



Index Methodology

As of December/2015

CBOE Strategy Benchmark Indexes

➤ The CBOE RUSSELL 2000 One-Week PutWrite Index (WPTR)



THE CBOE RUSSELL 2000 One-Week PutWrite Index (WPTR)

Introduction:

The CBOE RUSSELL 2000 One-Week PutWrite Index (WPTRSM Index) is designed to track the performance of a hypothetical passive investment strategy that collects option premiums from writing an At-the-Money (ATM) RUT Put option on a weekly basis and holds a rolling money market account invested in one-month T-bills to cover the liability from the short RUT Put option position.

Index Design:

On March 04, 2011, the initial roll date of the WPTR Index, an ATM one week RUT Put option is written after the market opens (9:30 am ET). The first available RUT Put option strike below the Special Opening Quotation (SOQ) of the RUSSELL 2000® Index is selected. The first bid quote after the market opens is the option premium collected from the written RUT Put option. At the same time, \$K cash is invested in a money market account to cover the liability of the short RUT Put option position, where K is the strike price of the RUT Put option.

Typically, on every Friday (Roll Day) since the initial roll date, the RUT Put option settles and the money market account is liquidated simultaneously. Concurrently, a new ATM RUT Put option (to expire in one week) is written. For the new weekly ATM RUT Put option, the first available RUT Put option strike below the SOQ is selected, and the option premium collected is the first bid quote of the RUT Put option after 9:30 am ET. A money market account with initial cash \$K, where K is the strike price of the new RUT Put option, is set up simultaneously to cover the potential liability of the short RUT Put option position. The money market account will accumulate interest at one-month T-bill rate.

Index Calculation:

The WPTR Index value is calculated by CBOE in real-time, every 15 seconds.

On each trading day excluding roll dates, the daily return of the index is calculated as:

$$R_t = (M_t - Put_t) / (M_{t-1} - Put_{t-1})$$

$$M_t = R_f * M_{t-1}$$

Where M_t and M_{t-1} are the values of the money market account on day t and $t-1$, respectively, R_f is the one-month T-bill rate de-annualized to the daily rate, Put_t is the average of the last bid-ask quote of the RUT Put option before 4:00 pm ET, and Put_{t-1} is the average of the last bid-ask quote of the RUT Put option before 4:00 pm ET on the previous day.

On Roll Days, the calculations are as follows:

First, calculate the return from the previous day market close to morning settlement (9:30 am ET):

$$R_1 = (M_{old\ t-1} - Put_{old\ settle}) / (M_{old\ t-1} - Put_{old\ t-1})$$

Where $Put_{old\ settle} = \text{Max}(0, K_{old} - SOQ_t)$ is the settlement value of the expiring RUT Put option, $Put_{old\ t-1}$ is the average of the last bid-ask quote of the expiring RUT Put option before 4:00 pm ET on the previous day, and $M_{old\ t-1}$ is the value of the money market account on the previous day. Note interest is not accumulated in the money market account on the Roll Day.

THE CBOE RUSSELL 2000 One-Week PutWrite Index (WPTR)

Second, calculate the return from morning settlement to market close:

$$R_2 = (M_{new\ t} - Put_{new\ t}) / (M_{new\ t} - Put_{new\ bid\ 930})$$

Where $M_{new\ t} = K_{new}$ is the cash allocated to cover the potential loss of the new RUT Put option on the Roll Day, $Put_{new\ t}$ is the average of the last bid-ask quote of the new RUT Put option before 4:00 pm ET, and $Put_{new\ bid\ 930}$ is the first bid quote of the new RUT Put option after 9:30 am ET. Note interest is not accumulated in the money market account on the Roll Day.

The product of the two parts is the total return of the Roll Day:

$$R_t = R_1 * R_2$$

Once the daily return is calculated for every trading day, the daily index value is calculated as:

$$INDEX_t = INDEX_{t-1} * R_t$$

Options involve risk and are not suitable for all investors. Prior to buying or selling an option, a person must receive a copy of Characteristics and Risks of Standardized Options. Copies are available from your broker, by calling 1-888-OPTIONS, or from The Options Clearing Corporation, One North Wacker Drive, Suite 500, Chicago, Illinois 60606 or www.theocc.com. THE CBOE RUSSELL 2000 One-Week PutWrite Index (WPTR) is designed to represent a proposed hypothetical yield enhancement strategy. Like many passive indexes, the WPTR Index does not take into account significant factors such as transaction costs and taxes and, because of factors such as these, many or most investors should be expected to underperform passive indexes. In the construction of the hypothetical WPTR index, the RUT options are assumed to be sold at a certain price at a certain time(s) of the month. However, there is no guarantee that all investors will be able to sell at this price, and investors attempting to replicate the WPTR Index should discuss with their brokers possible timing and liquidity issues. Transaction costs and taxes for a strategy such as the WPTR could be significantly higher than transaction costs for a passive strategy of buying-and-holding stocks. Investors should consult their tax advisor as to how taxes affect the outcome of contemplated options transactions. Past performance does not guarantee future results. This paper contains index performance data based on back-testing, i.e., calculations of how the index might have performed prior to launch. Back-tested performance information is purely hypothetical and is provided in this document solely for information purposes. Back-tested performance does not represent actual performance and should not be interpreted as an indication of actual performance. It is not possible to invest directly in an index. Chicago Board Options Exchange, Incorporated (CBOE) calculates and disseminates the WPTR index.

The information in this paper is provided for general education and information purposes only. No statement within this paper should be construed as a recommendation to buy or sell a security or to provide investment advice. The WPTR Index and all other information provided by CBOE and its affiliates and their respective directors, officers, employees, agents, representatives and third party providers of information (the "Parties") in connection with the WPTR Index (collectively "Data") are presented "as is" and without representations or warranties of any kind. The Parties shall not be liable for loss or damage, direct, indirect or consequential, arising from any use of the Data or action taken in reliance upon the Data.

The WPTR methodology is the property of CBOE. CBOE[®], Chicago Board Options Exchange[®] and Execute Success[®] are registered trademarks and PutWrite and WPTRSM are servicemarks of CBOE. Russell 2000[®] is a registered trademark of the Frank Russell Company, used under license. Redistribution, reproduction and/or photocopying in whole or in part are prohibited without the written permission of CBOE.

© 2015 Chicago Board Options Exchange, Incorporated. All rights reserved.