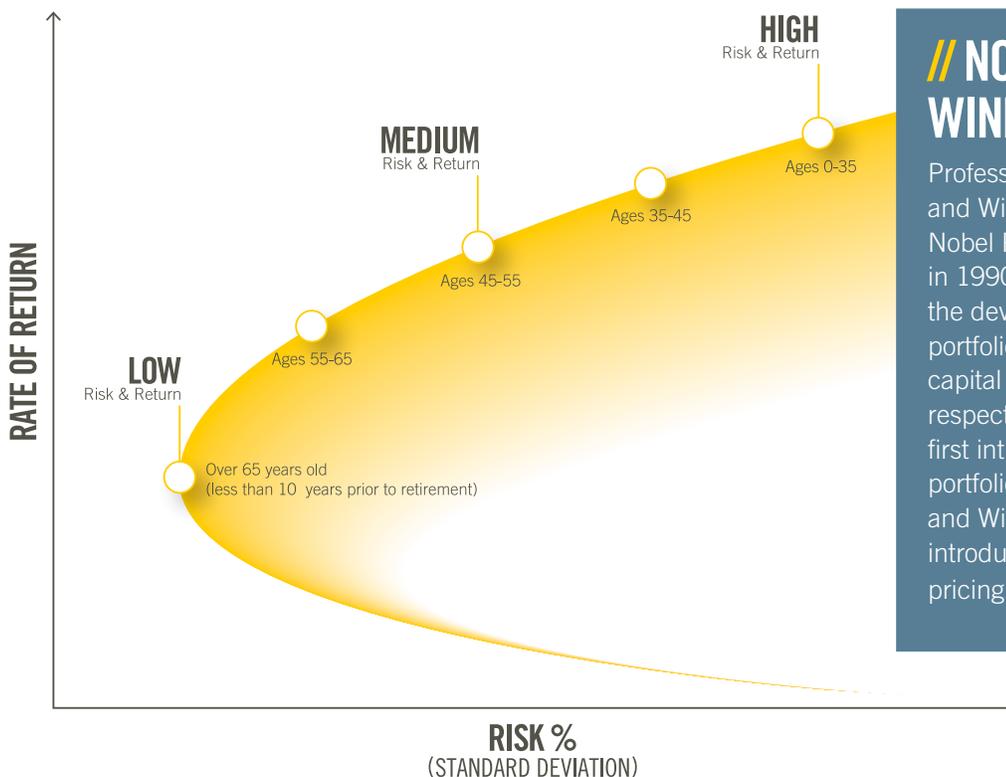
The Efficient Frontier is a cornerstone of modern portfolio theory. It holds that a set of portfolio constructions will provide optimal performance for various levels of risk, as shown in the diagram below.

- / Portfolios on the line are expected to deliver the highest return for a given level of risk.
- / Portfolios below the line are not efficient because they do not provide enough return.
- / Portfolios above the line are not efficient because they take on too much risk.

## // PRESERVING RETIREMENT ASSETS

Each investor chooses a portfolio that aligns with the amount of risk he or she is willing to accept financially and tolerate emotionally. Often, financial professionals match efficient frontier portfolios with levels of risk based on investors' ages. Generally, as investors grow older, they opt for more conservative portfolios with lower levels of risk.

Reducing risk exposure may be particularly important for investors who are approaching retirement and seek to avoid large swings in the value of their retirement nest eggs.



## // NOBEL PRIZE WINNERS

Professors Harry Markowitz and William Sharpe won the Nobel Prize in Economics in 1990 for their work on the development of modern portfolio theory and the capital asset pricing model, respectively. Harry Markowitz first introduced his modern portfolio concepts in 1952, and William Sharpe introduced his capital asset pricing model in 1962.

\*The most common use of different efficient frontier portfolios is to manage risk matched to the investors' ages. Generally, as investors approach retirement, they may seek to avoid the risk of large swings in the underlying retirement nest egg that can come from stock market exposure.

CHART SOURCE: Explaining the Efficient Frontier: <http://www.investopedia.com/video/play/explaining-efficient-frontier/>  
Age Based Asset Allocation: <http://www.cornerstoneri.com/Age%20Based%20Asset%20Allocation%202013.pdf>

## A RETROSPECTIVE: SIX DECADES OF 10-YEAR U.S. TREASURY BOND YIELDS

Since 1950, the United States has experienced the worst bear market for bonds in its history and the greatest bull market for bonds in its history. The two events divide the last 64 years into two distinct periods.

**On the first day of 1950**, a 10-year U.S. Treasury bond yielded 2.32%. The minimum wage was 75 cents an hour, and a first class postage stamp cost three cents.<sup>1,2</sup>

### // IT WAS THE START OF THE WORST BEAR MARKET FOR BONDS IN U.S. HISTORY

From 1950 through 1981, many investors purchased bonds with locked-in interest rates. Those who needed to sell prior to maturity may have found that the bonds in their portfolio lost value.

**On the first day of 1982**, the yield on a 10-year U.S. Treasury bond had climbed to 14.59%. The minimum wage had risen to \$3.35, and a first class postage stamp cost 20 cents.<sup>1,2</sup>

### // FOR BOND INVESTORS IN THE SECONDARY MARKET, THE GREATEST BULL MARKET FOR BONDS IN OUR NATION'S HISTORY WAS ABOUT TO BEGIN.

From 1982 through 2013, a record decline in interest rates was a boom for investors. Many received a guaranteed rate of return on the bonds in their portfolios, and realized appreciation in the value of those bonds as interest rates fell.

**By the first day of 2013**, the yield on a 10-year U.S. Treasury bond had fallen to 1.9%. The minimum wage was \$7.25, and a first class postage stamp cost 46 cents (and it was used less often because of electronic mail).<sup>1,2</sup>

Although our research ended in 2013, on the first day of 2015, the yield on a 10-year U.S. Treasury bond was about 1.9%. There is little room for rates to fall further. Rather, it seems likely that rates will begin to rise, which could increase portfolio risk for many investors buying bonds today since bond values in the secondary market tend to decline in a rising interest rate environment.

1. U.S. Department of Labor - <http://www.dol.gov/whd/minwage/coverage.htm>

2. U.S. Postal Service - <https://about.usps.com/who-we-are/postal-history/domestic-letter-rates-since-1863.pdf>

1982

10-year U.S. Treasury bond yield

14.59%

Minimum wage/hour

\$3.35

First class postage stamp

20¢

1950

10-year U.S. Treasury bond yield

2.32%

Minimum wage/hour

75¢

First class postage stamp

3¢

2013

10-year U.S. Treasury bond yield

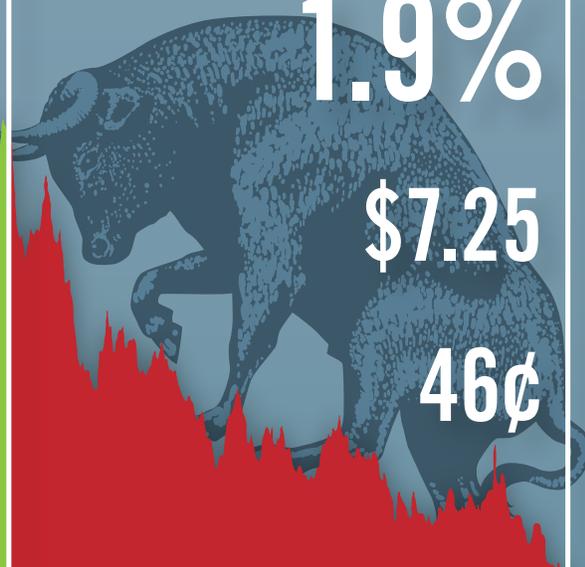
1.9%

Minimum wage/hour

\$7.25

First class postage stamp

46¢



Jan 1950

Jan 1982

Jan 2013

# BEAR MARKET FOR BONDS // BULL MARKET FOR BONDS

Rising interest rates and falling bond prices

Falling interest rates and rising bond prices

CHART SOURCE: 10-Year Treasury rate. <http://www.multpl.com/interest-rate/>

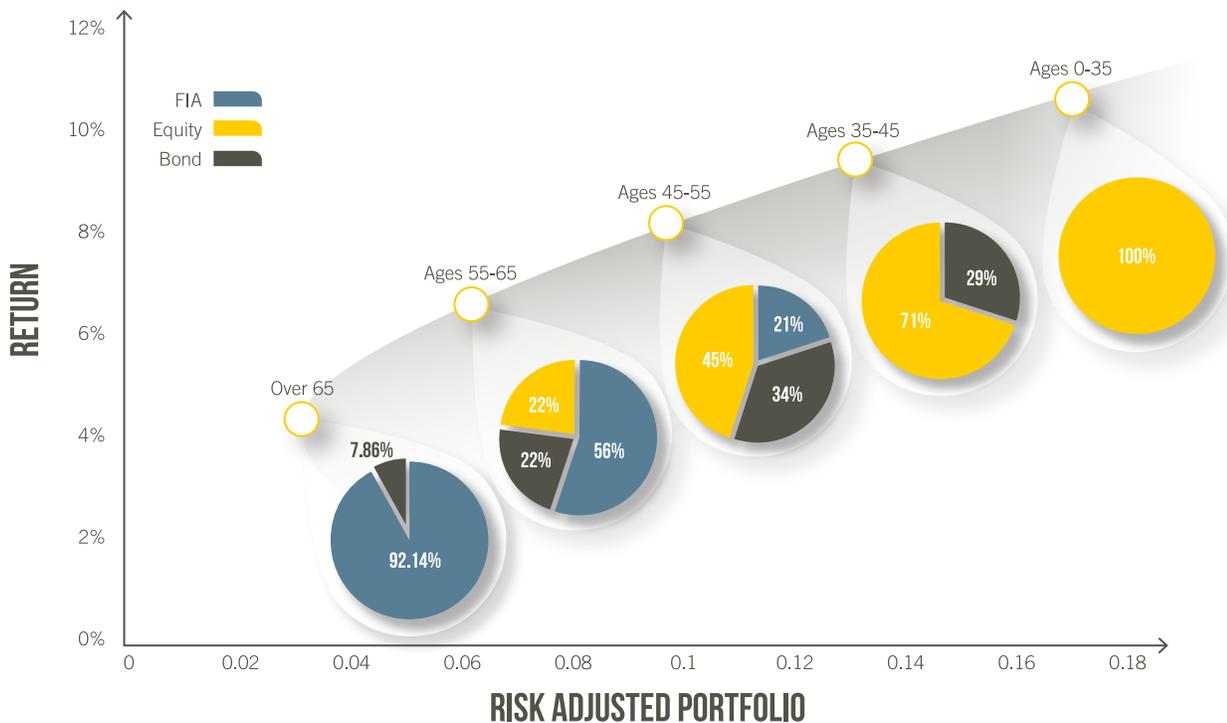
# THE STUDY: EFFICIENT FRONTIERS OVER TIME

## // 1950-2014: OPTIMIZING PERFORMANCE THROUGH CHANGING INTEREST RATE ENVIRONMENTS

It's important to understand that an efficient portfolio is not a constant. Different combinations of investments deliver optimal risk-adjusted performance based upon different performance relationships in the underlying investments.

The first period we measured encompassed both bear and bull markets for bonds. From 1950 to 2014, returns on the portfolios we constructed ranged from 4.18% (94.3% FIA and 5.7% corporate bonds) to 10.56% (100% equities).

Adding FIAs improved risk-adjusted performance during a period that included both rising and falling interest rates. While past performance is no guarantee of future results, it's possible that investors who seek to reduce portfolio risk as they approach retirement or retire may be able to achieve optimal portfolio performance by increasing the weighting of index annuities in their portfolios. Of course, they should consider the overall suitability of the annuity, such as the ability to meet liquidity needs in light of surrender charges and other restrictions, limitations, and risks.



# // 1950-1981: OPTIMIZING PERFORMANCE IN A PERIOD OF RISING INTEREST RATES

Next, we identified the portfolio constructions that delivered optimal performance between 1950 and 1981. The various portfolio mixes produced returns between 3.63% (14% corporate bonds and 86% FIA) to 10.08% (100% equities).

During a period of rising interest rates, adding FIAs improved risk-adjusted performance. This was an important finding because periods of rising interest rates can inflict significant losses on a portfolio that includes bonds if the investor sells the bonds prior to maturity. By increasing the percentage of FIAs or equities in a portfolio, an investor may be able to reduce the negative effects of a rising interest rate environment.

## 1950-1981

OPTIMAL EX-POST  
SHARPE RATIO

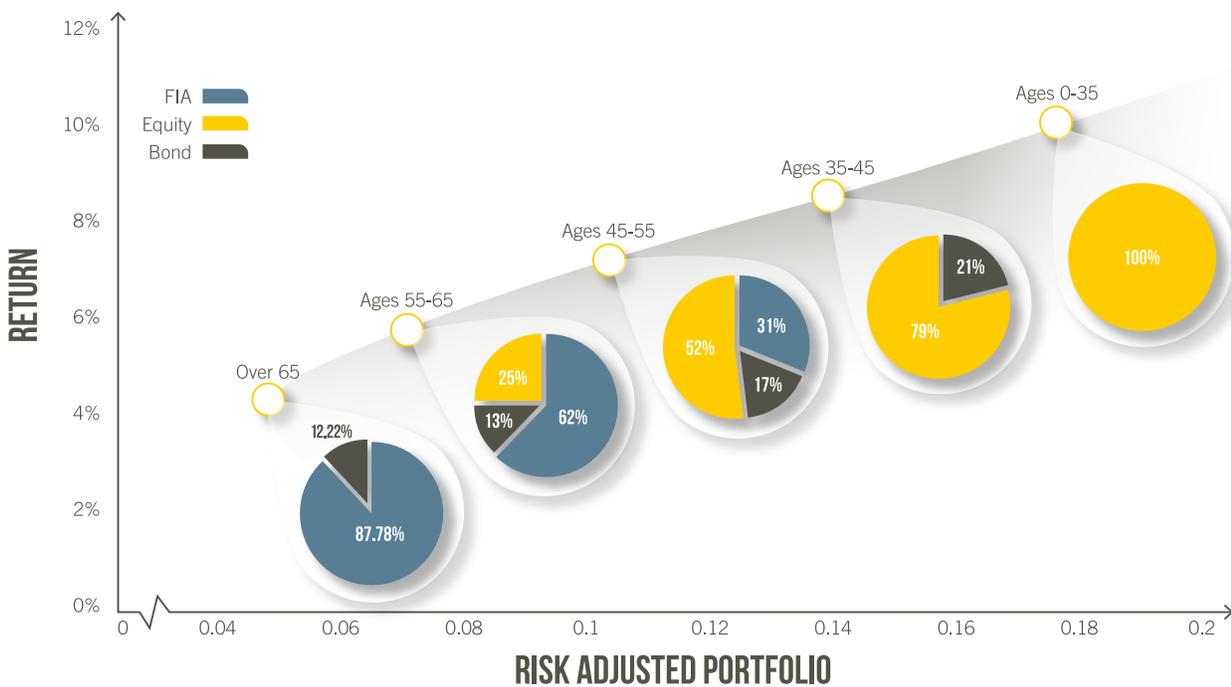
# 1.34134

PORTFOLIO  
RATIO

THEORETICAL  
RETURN

# 3.66%

FOR THE PERIOD NET OF ALL FEES

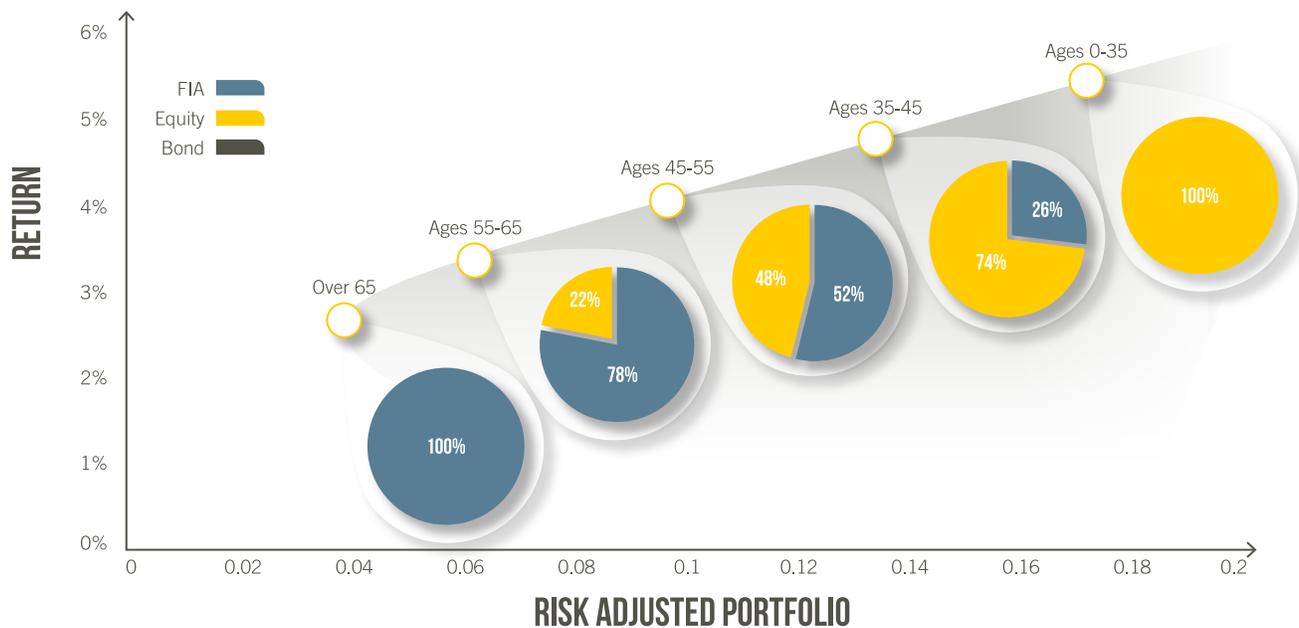


## // 1966-1981: OPTIMIZING PERFORMANCE WHEN INTEREST RATES RISE SHARPLY

We chose to measure portfolio optimization during a period of steeply-rising interest rates because it appears the United States may be on the verge of another period of rising interest rates, or at least an end to a period of falling interest rates. The general consensus among analysts was that bond yields would begin to rise during 2014. They were wrong.<sup>1</sup> At the start of the year, a 10-year Treasury bond yielded 2.98%, and at the end of the year, it yielded 2.17%.<sup>2</sup> Will rates rise during 2015? If the Federal Reserve raises the Fed funds rate, as they have indicated, then it seems likely rates will increase; however, there is no way to tell.

From 1966 to 1981, our portfolio constructions provided returns that ranged from 3.12% (5% corporate bonds and 95% FIAs) to 5.44% (100% equities).

We found that, during a 15 year period of sharply increasing interest rates, the addition of FIAs reduced risk and increased the Sharpe ratio of a portfolio. Adding FIAs protected premium while preserving positive returns during a time when bond investors generally experienced negative returns. This time period –when interest rates rose from a relatively modest level to double digits – proved to be the most important in our study. Fixed index annuities, which can provide a source of fixed income, may provide premium protection during periods of rising interest rates while balancing the investor’s need for return.



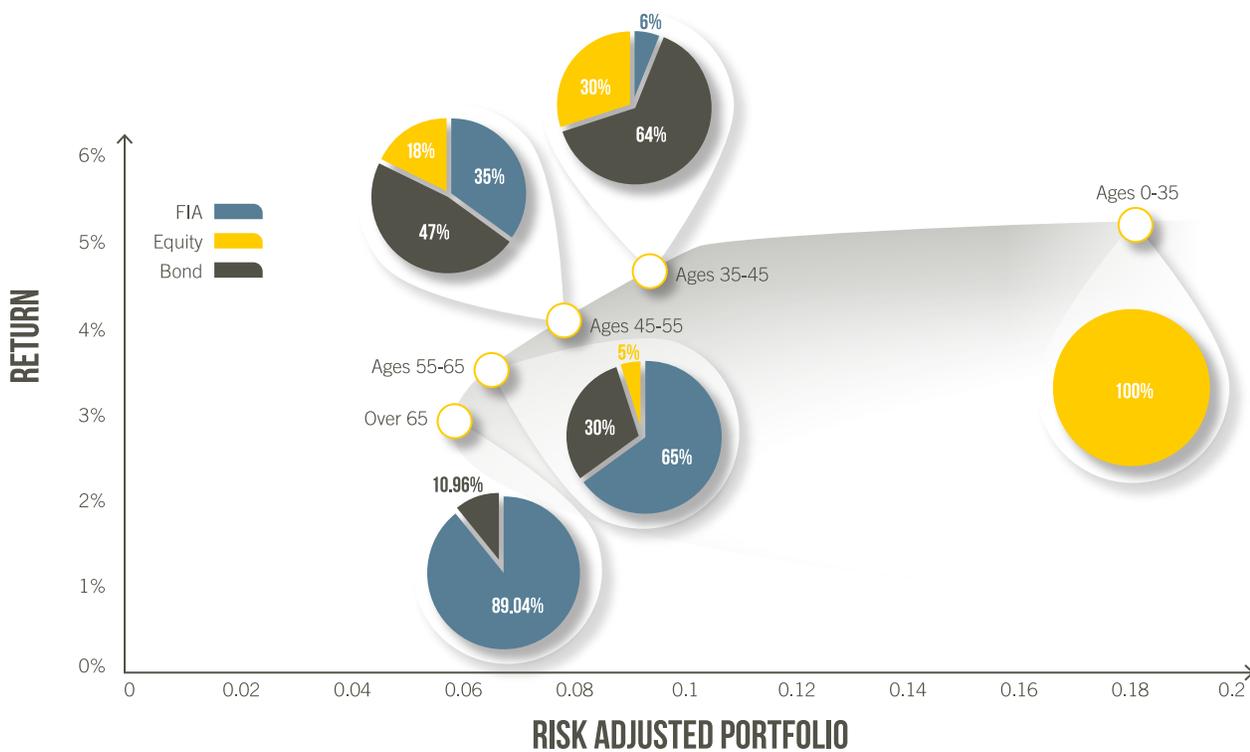
1. Business Insider, Government Bond Yields - <http://www.businessinsider.com/global-bond-yields-tumble-2014-10>

2. Historical Prices - <http://finance.yahoo.com/q/hp?s=%5ETNX+Historical+Prices>

# // 1982-2014: OPTIMIZING PERFORMANCE IN A PERIOD OF DECLINING INTEREST RATES

Finally, we identified the portfolio constructions that delivered optimal performance between 1982 and 2014. The various portfolio mixes produced returns between 4.59% (22% corporate bond and 96.3% FIA) to 11.03% (100% equities).

During the longest and steepest period of interest rate declines in U.S. history, increasing the amount of premium in FIAs held in a portfolio reduced overall risk and optimized performance. Since falling bond yields means appreciation for bonds, we hypothesized that the FIAs would be a smaller percentage of the portfolio and that bonds would be larger.



## IN CLOSING

A critical intellectual pillar of portfolio management is the study of the efficient frontier. By optimizing portfolios, producers can deliver levels of return that are commensurate with investors' risk tolerance. That, in turn, may help producers address two of investors' worst fears regarding retirement.

### // #1. LOSING RETIREMENT SAVINGS

When it comes to balancing risk and return for retirement savings, Americans tip toward the cautious end of the spectrum. During 2014, 64% of all investors participating in a national survey indicated they would prefer a secure investment even if potential for growth were low.<sup>1</sup> A separate survey found that the vast majority of investors have become less comfortable with investment risk during the past 10 years.<sup>2</sup> About 55% are uncomfortable with the idea of putting any of their savings at risk, and less than one-fourth indicated they could tolerate the loss of 5% of their savings.

### // #2. OUTLIVING RETIREMENT SAVINGS

Not too long ago, Social Security benefits, pension plan income, and personal savings provided steady income that retirees could rely on receiving throughout retirement. Today, pension plans are rapidly disappearing, and worries about inflation, high healthcare costs, inadequate savings, and other issues, have many investors worried they will outlive their savings during retirement. In fact, the possibility of outliving retirement savings is more frightening than the prospect of dying.<sup>2</sup>

Optimizing portfolios, so that investors receive the greatest potential return for the level of risk they are willing to incur, is a solution that makes sense. The research presented in this paper indicates that fixed index annuities should be included when analyzing portfolio optimization options. In every circumstance studied—a period of rising interest rates, a period of falling interest rates, and a period of rising and falling rates, adding FIAs to some portfolios helped reduce overall risk.

Fixed index annuities may not be appropriate for all pre-retirees and retirees; however, the results of our quantitative analysis are telling. If an investor is evaluating risk and return opportunities, fixed index annuities should be considered in the portfolio, along with more traditional types of investments.

1. Investors Risk-Averse When It Comes to Retirement Savings: <http://bit.ly/1LjcPdr>

2. WealthVest Investors on Risk Survey, conducted April 2015

# UNDERLYING ASSUMPTIONS

The calculations in this study include the application of various fees commonly involved in investing as follows: the study assumes a fee of 0.77% for all calculations involving stocks, which was the average expense ratio of long-term equity mutual fund investors in 2012, and a fee of 0.61% for calculations involving bonds, which was the average bond fund expense during 2012. The hypothetical FIA returns used in this study do not reflect any fees. The study also assumes a 1% annual financial advisory fee for the cost of financial advice, on top of these fees.<sup>3</sup>

## // BONDS AND S&P 500:

Rates sourced from Morningstar Independent Investment Research.

## // BOND RETURNS:

The study relied upon actual annual total returns of Long Term Corporate Bonds, as cited in Ibbotson SBBI 2013 Classic Yearbook, Chicago.

## // FIA RETURNS:

The study used a hypothetical FIA with an S&P 500 index-linked interest crediting method. It used a 6.25% annual point-to-point cap or 2.75% monthly point-to-point cap to approximate FIA returns for the time period between 1950 to 2013. In the opinion of industry expert Jack Marrion, since interest rates were much higher for most of that time period than they are today, this represents a conservative assumption. Note that, past performance is based on hypothetical historical data and is not indicative of future results. Actual results will vary based on market conditions, index allocations, crediting methods, and index strategies.

## // 2013 AND 2014 BOND RETURNS:

Barclays Corporate Long Investment Grade Index

## // HISTORIC S&P 500 DIVIDEND YIELDS:

The S&P 500 performance data is appreciation and dividends. Robert Shiller. Irrational Exuberance, 2nd Edition, Knopf Doubleday, ISBN: 0767923634; Standard & Poor's for subsequent S&P 500 Dividend Yield and returns.

3. Trends in the Expenses and Fees of Mutual Funds, 2012. <http://www.ici.org/pdf/per19-03.pdf>

## KEY TERMS

**Fixed Index Annuity:** A fixed index annuity (FIA) is a tax-deferred, long-term retirement savings vehicle issued by an insurance company. FIAs are designed to meet long-term needs for retirement income. While product and feature availability may vary by insurance carrier and state, in general, FIAs provide guarantees of premium (backed on the financial strength and claims paying ability of the issuing company,) credited interest (subject to surrender charges) and a death benefit for beneficiaries. Any distributions may be subject to ordinary income tax and, if taken prior to age 59 1/2, an additional 10% federal tax. Early withdrawals may result in loss of premium and credited interest due to surrender charges.

**Standard & Poor's 500 Index - S&P 500:**<sup>1</sup> An index of 500 stocks chosen for market size, liquidity, and industry grouping, among other factors. The S&P 500 is designed to be a leading indicator of U.S. equities and is meant to reflect the risk/return characteristics of the large cap universe.

**Dow Jones Industrial Average - DJIA:**<sup>2</sup> The Dow Jones Industrial Average is a price-weighted average of 30 significant stocks traded on the New York Stock Exchange and the NASDAQ. The DJIA was invented by Charles Dow in 1896.

**Sharpe Ratio:**<sup>3</sup> The Sharpe Ratio is a measure for calculating risk-adjusted return, and this ratio has become the industry standard for such calculations. It was developed by Nobel laureate William F. Sharpe. The Sharpe ratio is the average return earned in excess of the risk-free rate per unit of volatility or total risk. Subtracting the risk-free rate from the mean return, the performance associated with risk-taking activities can be isolated. One intuition of this calculation is that a portfolio engaging in “zero risk”

investment, such as the purchase of U.S. Treasury bills (for which the expected return is the risk-free rate), has a Sharpe ratio of exactly zero. Generally, the greater the value of the Sharpe ratio, the more attractive the risk-adjusted return.

**Ex-Post Sharpe Ratio:**<sup>3</sup> The Ex-Post Sharpe Ratio is the average return in excess of the risk-free rate per unit of volatility using realized returns.

**Theoretical Return:** Fixed Index Annuities were introduced in 1995, so this study uses the process of back-testing to approximate performance where actual performance does not exist. Past performance is not an indication of future results. Back-tested performance is not actual historical performance, but is hypothetical. The back-test period does not necessarily correspond to the entire available history of the index. Additionally, back-tested calculation is prepared with the benefit of hindsight and the data reflects the application of the index methodology and selection of index constituents in hindsight. Jack Marrion used S&P 500 cap rates for the entire time period that he felt to be conservative relative to hypothetical S&P cap rates over this 63 year time period. Hence, the resulting returns are “theoretical”.

**Optimized Portfolio:**<sup>4</sup> Determination of weights of securities in a portfolio so that it best suits a given objective, e.g. maximize return for a given risk.

1. Standard & Poor's 500 Index: <http://www.investopedia.com/terms/sp500.asp>

2. Dow Jones Industrial Average: <http://www.investopedia.com/terms/d/djia.asp>

3. Sharp Ratio, Ex-Post Sharp Ratio: Investopedia: <http://www.investopedia.com/terms/s/sharperatio.asp>

4. Optimized Portfolio: <http://www.nasdaq.com/investing/glossary/p/portfolio-optimization>

# FIXED INDEXED ANNUITIES MAY PROVIDE:



## PREMIUM PROTECTED

Your annuity value and all annual interest credits are protected from market loss.



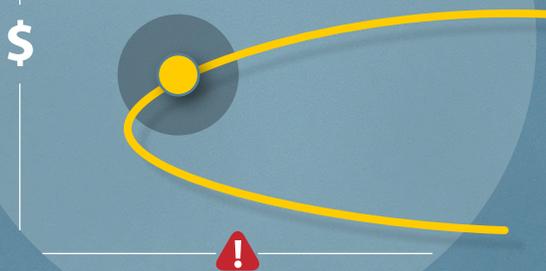
## INCOME SECURED

Income from your FIA can be guaranteed for life and is guaranteed to grow the longer you wait.



## GROWTH OPTIMIZED

Adding FIAs to your portfolio adds safety, while preserving return.



## TAX DEFERRED

Interest credits are tax-deferred during accumulation.



Annuities are designed to meet long-term needs for retirement income. They provide guarantees of premium and credited interest, subject to surrender charges, and a death benefit for beneficiaries.

The interest credited on an annuity contract may be affected by the performance of an external index. However, the annuity contract does not directly participate in the index or any equity or fixed interest investments. The annuity contract does not constitute buying shares of an index. The index value does not include the dividends paid on any equity investments underlying any equity index or any interest paid on any fixed income investments underlying any bond index. These dividends and interest are not reflected in the interest credited to the annuity contract. This material is intended for informational purposes only and is not intended to serve as the basis for any investment or purchasing decision.

Guarantees are backed by the financial strength and claims paying ability of the issuing company.

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