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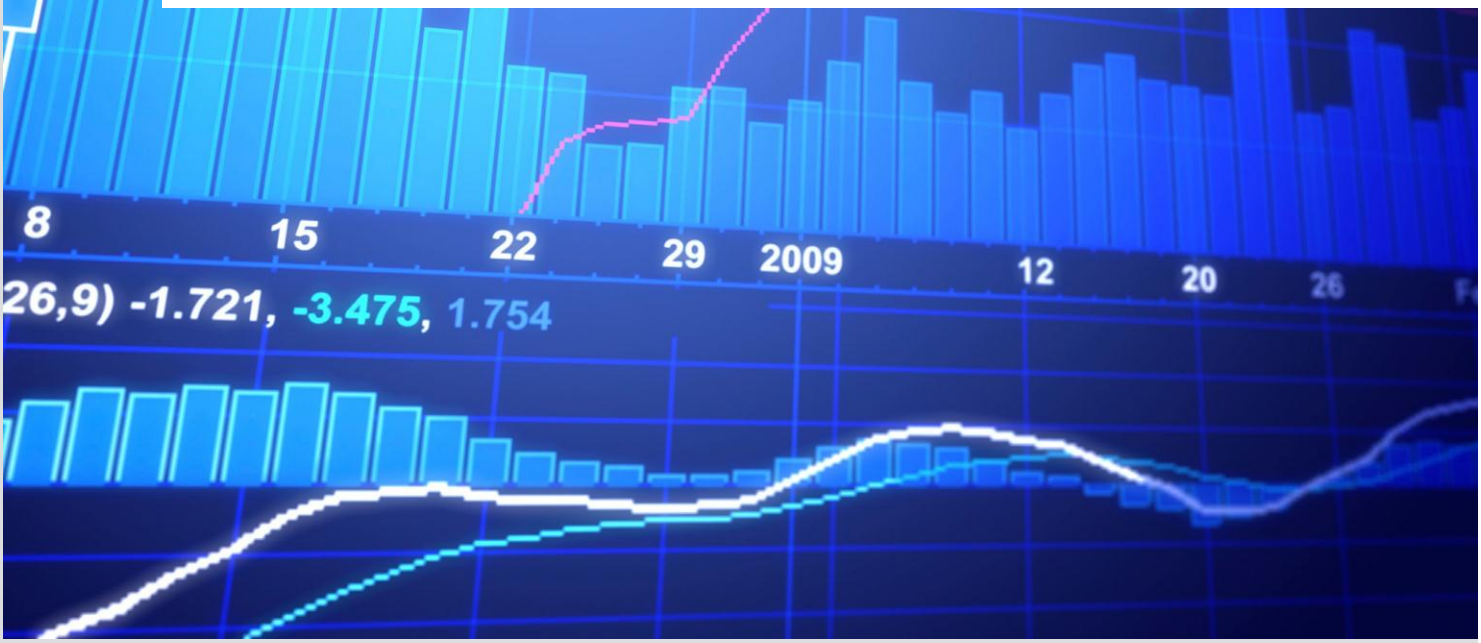
Index Methodology | As of July/2015

CBOE Strategy Benchmark Indexes

The CBOE S&P 500 Conditional BuyWrite Index (BXMC)



THE CBOE S&P 500 Conditional BuyWrite Index (BXMC)

Introduction:

The CBOE S&P 500 Conditional BuyWrite Index (BXMC) is a benchmark index designed to track the performance of a hypothetical covered call strategy. The BXMC Index is similar in design to the CBOE S&P 500 BuyWrite Index (BXM), however the difference in methodology is as follows: if the CBOE Volatility Index (VIX Index) level is greater than or equal to 20 at 9:30 am ET (market open) on the Roll Day (as defined below), the methodology would be a standard covered call strategy, which establishes a long position indexed to the S&P 500 Index (SPX Index) and writes a unit of an At-the-Money (ATM) monthly SPX Call option. If the VIX Index level is below 20 at 9:30 am ET (market open) on the Roll Day, the strategy only writes half a unit of an ATM monthly SPX Call option while the long SPX Index position remains unchanged.

Index Design:

On January 19, 1990, the initial roll date of the BXMC Index, a unit of an ATM monthly SPX Call option is written and a unit of the SPX Index is purchased simultaneously. The BXMC Index is designed to write the ATM SPX Call option as follows: if the VIX Index level at the market open is equal to or above 20, one unit of the SPX Call option is written; however if the VIX Index level at the market open is below 20, only half a unit of the SPX Call option is written. On the initial roll date, the VIX Index level was above 20 so one unit of the SPX Call option was written. The strike of the ATM SPX Call option is the first available strike above the last disseminated value of the SPX Index before 11:00 am ET. The premium collected from writing the SPX Call option is the volume weighted average trade price between 11:30 am and 12:00 pm ET (VWAP). CBOE calculates the VWAP in two steps: first, CBOE excludes trades in the new SPX Call option between 11:30 am and 12:00 pm ET that are identified as having been executed as part of a "spread"; and second, CBOE calculates the weighted average of all remaining transaction prices of the new SPX Call option between 11:30 am and 12:00 pm ET, with weights equal to the fraction of total non-spread volume transacted at each price during this period. If there is no trade in the SPX Call option during the VWAP period, the last bid quote of the SPX Call option before 12:00 pm ET is used. As the long SPX Index position is assumed to be entered into simultaneously with the short position of the SPX Call option, the weighted average price of the SPX Index is calculated using disseminated values of the SPX Index based on the same time and weights used to calculate the SPX Call option VWAP. Similarly, if there is no trade of the SPX Call option during the VWAP period, the last disseminated value of the SPX Index before 12:00 pm ET is used.

Typically, on the third Friday (Roll Day) of every month since the initial roll date, the SPX Call option settlement is at 9:30 am ET against the Special Opening Quotation of the SPX Index (SOQ). The option settlement value is determined as $Call\_old_{settle} = Max(0, SOQ_t - K_{old})$. A new ATM monthly SPX Call option will be subsequently written. Following the same rule as the initial roll date, the unit of the new SPX Call option written would be determined by the VIX Index level at the market open, and the strike of the new SPX Call option would be the first available strike above the last disseminated value of the SPX Index before 11:00 am ET. The premium collected from the SPX Call option would be the VWAP between 11:30 am and 12:00 pm ET, or the last bid quote of the SPX Call option before 12:00 am ET if there is no trade during the VWAP period. The long SPX Index position remains unchanged.

Index Calculation:

The BXMC 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:

$$R_t = (SPX_t + DIV_t - Unit * Call_t) / (SPX_{t-1} - Unit * Call_{t-1})$$

Where SPX_t is the last disseminated value of the SPX Index on day t, DIV_t is the SPX dividend, $Call_t$ is the average of the last bid-ask quote of the SPX Call option before 4:00 pm ET, *Unit* is the unit of the SPX Call option. Unit can be either 1 or 0.5, depending on the VIX Index level at the market open on the last Roll Day when the SPX Call option was written. The terms with subscript *t-1* stand for the values on the previous day.

On Roll Days, the return is calculated in three steps:

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

$$R_1 = (SOQ_t + DIV_t - Unit_{old} * Call\_old_{settle}) / (SPX_{t-1} - Unit_{old} * Call\_old_{t-1})$$

$$Call\_old_{settle} = Max\ (0, SOQ_t - K\_old)$$

Where SOQ_t is the Special Opening Quotation of the SPX Index on the Roll Day, DIV_t is the SPX dividend, $Call\_old_{settle}$ is the settlement value of the expiring SPX Call option, K_old is the strike price of the expiring SPX Call option, and $Call\_old_{t-1}$ is the average of the last bid-ask quote of the SPX Call option before 4:00 pm ET on the previous day. $Unit_{old}$ is the unit of the expiring SPX Call option.

Second, calculate the return from morning settlement (9:30 am ET) to the moment the new SPX Call option position is deemed sold:

$$R_2 = SOQ_t / SPX_{vwap}$$

Where SOQ_t is the Special Opening Quotation of the SPX Index on the Roll Day, SPX_{vwap} is the weighted average value of the SPX Index, calculated using disseminated values of the SPX Index based on the same time and weights used to calculate the new SPX Call option VWAP. Note that if there are no trades of the SPX Call option during the VWAP period, the last disseminated value of the SPX Index before 12:00 pm ET is used.

Lastly, calculate the return from the moment the new SPX Call option is deemed sold to market close:

$$R_3 = (SPX_t - Unit_{new} * Call\_new_t) / (SPX_{vwap} - Unit_{new} * Call\_new_{vwap})$$

Where $Call\_new_{vwap}$ is the VWAP price of the new ATM SPX Call option, $Call\_new_t$ is the average of the last bid-ask quotes of the SPX Call option before 4:00 pm ET, $Unit_{new}$ is the unit of the expiring SPX Call option, $Unit_{new}$ is either 1 or 0.5, depending on the VIX Index level at the market open on the Roll Day, SPX_t is the last disseminated value of the SPX Index on Roll Day t, and SPX_{vwap} is the weighted average value of the SPX Index, calculated using disseminated values of the SPX Index based on the same time and weights used to calculate the new SPX Call option VWAP.

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

$$R_t = R_1 * R_2 * R_3$$

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

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

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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 S&P 500 Conditional BuyWrite Index (BXMC) is designed to represent a proposed hypothetical yield enhancement strategy. Like many passive indexes, the BXMC 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 BXMC index, the BXMC options are assumed to be sold at a certain price on the third Friday 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 BXMC Index should discuss with their brokers possible timing and liquidity issues. Transaction costs and taxes for a strategy such as the BXMC 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 BXMC 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 BXMC 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 BXMC 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.