



STRUCTURED PRODUCT RETURNS

INTRODUCTION

In this note we look at the historic performance of FTSE Linked Autocalls and compare this to the performance of equities and bonds. To be able to assess the returns that structured products have offered in the past we have worked with Investment Product Research (IPR) to create a representative index. The IPR FTSE Linked Autocall Index can be used to show the returns that this popular type of product has offered in the past. The index demonstrates the attractive historic risk / return profile of structured products. In conclusion, we propose that structured products offer an attractive alternative to both equities and bonds.

STRUCTURED PRODUCTS

“Structured product” is a term that includes a very wide range of investments. We divide products up using the matrix below.

OBJECTIVE	PROTECTED	CAPITAL AT RISK	PAYOFF
RETURN	PROTECTED RETURN	ENHANCED RETURN	AUTOCALL SYNTHETIC ZERO
PARTICIPATION	PROTECTED PARTICIPATION	ENHANCED PARTICIPATION	SUPERTRACKER BOOSTER
INCOME	PROTECTED INCOME	ENHANCED INCOME	REVERSE CONVERTIBLE PHOENIX RANGE ACCRUAL

The most popular type of product has been, and remain products in the “Enhanced return” segment. This includes Autocalls and synthetic zero’s

- They offer a defined return that is conditional on the underlying asset exceeding a target percentage return level. For defensive products target level typically falls by 5% per annum, so the product offers a positive return even if markets fall.
- The maturity value may be less than par depending on the performance of the underlying asset. Products with soft protection offer capital protection provided that the underlying indices is above a target level when the product matures, and so offer significant protection against losses.
- Products may have an early maturity feature that depends on the underlying asset achieving a performance target



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For many investors this type of product has become an asset class in itself, offering the prospects of equity like returns that is not dependent on significant growth in equity markets.

STRUCTURED PRODUCT INDEX

An Index of any type of investment is a vital tool, and Structured Products are no exception. An index can demonstrate the performance of an asset class over time, and to enable a comparison with other assets. Indices are vital in portfolio construction tools to determine an appropriate level of exposure to each asset.

The IPR UK Autocall Index (the Index) is an index of Autocalls linked to the FTSE 100 index. The index includes all the qualifying products in the IPR database. To qualify, products must have the following features

- Linked to the FTSE 100 Index
- Autocall with flat or declining triggers
- 50% to 65% barrier down and in puts
- 5 or 6-year term to maturity
- First Autocall date at the second anniversary or earlier
- Issuer must publish a daily price

The change in the level of the index is the average change of each qualifying product, so each product is effectively equally weighted. The IPR index starts in late 2007.

The chart below shows the long term returns of the Index returns:

IPR UK AUTOCALL INDEX



Source: IPR/Bloomberg as at 07.12.17



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PERFORMANCE SUMMARY

UK AUTOCALL INDEX	1M	3M	6M	1Y	2Y	3Y	9Y	YTD	INCEPTION*
RETURN	-0.4%	0.4%	1.1%	6.8%	20.5%	19.1%	124.6%	5.2%	74.0%
VOLATILITY	2.2%	1.9%	2.0%	2.0%	7.4%	8.2%	14.8%	2.0%	19.0%
SHARPE	-1.65	0.44	1.05	3.05	1.28	0.71	0.59	2.52	0.24
MAX DRAWDOWN	0.6%	0.9%	0.9%	0.9%	10.0%	13.9%	29.9%	0.9%	44.7%

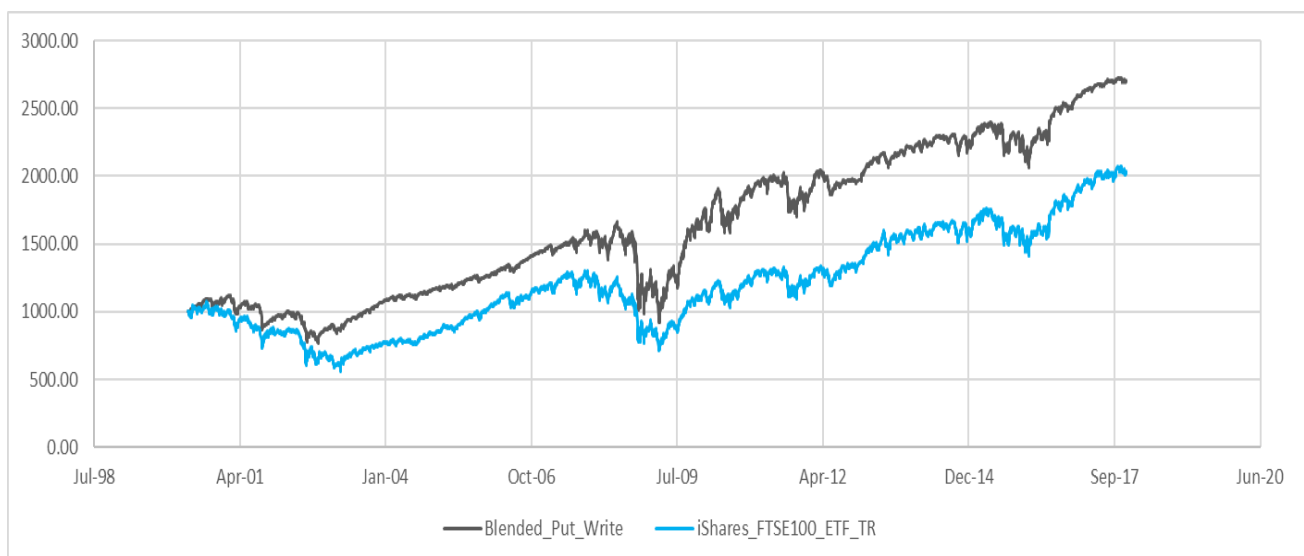
Source: IPR/Bloomberg as at 07.12.17. *Inception date 10th Oct 2007

EXTENDING THE INDEX

To extend the index further, the Index has been spliced onto the CBOE Put Write Index. There are obvious differences between the two indices, but they are sufficiently similar and correlated for the period where they overlap for the CBOE to be a reasonable proxy for the period before the IPR index was calculated.

The chart shows that the combined index has offered superior returns to FTSE Total Return over the long term:

BLENDED UK AUTOCALL CBOE PUT WRITE INDEX



Source: IPR/Bloomberg 28.04.00 to 07.12.17



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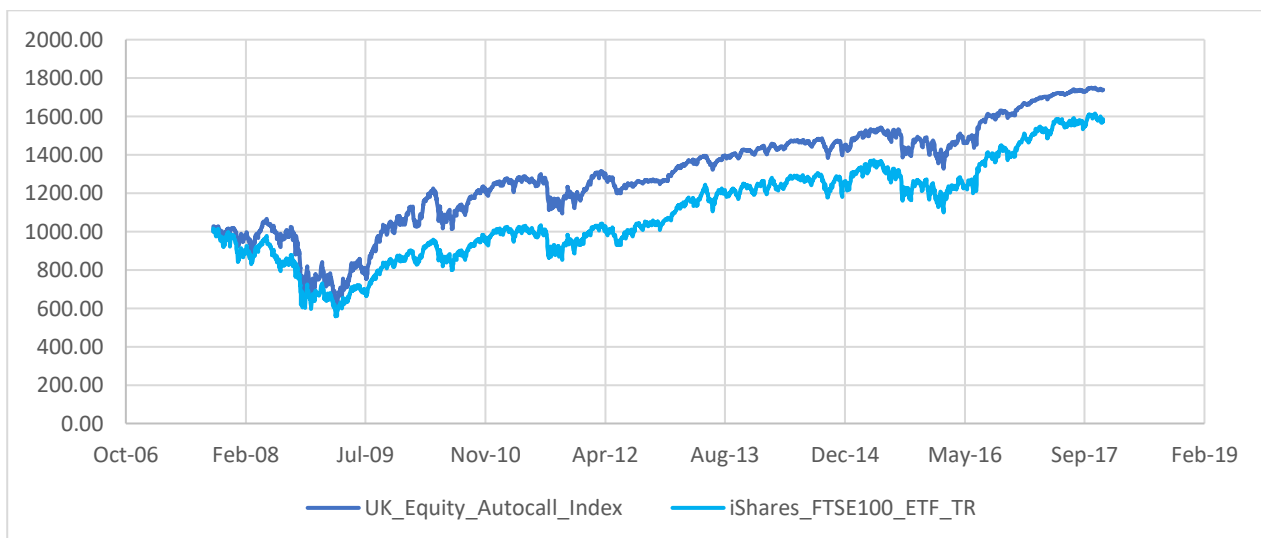
COMPARISONS WITH OTHER ASSETS

The Index can be used to compare structured product returns with other assets. The assets that structured products can be compared to are:

- Equity
- Corporate Bonds
- High Yield Bonds

EQUITY

Compared to the performance of UK equity as represented by the FTSE Total Return Index, structured products have done well over the whole period. There have through this period been times where structured products have offered higher returns, and periods where the returns have been lower.



Source: IPR/Bloomberg as at 07.12.17

UK AUTOCALL INDEX FTSE TOTAL RETURN	1M	3M	6M	1Y	2Y	3Y	9Y	YTD	INCEPTION
RETURN	-0.4%	0.4%	1.1%	6.8%	20.5%	19.1%	124.6%	5.2%	74.0%
	-1.3%	1.0%	0.2%	10.9%	30.7%	27.3%	131.0%	7.2%	58.6%
VOLATILITY	2.2%	1.9%	2.0%	2.0%	7.4%	8.2%	14.8%	2.0%	19.0%
	8.1%	7.7%	8.4%	8.6%	13.8%	15.1%	16.6%	8.6%	19.9%
SHARPE	-1.65	0.44	1.05	3.05	1.28	0.71	0.59	2.52	0.24
	-1.40	0.25	0.05	1.16	0.99	0.53	0.54	0.85	0.19
MAX DRAWDOWN	0.6%	0.9%	0.9%	0.9%	10.0%	13.9%	29.9%	0.9%	44.7%
	2.1%	3.0%	3.7%	4.0%	12.3%	19.9%	23.6%	4.0%	45.0%

Source: IPR/Bloomberg as at 07.12.17

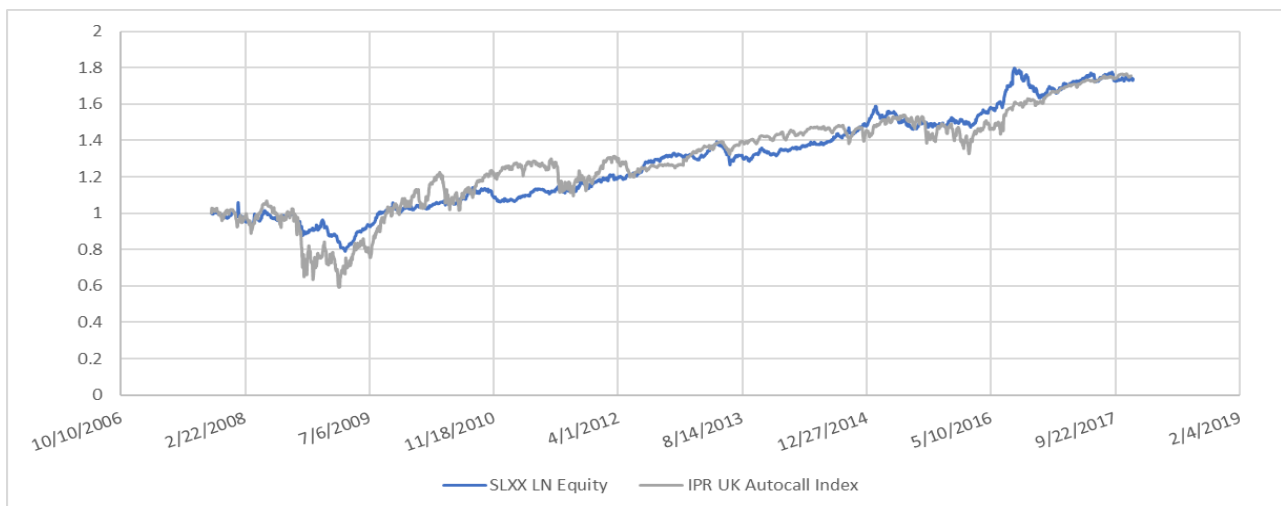


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CORPORATE BONDS

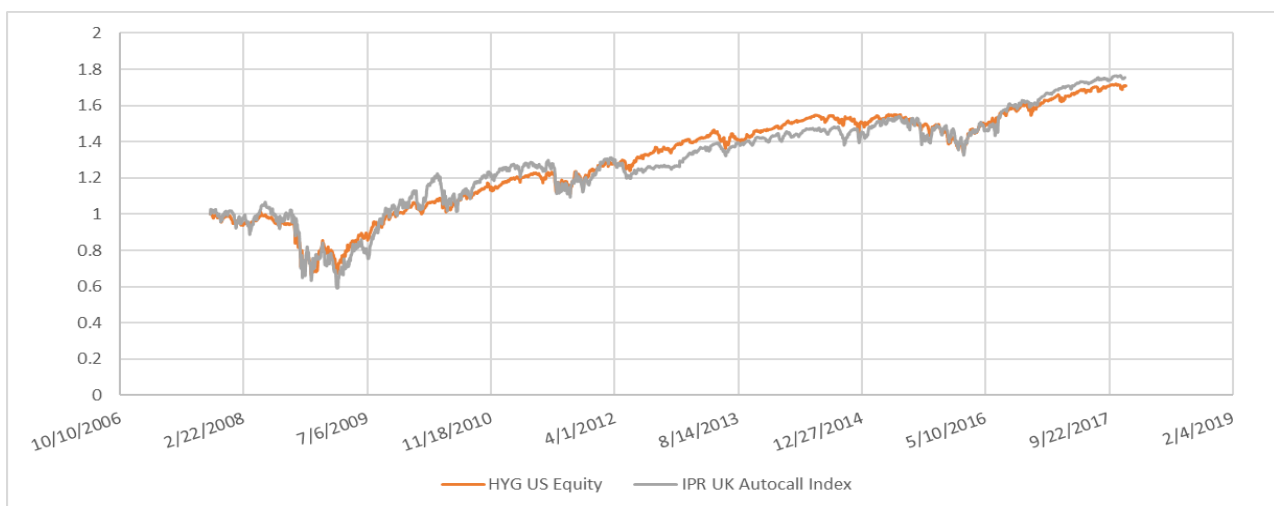
Corporate Bonds are arguably a better benchmark for enhanced return structured products. Both offer an enhanced yield, but investors risk a capital loss if there is a substantial fall in the underlying enterprise value. The similarity of structured product returns to corporate bond returns can be seen by comparing the Index with SLXX, the Corporate Bond ETF:



Source: IPR/Bloomberg as at 07.12.17

HIGH YIELD BONDS

High yield bonds are perhaps an even better benchmark for enhanced return structured products. The coupon levels on high-yield are similar to the headline return on popular structured products. This is borne out by the similarity of the returns as illustrated in the chart below:



Source: IPR/Bloomberg as at 07.12.17



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Structured products offer bond investors an attractive alternative. Although any comparison is necessarily qualitative, there are a several reasons why Structured Products may be preferable.

	BONDS	STRUCTURED PRODUCTS
LIQUIDITY	LIQUIDITY MAY BE VERY POOR IF THERE ARE SIGNIFICANT REDEMPTIONS.	LIQUIDITY IS PROVIDED BY THE ISSUER. REPURCHASED BONDS CAN BE DE-MATERIALISED. THERE IS NO REQUIREMENT TO FIND A BUYER
DURATION	BOND VALUES WILL POTENTIALLY BE AFFECTED BY ANY INCREASE IN RATES	INCREASING RATES WILL HAVE A NEGATIVE IMPACT ON THE MARK TO MARKET VALUE OF SOME STRUCTURED PRODUCTS. HOWEVER, THIS IS SHOULD BE MITIGATED BY THE RELATIVELY SHORT EXPECTED TERM TO MATURITY OF MOST PRODUCTS AND THE INCLUSION OF EARLY MATURITY CLAUSES IN NEW PRODUCTS. FOR INVESTORS CONCERNED THAT THERE MAY BE A SUBSTANTIAL INCREASE IN RATES, STRUCTURED PRODUCTS CAN BE DESIGNED TO BENEFIT FROM RISING RATES.
DEFAULT RISK	THERE MAY BE SOME DEFAULTS BY CORPORATE ISSUERS. THIS WILL REDUCE THE INCOME RECEIVED AND THE CAPITAL VALUE	THE RISK THAT AN ISSUE DEFAULTS REMAINS A RISK FOR INVESTORS, HOWEVER THE RISK IS GENERALLY SMALLER THAN IT IS FOR INVESTORS IN HIGH YIELD BONDS.
FUTURE RETURNS	SHOULD INTEREST RATES RISE ACROSS DEVELOPED MARKETS, THE RETURNS FROM BONDS ARE LIKELY TO BE MUCH LOWER THAN WE HAVE EXPERIENCED IN THE PAST.	IPR STRESS TEST PRODUCTS AND BENCHMARK ASSETS. THE STRESS TEST ANALYSIS FROM IPR ALLOWS US TO COMPARE THE RISK/RETURN PROFILE OF STRUCTURED PRODUCTS WITH OTHER ASSETS. THIS ANALYSIS CAN BE USED TO HIGHLIGHT PRODUCTS THAT OFFER A BETTER RISK RETURN PROFILE, AND WHICH EXPAND THE EFFICIENT FRONTIER.

NOTES

CBOE OUT WRITE INDEX

<http://www.cboe.com/products/strategy-benchmark-indexes/putwrite-indexes/cboe-s-p-500-putwrite-index-put>

In June 2007 the Cboe Options Exchange (Cboe) announced that it is beginning to publish daily data on the value of the Cboe S&P 500 PutWrite Index (ticker symbol PUT). PUT is an award-winning benchmark index that measures the performance of a hypothetical portfolio that sells S&P 500 Index (SPX) put options against collateralized cash reserves held in a money market account. The daily historical data for the PUT Index now extends back to June 30, 1986.

The PUT strategy is designed to sell a sequence of one-month, at-the-money, S&P 500 Index puts and invest cash at one- and three-month Treasury Bill rates. The number of puts sold varies from month to month, but is limited so that the amount held in Treasury Bills can finance the maximum possible loss from final settlement of the SPX puts.



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