

April 2015 Supplement to Characteristics and Risks of Standardized Options

The February 1994 version of the booklet entitled *Characteristics and Risks of Standardized Options* (the "Booklet") is amended as provided below to accommodate the introduction of options on foreign currency indexes and the introduction of implied volatility options whose exercise settlement value is calculated differently than that of existing implied volatility options.

1. *The first three paragraphs in Chapter IV appearing on page 23 of the Booklet under the caption "About Indexes," as amended by the June 2008, December 2009 and March 2011 Supplements, are replaced by the following paragraphs:*

As referred to in this booklet, an index is a measure of the prices or other attributes of a group of securities* or other interests. Indexes have been developed to cover a variety of interests, such as stocks and other equity securities, debt securities and foreign currencies, and even to measure the cost of living. The following discussion relates to (i) indexes on equity securities (which are called stock indexes in this booklet), (ii) indexes intended to measure the implied volatility, or the realized variance or volatility, of specified stock indexes or specified securities (which are collectively called variability indexes in this booklet), (iii) strategy-based indexes, such as indexes measuring the return of a particular strategy involving the component securities of a stock index and options on that index, (iv) indexes intended to measure the stock price changes of the component securities of underlying indexes that result solely from the distribution of ordinary cash dividends, as calculated on their respective ex-dividend dates (which are called dividend indexes in this booklet), (v) relative performance indexes, which are a special type of strategy-based indexes that measure the relative performance over a given time period of one index component to another index component, (vi) indexes on foreign currencies (which are called foreign currency indexes in this booklet), and (vii) options on the above indexes (including binary index options and range options).

Stock indexes are compiled and published by various sources, including securities markets. A stock index may be designed to be representative of the stock market of a particular nation as a whole, of securities traded in a particular market, of a broad market sector (e.g., industrials),

* Some indexes reflect values of companies, rather than securities, by taking into account both the prices of component securities and the number of those securities outstanding.

or of a particular industry (e.g., electronics). A stock index may be based on securities traded primarily in U.S. markets, securities traded primarily in a foreign market, or a combination of securities whose primary markets are in various countries. A stock index may be based on the prices of all, or only a sample, of the securities whose prices it is intended to represent. Like stock indexes, variability indexes, strategy-based indexes, dividend indexes and relative performance indexes are securities indexes. However, variability indexes may measure the implied volatility of an index, using the premiums for series of options on that index, or may measure the historical variance or volatility of the returns of an index using daily returns over a certain period assuming a mean daily return of zero. Strategy-based indexes measure the return of a particular strategy involving the component securities of an index and options on that index. Dividend indexes measure the stock price changes of the component securities of underlying indexes that result solely from the distribution of ordinary cash dividends, as calculated on their respective ex-dividend dates. Relative performance indexes measure the performance of two index components relative to one another over a period of time. While a foreign currency index is not an index of securities, options on foreign currency indexes trade on securities exchanges like options on securities indexes. The foreign currency indexes discussed in this booklet are designed to reflect the value of a single currency, often the U.S. dollar, against a basket of foreign currencies. In this booklet options on variability indexes are referred to generically as variability options, options on strategy-based indexes are referred to as strategy-based index options, options on dividend indexes are referred to as dividend index options, options on relative performance indexes are referred to as relative performance options, and options on foreign currency indexes are referred to as foreign currency index options.

Information relating specifically to the various types of indexes appears below under the captions “Stock Indexes,” “Variability Indexes,” “Strategy-based Indexes,” “Dividend Indexes,” “Relative Performance Indexes” and “Foreign Currency Indexes.”

2. *The sixth and seventh paragraphs under the caption “Variability Indexes” in Chapter IV, which are part of the discussion that was added on page 25 of the Booklet by the December 2009 Supplement and were amended by the March 2011 Supplement, are replaced by the following paragraph:*

There are various methods of estimating implied volatility, and different methods may provide different estimates. Under the method that is used for volatility options that are traded at the date of this Supplement, implied volatility index values are calculated using premium values of certain series of options on the reference interest in expiration months or weeks that are selected and weighted

to yield a measure of the volatility of the reference interest over a specified future time period. For some volatility options, the premium values used in the calculation are for out-of-the-money options series; for other volatility options, they are for hypothetical at-the-money options series. For example, an implied volatility index that is calculated using one of these methods and that is designed to provide a prediction of volatility over 30 calendar days is based on premium values of at-the-money options series on the reference interest expiring in the two nearest months with at least 7 calendar days left to expiration. Implied volatility index values will be affected by any factor that affects the component options series of the index, including, among other things, applicable laws, regulations and trading rules, the market-making and order processing systems of the markets on which the options are traded, and the liquidity and efficiency of those markets.

Implied volatility options that are described in this Supplement are European-style and "A.M.-settled," which means that the exercise settlement values are derived from opening values of the component put and call options. For one type of implied volatility option, the exercise settlement value is calculated from *actual opening premium prices* of the relevant series of options on the reference interest or, if the option has no opening trades, the mid-point between the bid and offer premium quotations. For another type of implied volatility option, the exercise settlement value is calculated from the *mid-point of the bid and offer premium quotations* for the relevant series of options on the reference interest as determined at the opening of trading. For both types of implied volatility options, all other index values for each of these implied volatility indexes are calculated using the *mid-points of the bid and offer premium quotations* of the options series that comprise the index. (Since these index values are based on quotations they are sometimes referred to as "indicative values.")

3. *The following caption and paragraphs are added to Chapter IV of the Booklet immediately following the section captioned "Relative Performance Indexes," which is part of the discussion that was added on page 25 of the Booklet by the March 2011 Supplement:*

FOREIGN CURRENCY INDEXES

Foreign currency indexes are designed to reflect the value of one currency, often the U.S. dollar, against a basket of foreign currencies. Foreign currency indexes are calculated using exchange rates, i.e., the prices of currencies in terms of other currencies. An exchange rate is often expressed as a currency pair (e.g., the price of euros in terms of U.S. dollars is expressed as EUR/USD). In a currency pair, the first currency is called the base currency and the second currency is called the quote currency. The exchange rate for a currency pair is how much of the quote currency is needed to purchase one unit of the base currency. Different foreign currency indexes are calculated in

different ways. Accordingly, there may be situations in which foreign currency indexes are based on the same component currency pairs but rely on different sources of exchange rate data or measure the relevant exchange rates differently because of differences in methods of calculation or weighting. A foreign currency index may be designed so that each component currency pair is weighted equally or weighted to conform to another static or dynamic benchmark as determined by the index provider. A foreign currency index, like a stock index, is ordinarily expressed in relation to a “base” established when the index was originated.

EXAMPLE: On the starting or “base” date of a new foreign currency index representing a basket of four currency pairs measured against the U.S. dollar — e.g., the price of euros in terms of U.S. dollars is expressed as EUR/USD, the price of British Pounds in terms of U.S. dollars is expressed as GBP/USD, the price of U.S. dollars in terms of Japanese yen is expressed as USD/JPY and the price of Australian dollars in terms of U.S. dollars is expressed as AUD/USD — the index may be set to be equally weighted so that each component currency pair has equal influence on the overall index value. This may be accomplished by assuming a \$10,000 position in each component currency pair. The index value would be calculated by multiplying (or dividing, in the case of a USD/JPY currency pair) each currency pair position by the spot exchange rate for the currency pair. The value, in dollars, of each foreign currency would be deducted from \$20,000. This method is used in order to effectively invert the value of the currency pair, so that the index value will increase when the value of the U.S. dollar increases and decrease when the value of the U.S. dollar decreases. The sum of the resulting differences would be divided by the “divisor.” The divisor is a number that is fixed on the base date — in this example, four — selected so that the index value on the base date equals 10,000. Accordingly, if the value of the U.S. dollar against the Euro increases by 2% the next day (*i.e.*, the value of the EUR/USD position decreases to \$9,800 from \$10,000, which subtracted from \$20,000 equals \$10,200), while the GBP/USD, USD/JPY and AUD/USD exchange rates remained the same, the index level would rise to 10,050 $((10,200 + 10,000 + 10,000 + 10,000)/4)$.

The base of the foreign currency index may be adjusted from time to time if certain “rebalancing events” occur, as determined by the index provider. An index might be structured so that it is not rebalanced unless the exchange rate for one of the component currency pairs drops by more than 90% from its original base or upon the occurrence of extraordinary events in the global currency markets. Adjustments in the base level of an index or other similar changes are within the discretion of the publisher of the index and will not ordinarily cause any adjustment in the

terms of outstanding index options. However, OCC has authority to make adjustments if the publisher of the underlying index makes a change in the index's composition or method of calculation that, in OCC's determination, may cause significant discontinuity in the index level.

4. *The third full paragraph on page 26 of the Booklet, as amended by the December 2009 Supplement, is replaced with the following paragraph:*

With some exceptions, such as those noted above with regard to mutual fund indexes, certain foreign stock indexes, realized variance and realized volatility indexes, and dividend indexes, the values of indexes are ordinarily updated throughout the trading day. Investors may determine current index levels from their brokerage firms; in addition, the closing levels of many underlying stock indexes are published in daily newspapers such as "The Wall Street Journal." However, an index option may be traded in the options markets at a time when some, or even a substantial portion, of the components of the underlying index are not trading or when there is a lag in the reporting of prices in some or all of the components. Information regarding the method of calculation of any index on which options are traded, including information concerning the standards used in adjusting the index, adding or deleting components of the index, and making similar changes, and on any modification of the index in determining the underlying value for the options, is generally available from the options market where the options are traded.

5. *The last full paragraph on page 27 of the Booklet, as amended by the December 2009 Supplement, is replaced with the following paragraph:*

The exercise settlement values of options on securities indexes are determined by their reporting authorities in a variety of ways. The exercise settlement values of some index options are based on the reported level of the underlying index derived from the last reported prices of the component securities of the index at the closing on the day of exercise. The exercise settlement values of other options are based on the reported level of the index derived from the opening prices of the component securities on the day of exercise. Other means for determining the exercise settlement values of some index options series have been, and may continue to be, established. For example, the exercise settlement values for options on an index of foreign securities may be fixed in relation to a value fixed by a foreign exchange. Additionally, some implied volatility options calculate the exercise settlement value by utilizing the *mid-point of the bid and offering premium quotations* at the opening of trading of the relevant series of the put and call options on the reference interest. If an option is exercised on a day that is not scheduled as a trading day for the component securities of the index, the exercise settlement value is based on the reported level of the index

derived from the opening or closing prices (depending on the options series) of the component securities on the last prior day that is scheduled as a trading day. If a particular component security does not open for trading on the day the exercise settlement value is determined, a substitute value, such as the last reported price of that component security, is used.

6. *The last two paragraphs in Chapter IV appearing on page 28 of the Booklet, as amended by the December 2009 Supplement, are replaced with the following paragraphs:*

Investors should be aware that the exercise settlement value of an option on a security index that is derived from the opening prices of the component securities of the index may not be reported for several hours following the opening of trading in those securities. A number of updated index levels may be reported at and after the opening before the exercise settlement value is reported, and there could be a substantial divergence between those reported index levels and the reported exercise settlement value.

The principal risks of holders and writers of index options are discussed in Chapter X. Readers interested in buying or writing index options should carefully read that chapter, particularly the discussions under the headings “Risks of Option Holders,” “Risks of Option Writers,” “Other Risks,” and “Special Risks of Index Options.” Readers interested in buying or writing options on foreign currency indexes should additionally read the discussion under the heading “Special Risks of Foreign Currency Options,” which discusses the risks of foreign currency options, many of which are applicable to foreign currency index options.

7. *The first paragraph that was added immediately following the caption “Special Risks of Index Options” in Chapter X appearing on page 73 of the Booklet by the December 2009 Supplement and that were further amended by the March 2011 Supplement, and the second paragraph as added by the June 2008 Supplement, are replaced with the following paragraphs:*

The risks described in paragraphs 1 through 10 below relate primarily to options on stock indexes. The risks described in paragraphs 1, 2, 5, 8 and 10 also relate to options on foreign currency indexes, although in the case of options on foreign currency indexes the components of the index are foreign currencies rather than securities. The risks described in paragraph 11 relate to options on implied volatility indexes. The risks described in paragraphs 12 through 14 relate to options on variability indexes, strategy-based indexes or relative performance indexes. The risks described in paragraph 15 relate to delayed start options.

The risk described in paragraph 16 relates to dividend index options, and the risks described in paragraph 17 relate to relative performance options.

The risks discussed in paragraphs 4, 5, 7, 8 and 10 below are generally applicable to writers of non-binary and binary index options, but the risks discussed in paragraphs 1 through 3, 6 and 9 are inapplicable to writers of binary index options. The risks discussed in paragraphs 4, 5, 7, 8 and 10 below apply to writers of range options on securities indexes, but the risks discussed in paragraphs 1 through 3, 6 and 9 do not. Special risks of range options are discussed below under the caption "Special Risks of Range Options." Additionally, certain risks factors applicable to options on foreign currency indexes are discussed below under the caption "Special Risks of Foreign Currency Options," which discusses the risks of foreign currency options, many of which are applicable to foreign currency index options.

8. *The following paragraph replaces the paragraph marked number 11 on page 78 of the Booklet, which was inserted by the December 2009 Supplement immediately following paragraph number 10, as amended by the June 2008 Supplement:*

11. Because different values may be used in calculating indicative values and exercise settlement values of the volatility indexes underlying implied volatility options, there is a risk that there may be a divergence between the exercise settlement value and an indicative value calculated at the opening on the date on which the exercise settlement value is being determined. (Please refer to the discussion in Chapter IV under the heading "Variability Indexes" for the definition of the term indicative value and a description of the method that is used to calculate an exercise settlement value for implied volatility options.) For those implied volatility options that calculate the exercise settlement value by utilizing the actual opening prices of the relevant series of the index's component put and call options on the reference index, rather than using the mid-point between opening bid and ask quotations, it is to be expected that there will be at least some divergence between the exercise settlement value for such expiring implied volatility options and the indicative value calculated at the opening on the same date because the opening price for each of the options series that is used to calculate the exercise settlement value is either the actual bid quotation or the actual ask quotation, depending on the forces of supply and demand for that series. This divergence may represent a significant percentage of the indicative value for the implied volatility index if the forces of supply and demand cause all or most of the series to open on the same side of the market. There may also be variability in the exercise settlement value for those implied volatility indexes that calculate the exercise settlement value by utilizing the mid-point of the bid and offering premium quotations at the opening of trading of the relevant series of the put options on the reference interest. Readers should

recognize and understand the risks associated with the different methods of determining the exercise settlement values of the implied volatility options they intend to trade.

9. *The following paragraph is inserted on page 87 of the Booklet immediately following the paragraph marked number 13, which was renumbered number 12 by the April 2007 Supplement, and immediately before the caption "Special Risks of Flexibly Structured Options in Chapter X:*

13. In addition to foreign currency options, options on foreign currency indexes also may be traded. As discussed above under the heading "Special Risks of Index Options," many of the special risks applicable to options on stock indexes also apply to options on foreign currency indexes. In addition, the risks applicable to foreign currency options described in paragraphs 1 through 3, 5, 7, and 10 through 12 above generally apply to options on foreign currency indexes.