



# Systematic Russell 2000® Index Option Strategies in Different Volatility Regimes

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Cboe Global Markets introduced the Cboe Russell 2000 BuyWrite Index (BXR<sup>SM</sup>) in 2007 as a method of demonstrating the performance of a systematic strategy using Russell 2000 (RUT<sup>SM</sup>) Index options. Investor interest in RUT option strategies resulted in customers asking how other methods of systematically utilizing RUT options have performed in the past. In response to customer demand Cboe has introduced several more RUT benchmark indexes. Another question that often arises is how do these various RUT benchmarks perform in different volatility environments. This paper is an overview of the performance of a variety of RUT benchmarks and how they may perform in different volatility regimes.

## RUT Benchmarks

The table below is a brief description of the benchmark indexes analyzed for this paper. Each of these benchmarks is rebalanced on the third Friday or standard option expiration date.

Ticker	Name	Strategy
BXR <sup>SM</sup>	Cboe Russell 2000 BuyWrite Index	Sell Monthly ATM RUT Call Long RUT Portfolio
PUTR <sup>SM</sup>	Cboe Russell 2000 PutWrite Index	Sell Monthly ATM RUT Put Cash
BXRD <sup>SM</sup>	Cboe Russell 2000 30-Delta BuyWrite Index	Sell Monthly 30 Delta OTM RUT Call Long RUT Portfolio
CLLR <sup>SM</sup>	Cboe Russell 2000 Zero-Cost Put Spread Collar Index	Long RUT Portfolio Buy 2.5% OTM Monthly RUT Put Sell 5% OTM RUT Put Sell OTM RUT Call

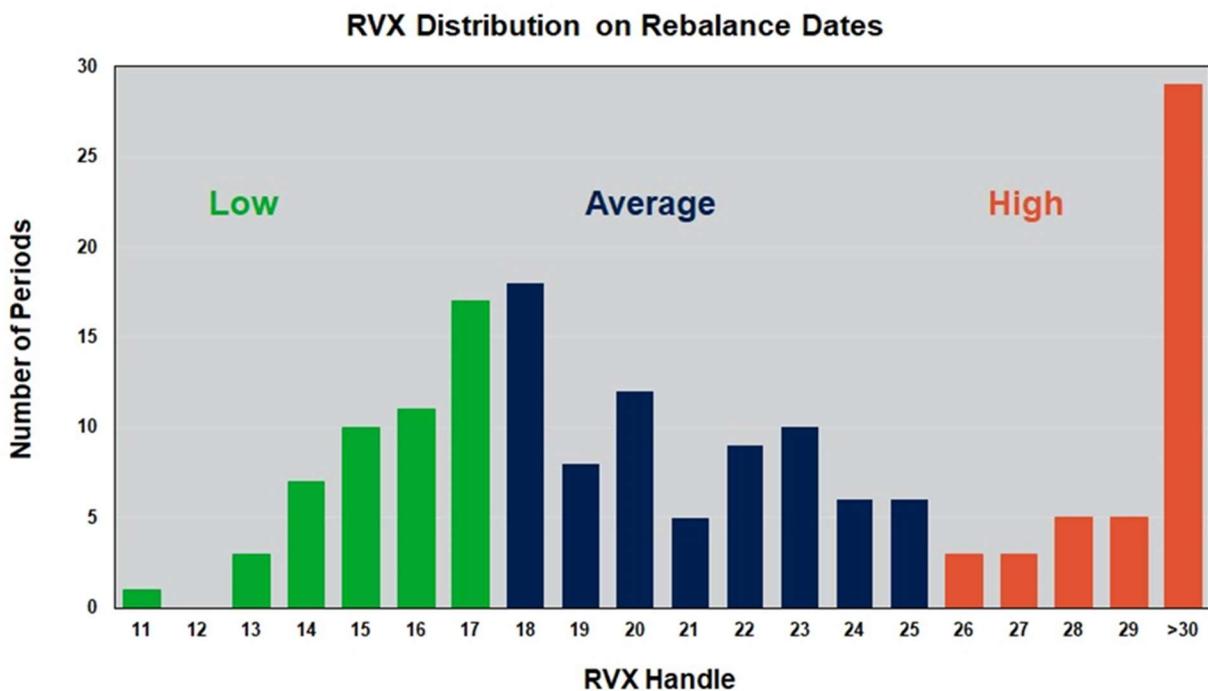
*Source: Cboe Global Markets*

## Volatility Regimes

In this paper the Cboe Russell 2000 Volatility Index (RVX<sup>SM</sup>) is used to define volatility regimes. The level of the RVX Index on the strategy rebalance day is used to define whether we are in a Low, Average, and High volatility environments based on the closing price of the RVX Index on each rebalance date.

A Low regime is defined by a RVX price being under 18, a RVX price between 18 and 26 is considered an Average regime, and a RVX price over 26 is considered High. There are 168 observation periods in this study with 49 falling in the Low regime, 74 in the Average, and 45 qualifying as High. Figure 1 shows the distribution of RVX closing prices on rebalance dates.

Figure 1

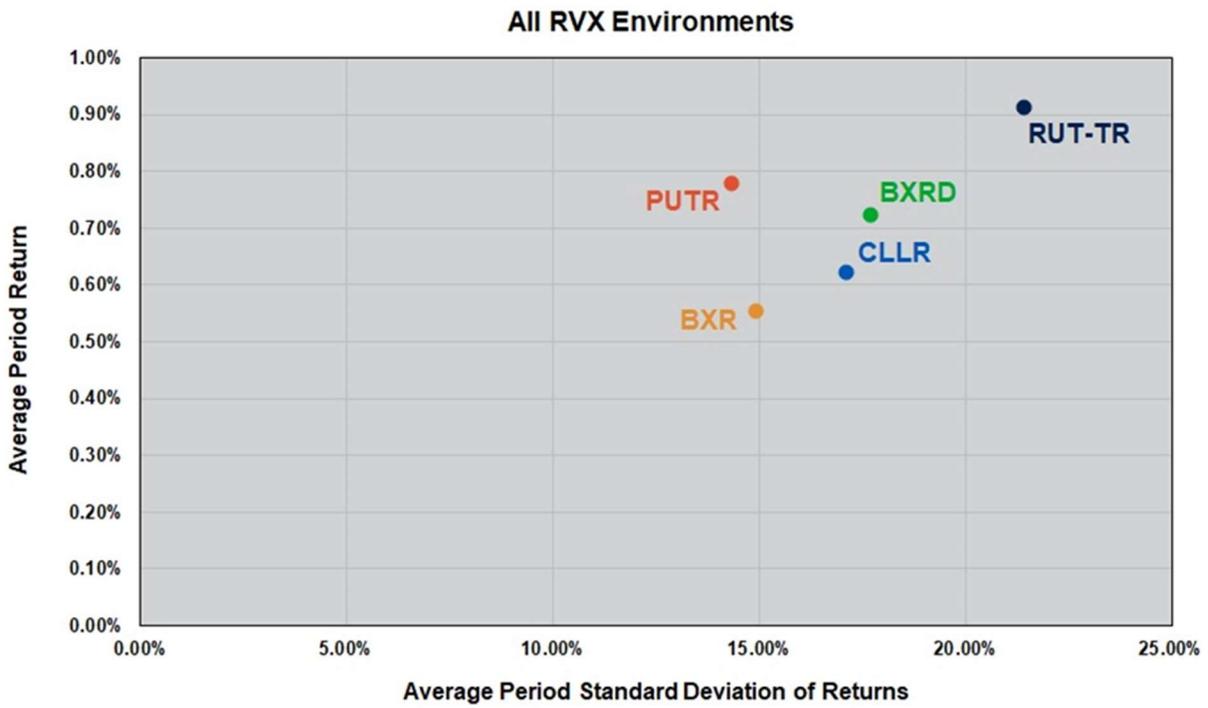


Source: Cboe Global Markets

### Risk - Return

Before dividing returns into Low, Average, and High regimes we take a look at the risk adjusted returns for the Russell 2000 Total Return and the four benchmark indexes covered in this paper over the full period from January 2004 through December 2017. Figure 2 shows the average period returns along with annualized standard deviation of those returns.

Figure 2

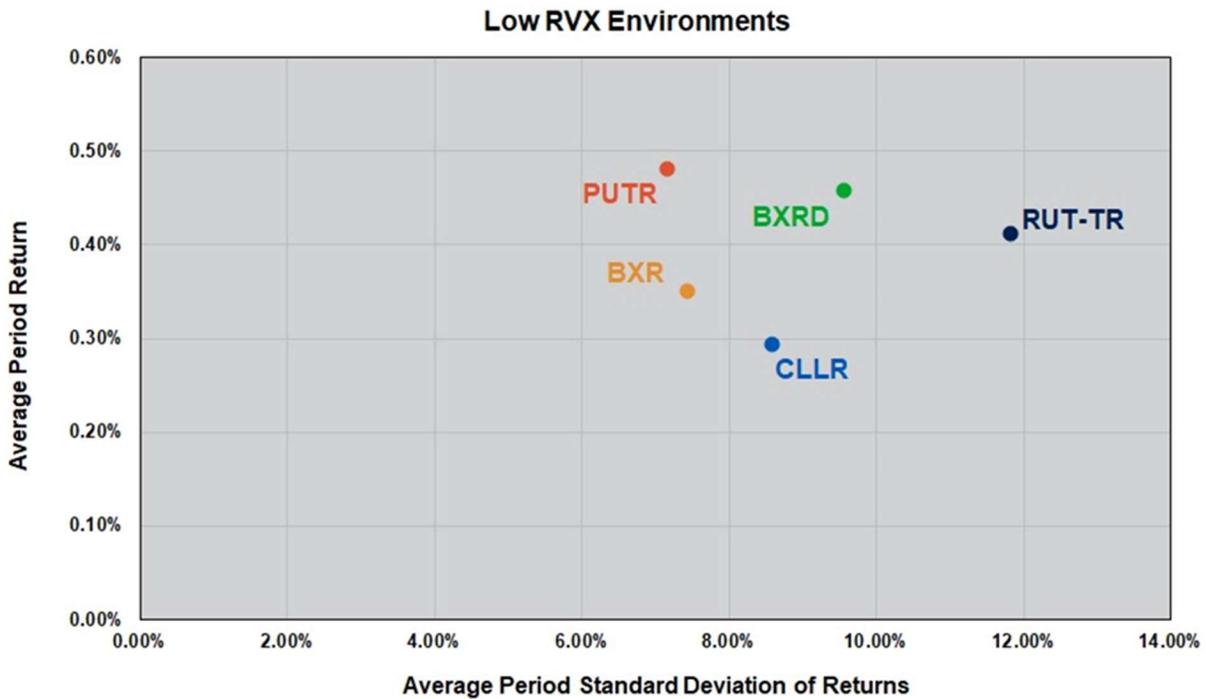


Source: Cboe Global Markets and Bloomberg

The RUT-TR performance is higher than the four benchmarks discussed in this paper. However, the standard deviation of returns for each of the RUT benchmarks is lower than the volatility incurred through holding a Russell 2000 portfolio.

Figure 3 depicts average monthly returns and annualized standard deviation of those returns when the RVX price is below 18 on the date that each of these strategies roll their positions.

Figure 3

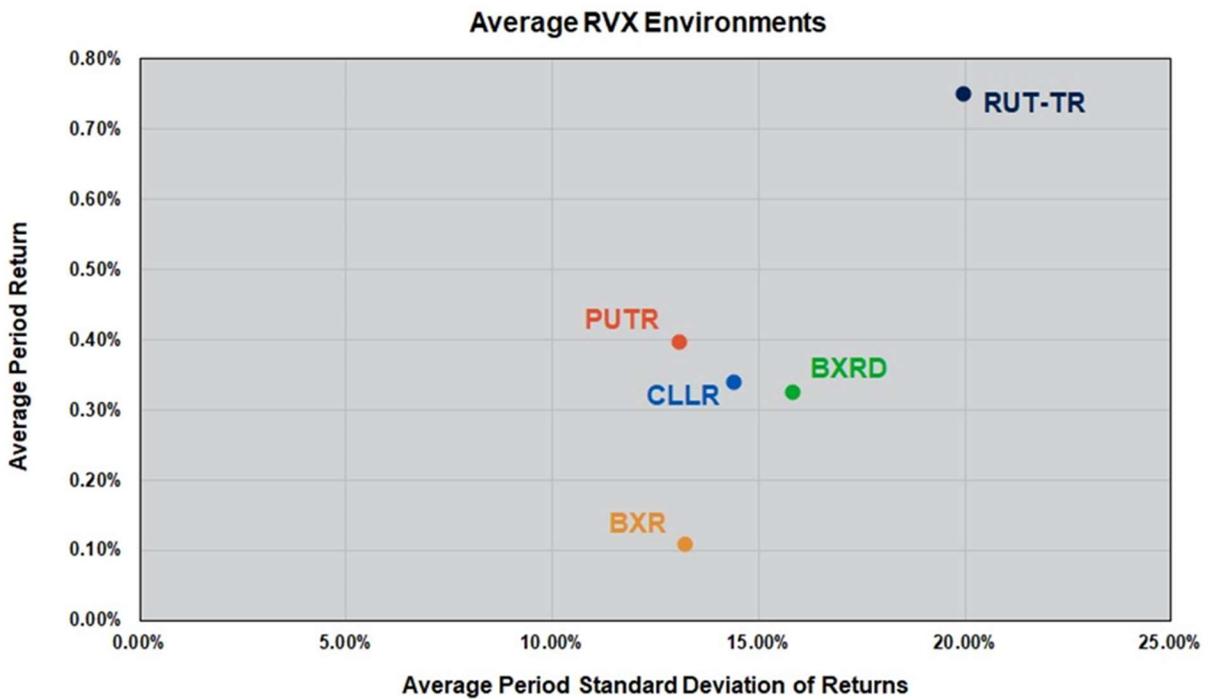


Source: Cboe Global Markets and Bloomberg

In low volatility environments both the BXR Index, which sells a 30 delta RUT call option against a long RUT portfolio, and the PUTR Index, which systematically sells an at the money RUT put option, outperform the RUT-TR. Both achieve this performance while experiencing lower volatility of returns than the Russell 2000 portfolio. PUTR manages an average period return of 0.48% and annualized volatility of 7.41% while the RUT-TR averages 0.41% per period with a standard deviation of returns of 11.81%.

Figure 4 shows the average return and standard deviation of returns for periods when the RVX price was between 18.00 and 26.00 on the roll date.

Figure 4

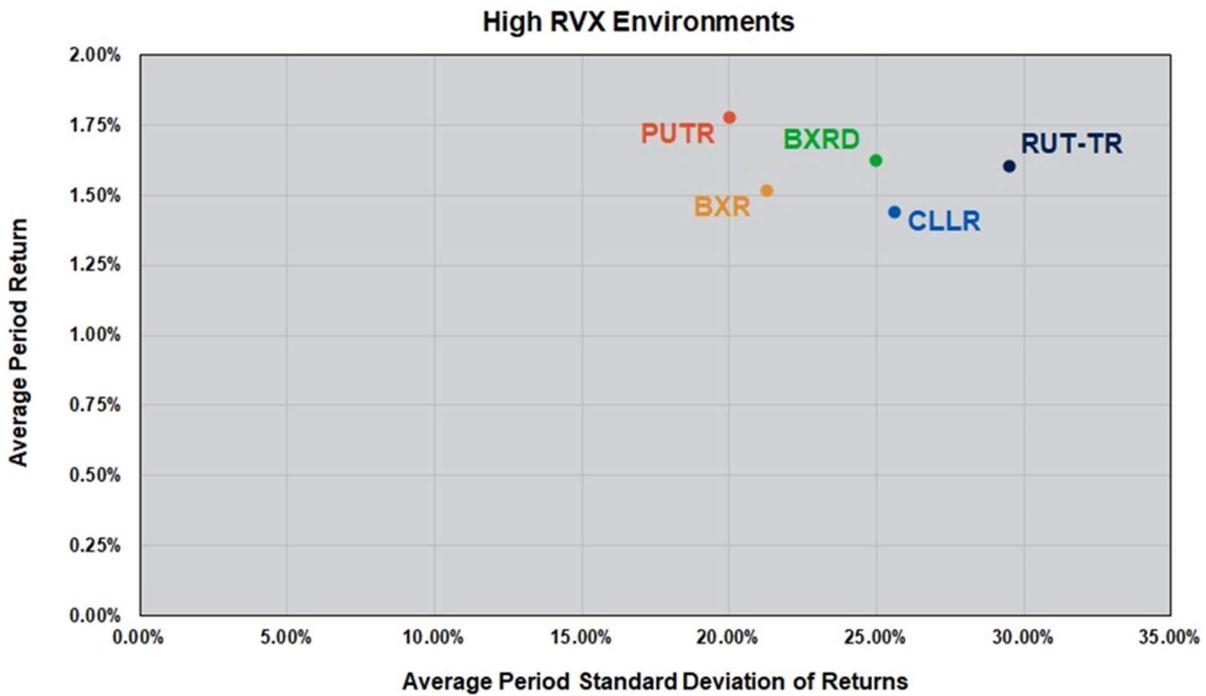


Source: Cboe Global Markets and Bloomberg

A Russell 2000 portfolio outperforms all benchmarks in periods of average volatility. Those returns do come with much higher volatility of returns. The standard deviation of returns for RUT-TR in an average volatility environment is over 20%. The RUT benchmarks experience volatility between 13.05% (PUTR) and 15.82% (BXR).

The final depiction of period performance and the standard deviation of those returns appears in Figure 5. These returns were calculated when RVX was over 26.00.

Figure 5



Source: Cboe Global Markets and Bloomberg

In a high volatility environment both PUTR and BXR outperform the Russell 2000 portfolio. The average period return for the PUTR Index is 1.78% and 1.62% for the BXR Index which compares favorably to 1.60% for the Russell 2000. Annualized volatility of those returns is 20.04% for the PUTR Index and 24.98% for the BXR Index compared to 29.53% for the RUT-TR Index.

### Direct Comparison

The final look at the performance of the Russell 2000 and various option related strategies ranks the average period performance for each of the RVX regimes. Figure 6 is a brief ranking this performance.

Figure 6

	RUT	BXR	PUTR	BXRD	CLLR
<b>Low</b>	0.41%	0.35%	0.48%	0.46%	0.29%
<b>Average</b>	0.75%	0.11%	0.40%	0.33%	0.34%
<b>High</b>	1.60%	1.52%	1.78%	1.62%	1.44%
<b>Key</b>	<b>First</b>	<b>Second</b>	<b>Third</b>	<b>Fourth</b>	<b>Fifth</b>

In a low RVX environment the best performer has been the PUTR Index followed by the BXRD Index. Both outperform the average period performance of a Russell 2000 portfolio.

When the RVX price is between 18.00 and 26.00 on strategy roll dates a Russell 2000 portfolio outperforms each of the Russell 2000 benchmark strategies in this study.

Finally, in a high volatility environment, defined by a RVX price over 26.00, the Cboe Russell 2000 PutWrite Index has the best average period performance followed by BXRD and then a Russell 2000 portfolio.

### About the Author

Russell Rhoads, CFA, is Director, Product Advancement, Global Derivatives at Cboe Global Markets. His career before joining Cboe included positions at a variety of firms including Highland Capital Management, Caldwell & Orkin Investment Counsel, Balyasny Asset Management, and Millennium Management. He is a financial author and editor having contributed to multiple magazines and edited several books for Wiley publishing. He is the author of six market related books including Trading VIX Derivatives, Option Spread Trading, Trading Weekly Options, and Options Strategies for Advisors and Institutions. He authored material to be included in Level II of the CFA program and material for the CMT designation. In addition to his duties at Cboe, he is an adjunct instructor at Loyola University. He is a double graduate of the University of Memphis with a BBA ('92) and an MS ('94) in Finance and also received a Master's Certificate in Financial Engineering from the Illinois Tech in 2003. Russell is currently pursuing a PhD from Oklahoma State University with an expected graduation date in the Summer of 2018. He may be contacted at [rhoads@cboe.com](mailto:rhoads@cboe.com)

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