



NYSE Dynamic U.S. Large Cap Buy-Write Index (NYBW)

Version 1.1
Valid from
October 30, 2016

Table of contents

Version History:.....	1
1. Index summary	2
2. Governance and disclaimer.....	3
3. Publication	4
3.1 The opening, intraday and closing or daily publication of index values.....	4
3.2 Exceptional market conditions and corrections	5
3.3 Announcement policy	5
4. Calculation	7
4.1 Calculation of the price index	7
4.2 Currency Conversion	7
5. Index reviews.....	8
5.1 General aim of reviews and frequency	8
5.2 Index selection and weighting principles	8
6. Corporate Actions.....	10
6.1 General.....	10
6.2 Removal of constituents.....	10
6.3 Dividends	10
6.4 Bonus issues, stock splits and reverse stock splits.....	10
6.5 Changes in number of shares	11
7. Index Formula.....	12
7.1 Index calculation formula	12

Version History:

Version 1.1 (Effective October 30, 2016)

This version was released to incorporate name change to NYSE Dynamic U.S. Large Cap Buy-Write Index (NYBW) and change reference time for 50 DMA and 200 DMA to 9:00am ET.

Version 1.0 (Effective October 15, 2015)

This version was released to support the launch of a new index, the NYSE Enhanced Buy-Write Index (NYBW).

1. Index summary

Factsheet	
<i>Full Names</i>	NYSE Dynamic U.S. Large Cap Buy-Write Index (NYBW)
<i>Index Types</i>	Total Return: NYSE Dynamic U.S. Large Cap Buy-Write Index (NYBW)
<i>Index Description</i>	The NYSE Dynamic U.S. Large Cap Buy-Write Index (NYBW) measures the total rate of return of a hypothetical covered call strategy applied to the SPDR S&P 500 ETF (SPY). This strategy consists of a hypothetical portfolio consisting of a long position in SPY upon which successive one-week SPY call options are sold each week.
<i>Eligible Components</i>	SPDR S&P 500 ETF (SPY) SPDR S&P 500 ETF (SPY) weekly call options
<i>Number of Constituents</i>	(2) - SPDR S&P 500 ETF (SPY) / SPDR S&P 500 ETF weekly call option
<i>Weighting</i>	The index will always maintain 100% exposure to the SPDR S&P 500 ETF (SPY), with an equivalent notional amount being written in a SPDR S&P 500 ETF weekly call option.
<i>Weekly Review of Composition</i>	Conducted based upon SPDR S&P 500 ETF (SPY) 50- and 200-Day Moving Averages as of 9:30 AM ET on each Friday - If there is a U.S. equity markets holiday, then the review is conducted on the prior trading day - If there is an early closing at 1:00 PM ET for the U.S. equity markets, then the review is conducted at 11:00 AM ET on that day
<i>Effective Date of the Weekly Review</i>	Reallocation to the newly determined SPDR S&P 500 ETF (SPY) weekly call option is conducted based on the VWAP of the old and new contracts between 2:30 and 3:30 PM ET, or, if an early closing day for the U.S. equity markets, between 11:30 AM and 12:30 PM ET – Resulting gain or loss from options roll is reinvested into SPY at the official closing price from the same weekly review day
<i>Calculation Frequency</i>	Total Return: 15 seconds between 09:30 & 18:00 ET
<i>Base Date</i>	October 9, 2015
<i>Base Level</i>	1000.00
<i>Historic Data Available Since</i>	June 30, 2010
<i>Derivatives and Linked Products</i>	
<i>Bloomberg Code</i>	NYBW INDEX
<i>Reuters Code</i>	.NYBW
<i>Launch Date</i>	October 15, 2015

2. Governance and disclaimer

Index Sponsor & Calculation Agent

NYSE[®] Group, Inc. is the Index Sponsor. NYSE[®] Arca[®] is the Index Calculation Agent on behalf of NYSE[®] Group, Inc.

The NYSE[®] Arca[®] Index Committee is responsible for the day-to-day management of the index and is also responsible for decisions regarding the interpretation of these rules. The Index Committee reviews all rule book modifications and index constituent changes to ensure that they are made objectively and without bias. NYSE[®] Arca[®] believes that information regarding rule book modifications and index constituent changes is material and can have an impact on the market. Consequently, all index committee discussions and decisions are confidential.

The index was developed in association with T3 Index, a research-driven financial indexing firm specializing in volatility and options benchmarking.

Cases not covered in rules

In cases which are not expressly covered in these rules, operational adjustments will take place along the lines of the aim of the index. Operational adjustments may also take place if, in the opinion of the calculation agent, it is desirable to do so to maintain a fair and orderly market in derivatives on this index and/or this is in the best interests of the investors in products based on the index and/or the proper functioning of the markets.

Rule book changes

The Index Committee reviews all rule book modifications and index changes to ensure that they are made objectively and without bias. These rules may be supplemented, amended in whole or in part, revised or withdrawn at any time. Supplements, amendments, revisions and withdrawals may also lead to changes in the way the index is compiled or calculated or affect the index in another way.

Liability

NYSE[®] Arca[®] is not liable for any losses resulting from supplementing, amending, revising or withdrawing the Rules for the index. The calculation agent will do everything within its power to ensure the accuracy of the composition, calculation, publication and adjustment of the index in accordance with relevant rules. However, NYSE[®] Arca[®] is not liable for any inaccuracy in share prices, calculations and the publication of the index, the information used for making adjustments to the index and the actual adjustments. Furthermore, NYSE[®] Arca[®] does not guarantee nor the continuity of the composition of the index, nor the continuity of the calculation of the index, nor the continuity of the dissemination of the index levels.

Ownership and trademarks

Intercontinental Exchange, Inc. (ICE) owns all intellectual and other property rights to the Index, including the name, the composition and the calculation of the Index. NYSE[®], NYSE Arca[®] and NYSE Group, Inc. are registered trademarks of ICE's subsidiaries.

3. Publication

3.1 *The opening, intraday and closing or daily publication of index values.*

Opening

The first index level is calculated and published around 09:30 ET, when the U.S. equity markets open for their regular trading session. The calculation of that level utilizes the most updated prices or quotes available at that moment. In the case of the SPDR S&P 500 ETF (SPY) having a non-traded, halted or suspended status, or not having opened for the current day, the previous day's primary exchange official closing price is utilized. In the case of the SPY weekly option having a halted or suspended status, or not having opened for the current day, the previous day's reference price is utilized (the 4 PM bid/ask midpoint).

Dissemination frequency

The level of the index is in principle published every 15 seconds to the NYSE[®] Global Index Feed (NYSE[®] GIF). The calculated index levels incorporate the latest traded price of the SPDR S&P 500 ETF (SPY) and the latest bid/ask midpoint of the SPY weekly options contract from within the regular trading session, normally 09:30 to 16:00 ET. Intraday calculations of the index would incorporate SPY trades and SPY weekly option quotes on a consolidated level, from all exchanges including those not designated as the official primary exchange.

The index is calculated from 09:30 until 18:00 ET on those days specified as index business days. Index business days will be classified as days on which the U.S. Equity Markets (NYSE[®], NASDAQ, NYSE[®] MKT) are open for a full or partial day of trading. On most days, the index close will be available shortly after 16:00 ET.

Closing level

The closing level is the last level disseminated on the trading day and uses the official close price from the primary listing market for the SPDR S&P 500 ETF (SPY), NYSE Arca. If SPY has a non-traded, halted or suspended status, or has not opened for the current day, the previous day's primary exchange official closing price is utilized instead.

The closing index level also utilizes the 4 PM bid/ask midpoint for the SPY weekly options contract. In the case of the SPY weekly option having a halted or suspended status, or not having opened for the current day, the previous day's reference price is utilized (the 4 PM bid/ask midpoint). In the case of exceptional market conditions, the Index calculation agent reserves the right to utilize other prices in the calculation of the official closing level, as indicated below in Section 3.2.

Sources of Data

The Consolidated Tape (CTS/UDTF) is the primary market data source for U.S. equity realtime and closing prices. The Options Price Reporting Authority (OPRA) feed is the primary market data

source for U.S. options realtime and closing quotes. Additional sources of data less commonly used include other market data vendors, company announcements, exchange announcements, and other official sources.

3.2 Exceptional market conditions and corrections

The calculation agent retains the right to delay the publication of the opening level of the index. Furthermore, the calculation agent of the index retains the right to suspend the publication of the level of the index if it believes that circumstances prevent the proper calculation of the index.

If index constituent prices are cancelled, the index will not be recalculated unless the calculation agent decides otherwise.

Commercially reasonable efforts are made to ensure the correctness and validity of data used in real-time index calculations. If incorrect price or corporate action data affects index daily highs, lows, or closes, it is corrected retroactively as soon as possible.

There is the possibility of an exchange or market-wide event resulting in the normal closing auction not going off or official closing prices not being available. In those situations, the index will take guidance from the respective exchange(s) and address on an event-by-event basis. Exchange or market-wide events include, but are not limited to, the following:

- Volatility Halts
 - LULD (Limit Up / Limit Down)
 - Market Wide Circuit Breaker
- Technological Problems / Failures
- Natural Disaster or Other BCP-Related Event

Please note that in the case of an LULD (Limit Up / Limit Down) halt near the close, there is still a closing auction, and Arca produces an “M” sales condition otherwise, which is disseminated via feeds or other methods to the public.

3.3 Announcement policy

Announcement policy

Changes to the index composition or methodology will be announced by an index announcement which will be distributed via www.nyxdata.com and <ftp2.nyxdata.com>.

As a general rule the announcement periods that are mentioned below will be applied. However, urgently required corporate action treatments, often resulting from late notices from the relevant company or exchange, may require the calculation agent to deviate from the standard timing.

Inclusion of new constituents

The inclusion of a new short position in a SPDR S&P 500 ETF (SPY) weekly call option within the index will typically only occur during the weekly reviews. The inclusion of that new options contract will be announced after the determination time (typically 2 PM ET) on the effective date of

the actual inclusion. For example, for the weekly review effective for October 16, 2015, the announcement would occur after 2 PM ET on that same day, October 16, 2015.

Removal of Constituents

The removal of a short position in a SPDR S&P 500 ETF (SPY) weekly call option within the index (buying it back) will typically only occur during the weekly reviews. The removal of that new options contract will be announced after the determination time (typically 2 PM ET) on the effective date of the actual inclusion. For example, for the weekly review effective for October 16, 2015, the announcement would occur after 2 PM ET on that same day, October 16, 2015.

Corporate actions

In case of an event that could affect one or more constituents, the calculation agent will inform the market about the intended treatment of the event in the index shortly after the firm details have become available and have been confirmed. When possible, the corporate action will be announced, even if not all information is known, at least one trading day before the effective date of the action. Once the corporate action has been effectuated, the calculation agent will confirm the changes in a separate announcement.

Rule changes

Going forward, barring exceptional circumstances, a period of at least two months should pass between the date a proposed change is published and the date it goes into effect. Exceptions can be made if the change is not in conflict with the interests of an affected party, which specifically includes external parties that license the index for a tracking product.

4. Calculation

4.1 Calculation of the price index

The index is calculated on a Total Return basis. The current index level would be calculated by dividing the current modified index market capitalization by the index divisor. The divisor was determined off of the initial capitalization base of the index and the base level. The divisor is updated as a result of corporate actions and composition changes.

The Total Return calculation incorporates regular cash dividends for the SPDR S&P 500 ETF (SPY) paid and reinvests those distributions back into the ETF before the open on the ex-date.

4.2 Currency Conversion

The index is calculated and published in USD. The index calculation agent reserves the right to create, calculate, and publish the index in other currencies as required.

5. Index reviews

5.1 General aim of reviews and frequency

General aim of the weekly review

The general aim of the weekly review of the index is to ensure that the selection and weighting of the relevant short SPDR S&P 500 ETF (SPY) weekly call option continues to reflect as closely as possible the index's goal of intelligently selecting a strike price depending on the expected move in the SPY ETF price, while trying to maximize the premium received. The calculation agent reserves the right to, at any time, change the SPY weekly call option shorted, if in the calculation agent's discretion such substitution is necessary or appropriate to maintain the quality and/or character of the index.

Frequency

Changes to the SPDR S&P 500 ETF (SPY) weekly call option occur once a week on either Friday, or, if not an index business day, the prior trading day. The exact SPY weekly call option to be shorted is determined at 9:30 AM ET and the writing of the option is conducted off of the VWAP between 2:30 and 3:30 PM ET. The corresponding gain or loss from the roll of the option is reinvested back into SPY at the primary exchange official closing price of that weekly review day.

On days where the U.S. equity markets close early due to holiday, all times above would be shifted earlier by 3 hours.

5.2 Index selection and weighting principles

Weekly Review

The weekly review process is conducted as follows:

1. The weekly review date is determined as either the Friday of the week, or, if not an index business day, then the prior trading day. All times laid out below would be moved up by 3 hours if that day is an early closing day for the U.S. equity markets due to holiday.
2. At 9:30 AM ET, the 50-day and 200-day moving averages are calculated for the SPDR S&P 500 ETF (SPY). The moving averages utilize dividend- and split-adjusted closing prices to remove the effect of distributions. They also include the SPY price as of 9:30 AM ET on the day of the weekly review. For all other days, the official primary exchange official closing price is utilized.
3. The choice of which SPDR S&P 500 ETF (SPY) weekly call option to sell is based on a simple moving average crossover rule, which is a well-understood indicator of whether the market is likely to rise or fall and has been analysed for many decades.
4. If the 50-day moving average is lower than the 200-day moving average, suggesting the market is likely to go down, then the call option with a strike price closest to 98% of the 9:30 AM ET SPY last trade is selected.

5. If the 50-day moving average is higher than the 200-day moving average, suggesting the market is likely to go up, then the call option with a strike price closest to 102% of the 9:30 AM ET SPY last trade is selected instead.
6. The options roll occurs at the VWAP (volume-weighted average price) of both the outgoing and incoming options between 2:30 and 3:30 PM ET.
7. The short position in the expiring SPY weekly options contract that the index has exposure to is bought and closed out based on this VWAP price.
8. A new short position in the next-week SPY weekly options contract at the strike as determined above is written, also based on the VWAP logic above.
9. The number of contracts of the relevant SPY weekly option to be written is determined with the goal of selling it against the total value of the index portfolio as of 9:30 AM ET, including the long SPY position and the short SPY call option. The number of contracts is determined by dividing the notional value of the portfolio by the SPY last trade as of 9:30 AM ET, all divided by the option multiplier, which is always 100.
10. The resulting gain or loss from the closing out (buying back) of the expiring SPY weekly option and writing (selling short) of the new SPY weekly option is used to adjust the SPY shares held within the index, effective after the close and based off of the SPY primary exchange official closing price on that day. (primary exchange being NYSE Arca)
11. Since SPY options expire on Friday afternoons, selling the new weekly position on Friday will result in the portfolio holding a naked short call position for a period of time. To prevent that from happening, the strategy will simultaneously buy back the expiring call options while selling new options for the next expiration date. Hence the index is effectively rolling the short call position forward.

6. Corporate Actions

6.1 General

The index may be adjusted in order to maintain the continuity of the index level and the composition. The underlying aim is that the index continues to reflect as closely as possible the index's goal of intelligently selecting a strike price depending on the expected move in the SPY ETF price, while trying to maximize the premium received.

Adjustments take place in reaction to events that occur with constituents in order to mitigate or eliminate the effect of that event on the index performance.

6.2 Removal of constituents

The SPDR S&P 500 ETF (SPY) position within the index will never be removed from the composition. The relevant SPY weekly call options position will be removed every week, as part of the regular weekly review and rolling process.

6.2.1 Price sources

In the event that the trading in shares is suspended or halted, the last known price of SPY established during regular daytime trading on the primary exchange will be used. Depending on the particular situation, the Index Calculation agent may choose to value the SPY ETF or SPY ETF weekly call option at a custom, evaluated price for purposes of index calculation and/or weekly review and roll. This would be applicable for certain extreme cases and would be assessed as they arise.

6.3 Dividends

6.3.1. Distinction ordinary and special dividend

The main total return index will be adjusted for dividends in SPY that are both regular and special in nature, typically through a price adjustment and corresponding share increase in that SPY position. The reinvestment occurs before the open of trading on the ex-date of the dividend. The divisor will be adjusted to account for any changes in the overall index market capitalization.

6.4 Bonus issues, stock splits and reverse stock splits

For bonus issues, stock splits and reverse stock splits, the number of shares included in the index will be adjusted in accordance with the ratio given in the corporate action. Since the event will also incorporate a corresponding price adjustment and won't change the value of the company included in the index, the divisor will not be changed because of this.

6.5 *Changes in number of shares*

Changes in the number of shares outstanding of SPY, typically due to creations or redemptions, will not be reflected in the index.

7. Index Formula

7.1 Index calculation formula

The general formula for the **main total return version** of the Index is:

$$\text{Index}_t = \frac{1}{D_t} \times \left[\left(\sum_i P_{i,t} Q_{i,t} \right) + O_t \right]$$

Where:

t means Index Calculation Date t

D_t means the Index divisor on Index Calculation Date t

$P_{i,t}$ means the price of Index Constituent i (SPY) on Index Calculation Date t

$Q_{i,t}$ means the number of shares of Index Constituent i (SPY) on Index Calculation Date t

O_t means the current gain or loss of the SPY weekly options position on Index Calculation Date t

Index Calculation Date means a U.S. Business Day where all the U.S. equity markets are open.

For the **total return version** of the Index, the number of shares of SPY are adjusted before the open of each Index Constituent's ex-date to take into account the reinvestment of the related dividend.

For any **currency variant** of the Index, the current USD level of the Index will be multiplied by the ratio of the current USD FX rate divided by the USD FX rate as of the Index base date.