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INVESTMENT STRATEGIES

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QIS Insights

FIAs compared to Bonds

- Innovation in the fixed index annuity ("FIA") space has markedly improved the offering and this provides a very important distinction to bonds. We find that examples of this innovation in FIAs have outperformed bonds on a consistent basis over the last 25 years

- Both FIAs and bonds are principal protected, however bonds are exposed to yields whereas FIAs can participate in a wide range of exposures other than yields

    - Yields are near historical lows, and past bond performance has been driven partly by decreasing yields
    - Past bond performance might not be repeatable, and increasing yields will act as a headwind to bond performance

- FIAs offer flexible exposures to a diverse range of investments, including the latest equity smart betas and dynamic multi-asset portfolios

Introduction

FIAs represent a balance between participation in interesting equity exposures and downside protection. This balance becomes more important as retirement nears.

In this paper, we compare traditional investment alternatives to popular types of crediting methods found in FIA products. We simulate historical performance going back 25 years and compare performance characteristics, with respect to average returns, drawdowns and the probability of beating a simple rolling bond exposure.

We include recent innovations in the FIA space that improve performance characteristics, including multi-asset portfolios that offer higher risk adjusted returns and volatility targeted indices that allow for higher rates associated with the FIA crediting method.

Our results for the period indicate that these innovations may result in a significant improvement in performance. We find that a volatility targeted equity-bond portfolio outperformed a Single A Bond portfolio in 98% of the periods that we analysed.

What is an FIA?

- A fixed index annuity is a tax-deferred, long-term savings option that provides principal protection* and an opportunity for growth
- FIAs are principal guaranteed* up to the "high-water mark" (initial principal plus accumulated credits)
- FIAs participate in the upside performance of an underlying index (e.g. S&P 500). The participation is a function of a number of factors.
- Performance is credited on the policy anniversaries or term end dates by the greater of zero and the result of the crediting method (e.g. participation rate multiplied by the index return.)

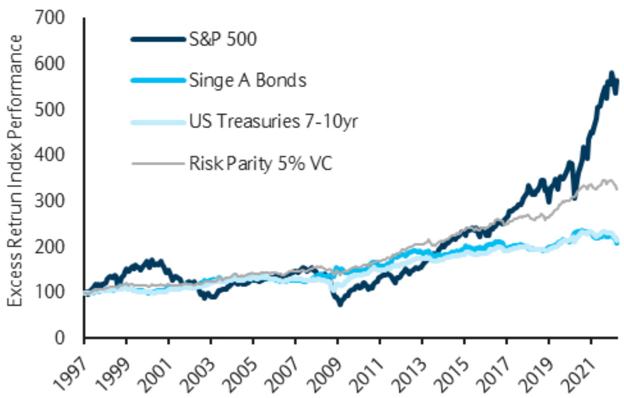
**subject to credit risk of the carrier*

Finally, we consider the impact of decreasing yields on performance and the possibility of rising yields in the future.

Indices and Innovation

Since ~2013, most insurance carriers have introduced volatility controlled indices that combine equities and bonds using a version of "risk parity". In our analysis, we consider traditional market betas, including S&P 500, US treasury bonds and single A bonds, as well as a dynamic equity-bond risk parity index with 5% volatility target, comprising S&P 500 and 7-10 year US treasury bonds. For simplicity, we did not consider smart beta style index enhancements, such as value, momentum or quality.

Graph 1: Performance of underlying components (January 1997 to March 2022)[1]



Source: Barclays, Bloomberg

What is equity-bond "risk parity"?

US treasuries are viewed as the "flight to quality" asset and tend to do well when risky assets sell off. This important negative correlation is the foundation of equity bond portfolios.

Risk parity portfolios are constructed such that the risk contribution from the equity and bond components are equal.

As bonds have lower volatility/risk than equities, these portfolios tend to have a larger allocation to bonds.

Key observations include the large drawdowns associated with equites and the improvement to risk adjusted returns when equities are combined with bonds in a risk parity format. The Sharpe Ratio of the Risk Parity 5% VC index is double that of the S&P 500 for the period.

Table 1: Component performance (January 1997 to March 2022)

	S&P 500	Single A Bonds	UST 7-10y	Risk Parity 5% VC
Total Return p.a.	9.29%	5.06%	5.14%	6.94%
Excess Return p.a.[1]	7.11%	2.97%	3.04%	4.81%
Volatility	15.36%	6.10%	5.60%	5.48%
Sharpe Ratio	0.46	0.49	0.54	0.88
Worst Drawdown	-50.95%	-11.34%	-17.53%	-13.05%

Source: Barclays, Bloomberg

FIA innovations

FIA providers have embraced multi-asset indices along with equity smart betas, e.g. value investing and thematic investing, to broaden the scope of return sources available in FIA products.

Another key innovation is the use of volatility targeted indices. In the case of the risk parity portfolio above, the allocation is leveraged up or down to maintain a target volatility of 5%. Volatility targeting reduces the cost to hedge the options embedded in an FIA, allowing the policyholder to enjoy higher rates associated with the FIA crediting method.

Analysis

Simulated FIA returns

We simulate investing in rolling 7 year FIAs with annual crediting. Crediting methods include:

1. S&P 500, solving for ***participation rate*** based on the option budget[2]
2. S&P 500 call spread with 100% participation, solving for ***the cap***[2]
3. Risk Parity 5% portfolio, solving for ***participation rate***

FIAs were simulated for the period from January 1997 to March 2022. For example, the last 7 year FIA tested was incepted in March 2015 and matured in March 2022. We solve for participation rates and cap based on available option budget at the time and other option pricing parameters.

What FIA terms were used in the analysis?

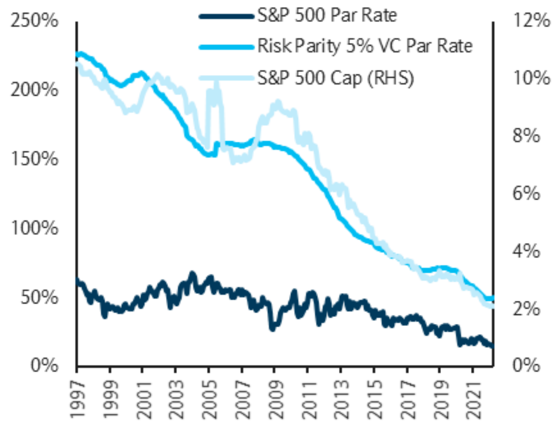
- 7 year term with annual crediting (1 year options)
- The annual option budget is assumed to be the coupon on single A bonds at inception of the FIA *less* 2% to cover the carrier's expenses and profitability
- Option hedging costs are estimated using Bloomberg's market implied volatilities and financing rates where applicable
- For the 5% risk parity index FIA, a volatility offer of 6% is used to price options

We notice from graphs 2 and 3 that participation/cap rates and crediting rates have decreased as yields have decreased. This is expected as option budgets are directly correlated to yields, higher yields mean more can be spent on option premium. Volatility targeted indices generally have lower volatility than S&P 500 and correspondingly higher participation rates.

[1] Excess return is defined as total return less the Fed funds rate. Returns were calculated using historical and, in some cases, hypothetical performance data. Historical and hypothetical performance is not indicative of future performance or results. Index tickers applicable: SPTR for S&P 500, LT09TRUU for US Treasuries 7-10yr, LCA1TRUU for Single A Bonds.

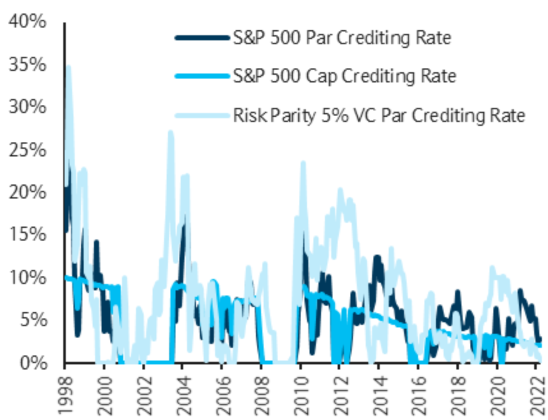
[2] S&P 500 references the price index (SPX). See appendix for example payouts.

Graph 2: Historical participation and cap rates (January 1997 to March 2022)



Source: Barclays, Bloomberg

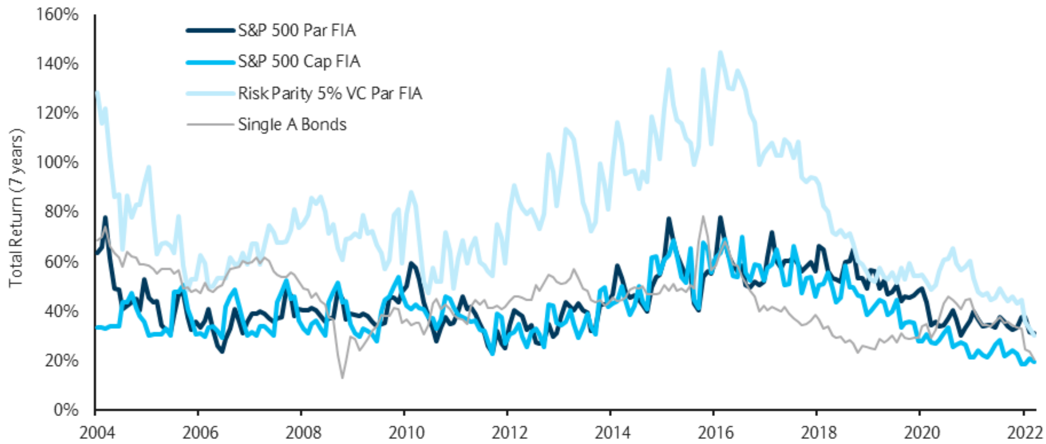
Graph 3: Historical annual crediting rates (January 1998 to March 2022)



Source: Barclays, Bloomberg

Bringing this all together, we calculate the rolling return for each 7 year FIA over time.

Graph 4: Rolling 7 year FIA performance compared to Single A Bonds (January 2004 to March 2022)



Source: Barclays, Bloomberg

FIA performance is always flat or positive due to the downside protection.
Recent performance has been decreasing, in line with decreasing option budgets due to decreasing yields, but is still in line with bond returns.

FIAs are often compared to bonds as both have principal guarantees. See table 2 for performance in the period from January 1997 to March 2022:

- Performance of S&P 500 based FIAs and Single A Bonds is quite comparable
- Performance of the Risk Parity 5% Vol Control FIA is substantially better, outperforming Single A Bonds in 98% of rolling 7 year periods.

How do FIAs and bonds compare?

FIAs and bonds are both fixed term, income earning and principal protected instruments.

Bond returns depend on bond yields, which are near historical lows, whereas FIA returns can be driven by a wide range of return sources, from large cap equities to the latest smart betas.

Tax on income is deferred until withdrawn in the case of FIAs. Corporate bond income is taxed at the ordinary rate. FIAs are less liquid than bonds prior to maturity due to their surrender charge, however 10% can be withdrawn for free each anniversary.

Table 2: Performance Comparison (January 2004 to March 2022)

	Fixed Index Annuities			Single A Bonds
	S&P 500 Par	S&P 500 Cap	Risk Parity 5% Vol Control Par	
Average rolling 7 year return	44.16%	40.34%	77.84%	44.36%
Best 7 year return	78.10%	70.02%	144.70%	78.28%
Worst 7 year return	23.26%	18.43%	30.03%	13.29%
Average annualized return	5.33%	4.92%	8.45%	5.34%
Best annualized return	8.59%	7.88%	13.64%	8.61%
Worst annualized return	3.03%	2.45%	3.82%	1.80%
% of time returns beat Single A Bonds	45%	40%	98%	n/a

Source: Barclays, Bloomberg

Risk mitigation with FIAs

Yields are near historical lows, and past bond performance has been driven in part by decreasing yields. The concern is that yields have less room to decrease and therefore past bond performance is not repeatable. If yields increase (e.g. due to inflationary pressures), this will act as a headwind to bond performance. Higher yields will lead to higher option budgets and improve the upside participation of future FIAs.

In addition, FIAs can reduce exposure to rising yields by judicious selection of an equity index. Bonds do not have that flexibility.

Conclusion

We often use average returns when comparing investments, but that has pitfalls. Would you cross a flowing river if I said the average depth is 3 feet? Or would you be more concerned about the maximum depth?

The same applies to core investments, especially nearing retirement when there is limited time to make back drawdowns and withdrawals crystalize the losses.

While it is true that S&P 500 delivered the highest annualized return for the period we reviewed, it also suffered the worst drawdowns. FIAs provide upside participation while protecting against losses. When compared to bonds, FIAs offer a high degree of flexibility regarding the exposure type, negating the potential effect of future increases in yields.

Innovation in the FIA space over the last ~10 years has resulted in an improved offering that can access a diverse range of indices with intelligent techniques to maximise upside opportunities. Our analysis shows that a simple example of an equity-bond Risk Parity index with 5% volatility target outperformed bonds in 98% of rolling 7 year periods from January 1997 to March 2022.

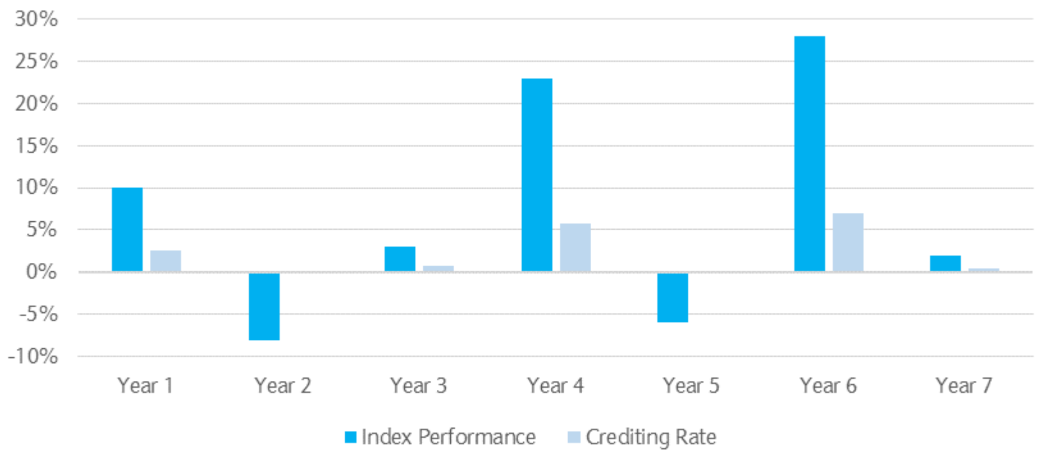
Risk factors related to Fixed Index Annuities include: (a) they are illiquid, due to their long surrender schedule; (b) they are not FDIC insured and policyholders are exposed to creditworthiness of the insurance carriers; (c) they charge fees – we have assumed 2% per year in our analysis, which is generated by the carrier from the bond portfolio they manage.

We assess that Fixed Index Annuities provide policyholders with “pre-packaged bonds” that are professionally managed by sophisticated insurance companies, combined with upside linked to equity markets that are less exposed to inflation than bonds.

Appendix

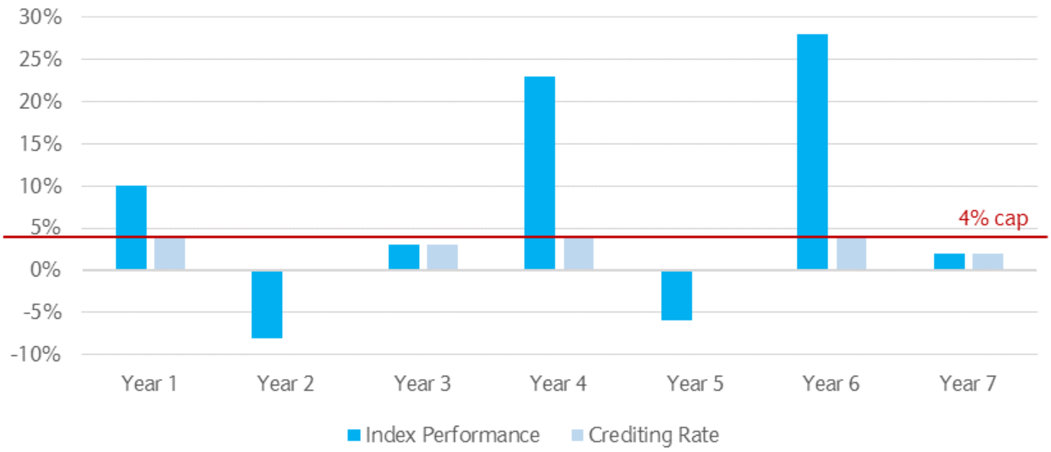
Example 1-year Par FIA

- Assumed participation rate of 25%
- The crediting rate will be 25% of index performance when index performance is positive, zero otherwise
- If index return is 10% for the year, then crediting rate will be 2.5%



Example 1 year Cap FIA

- Assumed cap of 4%
- The crediting rate will be 1 for 1 upside with index performance until the 4% cap is reached, zero otherwise
- If index performance is 10%, then crediting rate will be 4%



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