Underlying supplement no. 10-I
To prospectus dated November 14, 2011 and
prospectus supplement dated November 14, 2011

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JPMORGAN CHASE & CO.

Notes Linked to the J.P. Morgan Strategic Volatility Dynamic Index (Series 1) (USD)

JPMorgan Chase & Co. may, from time to time, offer and sell notes linked in whole or in part to the J.P. Morgan Strategic Volatility Dynamic Index (Series 1) (USD) (the "**Index**"). This underlying supplement no. 10-I describes the Index, the relationship between JPMorgan Chase & Co. and the sponsor of the Index and terms that will apply generally to notes linked in whole or in part to the Index and other relevant information. This underlying supplement no. 10-I supplements the terms described in the accompanying product supplement, prospectus supplement and prospectus. A separate term sheet or pricing supplement, as the case may be, will describe terms that apply to specific issuances of the notes, including any changes to the terms specified below. We refer to such term sheets and pricing supplements generally as terms supplements. The accompanying product supplement, the relevant terms supplement or another accompanying underlying supplement will describe any other index or reference asset to which the notes are linked. If the terms described in the relevant terms supplement are inconsistent with those described herein or in any other related underlying supplement or in the accompanying product supplement, prospectus supplement or prospectus, the terms described in the relevant terms supplement will control. In addition, if this underlying supplement no. 10-I and the accompanying product supplement or another accompanying underlying supplement contain information relating to the same index to which the notes are linked, the information contained in the document with the most recent date will control.

The level of the Index incorporates the daily deduction of (a) an adjustment factor of 0.75% per annum (the "index fee") and (b) a "daily rebalancing adjustment amount" that is equal to the sum of (1) a rebalancing adjustment factor of between 0.20% and 0.50% per day (depending on the level of the VIX Index), applied to the aggregate notional amount of each of the VIX futures contracts hypothetically traded that day and (2) an additional amount equal to the rebalancing adjustment factor of between 0.20% and 0.50% per day (depending on the level of the VIX Index) applied to the amount of the change, if any, in the level of the exposure to the synthetic short position. The daily rebalancing adjustment amount is intended to approximate the "slippage costs" that would be experienced by a professional investor seeking to replicate the hypothetical portfolio contemplated by the Index at prices that approximate the official settlement prices (which are not generally tradable) of the relevant VIX futures contracts. Slippage costs are costs that arise from deviations between the actual official settlement price of a VIX futures contract and the prices at which a hypothetical investor would expect to be able to execute trades in the market when seeking to match the expected official settlement price of a VIX futures contract. Unlike the index fee, the rebalancing adjustment factor is not a per annum fee.

The level of the Index and the value of the notes will be adversely affected, perhaps significantly, if the performance of the synthetic long position and the contingent synthetic short position in the relevant VIX futures contracts, determined based on the official settlement prices of the relevant VIX futures contracts, is not sufficient to offset the daily deduction of the index fee and the daily rebalancing adjustment amount. See "Risk Factors — The daily rebalancing adjustment amount is likely to have a substantial adverse effect on the level of the Index over time" in this underlying supplement. For more information about the daily rebalancing adjustment amount, see "The J.P. Morgan Strategic Volatility Dynamic Index (Series 1) (USD) — Calculation and Publication of Index Levels — Calculation of Index Levels — The Rebalancing Adjustment Factor" in this underlying supplement.

Investing in the notes involves a number of risks. See "Risk Factors" in the accompanying product supplement and "Risk Factors" beginning on page US-2.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of the notes or passed upon the accuracy or the adequacy of this underlying supplement no. 10-I, the accompanying product supplement, prospectus supplement and prospectus, or any other related underlying supplement or the relevant terms supplement. Any representation to the contrary is a criminal offense.

The notes are not bank deposits and are not insured by the Federal Deposit Insurance Corporation or any other governmental agency, nor are they obligations of, or guaranteed by, a bank.

J.P.Morgan

August 31, 2012

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We have not authorized anyone to provide any information other than that contained or incorporated by reference in the relevant terms supplement, any other related underlying supplement, this underlying supplement no. 10-I and the accompanying product supplement, prospectus supplement and prospectus with respect to the notes offered by the relevant terms supplement and with respect to JPMorgan Chase & Co. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. This underlying supplement no. 10-I, together with the relevant terms supplement, any other related underlying supplement and the accompanying product supplement, prospectus and prospectus supplement, contains the terms of the notes and supersedes all other prior or contemporaneous oral statements as well as any other written materials including preliminary or indicative pricing terms, correspondence, trade ideas, structures for implementation, sample structures, fact sheets, brochures or other educational materials of ours. The information in the relevant terms supplement, any other related underlying supplement, this underlying supplement no. 10-I and the accompanying product supplement, prospectus supplement and prospectus may only be accurate as of the dates of each of these documents, respectively.

The notes described in the relevant terms supplement, the accompanying product supplement, any other related underlying supplement and this underlying supplement no. 10-I are not appropriate for all investors, and involve important legal and tax consequences and investment risks, which should be discussed with your professional advisers. You should be aware that the regulations of the Financial Industry Regulatory Authority, Inc., or FINRA, and the laws of certain jurisdictions (including regulations and laws that require brokers to ensure that investments are suitable for their customers) may limit the availability of the notes. The relevant terms supplement, this underlying supplement no. 10-I, any other related underlying supplement and the accompanying product supplement, prospectus supplement and prospectus do not constitute an offer to sell or a solicitation of an offer to buy the notes in any circumstances in which such offer or solicitation is unlawful.

The notes are not futures contracts and are not regulated under the Commodity Exchange Act of 1936, as amended (the "Commodity Exchange Act"). The notes are offered pursuant to an exemption from regulation under the Commodity Exchange Act, commonly known as the hybrid instrument exemption, that is available to securities that have one or more payments indexed to the value, level or rate of one or more commodities, as set out in section 2(f) of that statute. Accordingly, you are not afforded any protection provided by the Commodity Exchange Act or any regulation promulgated by the Commodity Futures Trading Commission.

In this underlying supplement no. 10-I, any other related underlying supplement, the relevant terms supplement and the accompanying product supplement, prospectus supplement and prospectus, "we," "us" and "our" refer to JPMorgan Chase & Co., unless the context requires otherwise. To the extent applicable, the index described in this underlying supplement no. 10-I is deemed to be one of the "Indices" referred to in the accompanying product supplement.

SUPPLEMENTAL TERMS OF NOTES

The following supplemental terms of the notes supplement, and to the extent they are inconsistent, supersede, the description of the general terms of the debt securities set forth in the accompanying product supplement and under the headings "Description of Notes" in the accompanying prospectus supplement and "Description of Debt Securities" in the accompanying prospectus. A separate terms supplement will describe the terms that apply to specific issuances of the notes, including any changes to the terms specified below. Capitalized terms used but not defined in this underlying supplement no. 10-I have the meanings assigned in the accompanying product supplement, prospectus supplement, prospectus, the relevant terms supplement and any other related underlying supplement.

General

The notes are unsecured and unsubordinated obligations of JPMorgan Chase & Co. linked in whole or in part to the J.P. Morgan Strategic Volatility Dynamic Index (Series 1) (USD) (the "**Index**").

The Index is a synthetic, dynamic strategy that aims to replicate the returns from combining a fixed long position and a contingent, scaled short position in futures contracts (each, a "**VIX futures contract**" and together, "**VIX futures contracts**") on the CBOE Volatility Index® (the "**VIX Index**"), where the synthetic long position and, when activated, the synthetic short position are rolled throughout each month.

The specific terms of the notes will be described in the relevant terms supplement accompanying this underlying supplement no. 10-I and any additional underlying supplement. The terms described in those documents supplement those described herein and in any other related underlying supplement, the accompanying product supplement, prospectus supplement and prospectus. If the terms described in the relevant terms supplement are inconsistent with those described herein or in any other related underlying supplement, the accompanying product supplement, prospectus supplement or prospectus, the terms described in the relevant terms supplement will control.

The "**Index Calculation Agent**" means the entity appointed by the sponsor of the Index, J.P. Morgan Securities plc ("**JPMS plc**"), to calculate and publish the official closing level of the Index, which is currently JPMS plc. See "The J.P. Morgan Strategic Volatility Index" below. JPMS plc is our affiliate and may have interests adverse to you. Please see "Risk Factors — Under certain limited circumstances, the Index Calculation Agent has discretion in relation to the Index and is under no obligation to consider your interests as holder of the notes."

RISK FACTORS

Your investment in the notes will involve certain risks. Investing in the notes is not equivalent to taking a long or short position (or both positions) in the Index or any of its component VIX futures contracts. In addition, your investment in the notes entails other risks not associated with an investment in conventional debt securities. ***You should consider carefully the risks discussed under "Risk Factors" in the accompanying product supplement and in any other related underlying supplement, together with the following discussion of additional risks, before you decide that an investment in the notes is suitable for you.***

We or our affiliates may have economic interests that are adverse to those of the holders of the notes because we are the issuer of the notes, our affiliate, JPMS plc, is the Index Calculation Agent and sponsor of the Index and our affiliate, J.P. Morgan Securities LLC ("JPMS"), is the calculation agent for the notes (the "Note Calculation Agent") and an agent of the offering of the notes.

We, JPMorgan Chase & Co., are the issuer of the notes, JPMS plc, one of our affiliates, is the Index Calculation Agent and sponsor of the Index and JPMS, another affiliate of ours, is the Note Calculation Agent and an agent of the offering of the notes. JPMS plc, as Index Calculation Agent, will determine whether there has been a market disruption event with respect to the Index. JPMS, as Note Calculation Agent, will determine, among other things, whether there has been a market disruption event with respect to the notes and any payments on the notes. In the event of any such market disruption event, JPMS plc may use an alternate method to calculate the Index, and JPMS may postpone any valuation date or use an alternate method to calculate the Index closing level on that valuation date. JPMS, as an agent of the offering of the notes, will receive the aggregate profits generated from the deduction of the index fee of 0.75% per annum from the level of the Index to cover ongoing payments related to the distribution of the notes and as a structuring fee for developing the notes. While we and our affiliates will act in good faith in making all determinations with respect to the notes and the Index, there can be no assurance that any determinations made by JPMorgan Chase & Co., JPMS plc or JPMS in these various capacities will not affect the value of the notes or the level of the Index. Because determinations made by JPMS plc as the Index Calculation Agent and sponsor of the Index and JPMS as the Note Calculation Agent may affect the amount you receive at maturity or upon early repurchase, potential conflicts of interest may exist between JPMorgan Chase & Co., JPMS plc and JPMS, on the one hand, and you, as a holder of the notes, on the other.

Under certain limited circumstances, the Index Calculation Agent has discretion in relation to the Index and is under no obligation to consider your interests as holder of the notes.

JPMS plc, one of our affiliates, acts as the Index Calculation Agent and sponsor of the Index and is responsible for calculating and publishing the official closing levels of the Index, maintaining the Index and developing the guidelines and policies governing its composition and calculation. The rules governing the Index may be amended at any time by JPMS plc, in its sole discretion, and the rules also permit the use of discretion by JPMS plc in relation to the Index in specific instances, including but not limited to the determination of the levels to be used in the event of market disruptions that affect its ability to calculate and publish the Index and the interpretation of the rules governing the Index. In addition, the Index Calculation Agent has discretion, acting in good faith and in a commercially reasonable manner, to include, exclude or substitute any VIX futures contract or the VIX Index on a specific date of its choosing. Unlike other indices, the maintenance of the Index is not governed by an independent committee. Although judgments, policies and determinations concerning the Index are made by JPMS plc, JPMorgan Chase & Co., as the parent company of JPMS plc, ultimately controls JPMS plc.

Although the Index Calculation Agent will make all determinations and take all action in relation to the Index acting in good faith, it should be noted that such discretion could have an impact, positive or negative, on the Index closing levels. The Index Calculation Agent is under no obligation to consider your interests as a holder of the notes in taking any actions that might affect the value of your notes. Furthermore, the inclusion of the VIX futures contracts in the Index is not an investment recommendation by us or JPMS plc of the VIX futures contracts or the VIX Index.

The reported level of the Index will include the deduction of an index fee and a daily rebalancing adjustment amount.

One way in which the Index may differ from other indices is that its daily reported levels include a deduction from the aggregate performance of the relevant VIX futures contracts, based on their official settlement prices, of (a) an adjustment factor of 0.75% per annum (*i.e.*, the index fee) and (b) a daily rebalancing adjustment amount that is equal to the sum of (1) a rebalancing adjustment factor of between 0.20% and 0.50% per day (depending on the level of the VIX Index), applied to the aggregate notional amount of each of the VIX futures contracts hypothetically traded that day and (2) an additional amount equal to the rebalancing adjustment factor of between 0.20% and 0.50% per day (depending on the level of the VIX Index) applied to the amount of the change, if any, in the level of the exposure to the synthetic short position. As a result of these deductions, the value of the Index will trail the value of a hypothetical identically constituted synthetic portfolio that is not subject to deductions for slippage costs (as represented by the daily rebalancing adjustment factor) and the index fee.

The daily rebalancing adjustment amount is likely to have a substantial adverse effect on the level of the Index over time.

Unlike the index fee, the rebalancing adjustment factor, which is used to calculate the daily rebalancing adjustment amount, is not a per annum fee. The daily rebalancing adjustment amount is equal to the sum of (1) a rebalancing adjustment factor of between 0.20% and 0.50% per day (depending on the level of the VIX Index), applied to the aggregate notional amount of each of the VIX futures contracts hypothetically traded that day and (2) an additional amount equal to the rebalancing adjustment factor of between 0.20% and 0.50% per day (depending on the level of the VIX Index) applied to the amount of the change, if any, in the level of the exposure to the synthetic short position.

The daily rebalancing adjustment amount, which is deducted from the level of the Index each day, is intended to approximate the slippage costs that would be experienced by a professional investor seeking to replicate the hypothetical portfolio contemplated by the Index at prices that approximate the official settlement prices (which are not generally tradable) of the relevant VIX futures contracts. Slippage costs are costs that arise from deviations between the actual official settlement price of a VIX futures contract and the prices at which a hypothetical investor would expect to be able to execute trades in the market when seeking to match the expected official settlement price of a VIX futures contract. However, the actual slippage costs that would be incurred if a professional investor were to seek to replicate such a portfolio may be higher or lower than the daily rebalancing adjustment amount used in the calculation of the Index.

For example, assuming that (a) the level of the VIX Index is equal to or less than 35 (which corresponds to the lowest rate of 0.20% per day for the rebalancing adjustment factor) and (b) the synthetic short position is fully activated, the performance of the Index would be lower by 0.80% over a one-month roll period (or lower by 9.60% over the course of a year) as compared to the performance of a hypothetical alternative index based solely on the official settlement prices of the VIX futures contracts and the deduction of the index fee but without accounting for a deduction of a daily rebalancing adjustment amount. All else being equal, the level of the Index will decline unless the performance of the synthetic positions in VIX futures contracts included in the Index, based on their official settlement prices, is sufficient to offset the negative effect of the daily rebalancing adjustment amount (and the negative effect of the index fee, the Deduction Amount, if applicable, and the Repurchase Fee Amount, if applicable).

When the level of the VIX Index is greater than 35, the rebalancing adjustment factor will be greater than 0.20% and can be up to 0.50% per day. In this case, the impact on the Index performance due to the daily rebalancing adjustment amount will be substantially greater. For example, if the level of the VIX Index is greater than 70 (which corresponds to the highest rate of 0.50% per day for the rebalancing adjustment factor) and the synthetic short position is fully activated, the performance of

the Index would be lower by 2.0% over a one-month roll period as compared to the performance of a hypothetical alternative index based solely on the official settlement prices of the VIX futures contracts and the deduction of the index fee, without accounting for a deduction of a daily rebalancing adjustment amount. However, the VIX Index historically has not remained at such elevated levels for more than a few days, weeks or months at a time. Nevertheless, we cannot provide any assurance that the VIX Index will consistently remain at or below 35 (which corresponds to the lowest rate of 0.20% per day for the rebalancing adjustment factor) over the term of the notes.

In addition, on days on which the amount of the exposure to the synthetic short position is adjusted (which adjustments occur in increments of up to 25% per day), in determining the daily rebalancing adjustment amount, the rebalancing adjustment factor of between 0.20% and 0.50% per day is effectively applied to an amount of up to twice the change in the exposure to the synthetic short position. Therefore, a change in the exposure to the synthetic short position will also result in a substantial increase in the daily rebalancing adjustment amount.

While the amount of the daily rebalancing adjustment amount cannot be predicted with certainty, the daily rebalancing adjustment amount is likely to have a substantial adverse effect on the level of the Index over time. For more information about the daily rebalancing adjustment amount, see "The J.P. Morgan Strategic Volatility Dynamic Index (Series 1) (USD) — Calculation and Publication of Index Levels — Calculation of Index Levels — The Rebalancing Adjustment Factor" in this underlying supplement.

When the synthetic short position is activated, your return on the notes is dependent on the net performance, not the absolute performance, of the synthetic positions.

When the synthetic short position is activated, your return on the notes is dependent on the net performance of the synthetic long position *minus* the synthetic short position (taking into account the exposure to the synthetic short position), not on the absolute performance of the synthetic long position and the synthetic short position. The level of the Index and the value of the notes may decline, perhaps significantly, even if the synthetic long position generates a positive return.

There is unlimited loss exposure to the synthetic short position, when activated, and such exposure may result in a significant drop in the level of the Index.

The Index employs a technique generally known as a "long-short" strategy when the synthetic short position is activated. This means the Index reflects the net return of a synthetic long position and a synthetic short position and may suffer losses when the value of the VIX futures contracts underlying the synthetic short position increases. In a long-short strategy, the maximum increase in the value of the synthetic long position is unlimited, while the maximum decrease in the value of the synthetic long position is limited to a loss of the entire value of the VIX futures contracts underlying the synthetic long position. On the other hand, the maximum increase in the value of the synthetic short position is limited to a loss of the entire value of VIX futures contracts underlying the synthetic short position, while the maximum decrease in the value of the synthetic short position is unlimited. Because there is no limit to possible increases in the value of the VIX futures contracts underlying the synthetic short position, the potential losses as a result of short exposure are unlimited; however, in no event will you lose more than your entire investment in the notes.

The Index may not be successful, and may not outperform any alternative strategy that might be employed in respect of the VIX futures contracts underlying the Index.

The Index follows a synthetic rules-based proprietary strategy that operates on the basis of pre-determined rules. Accordingly, you should determine whether those rules as described under "The J.P. Morgan Strategic Volatility Dynamic Index (Series 1) (USD)" are appropriate in light of your individual circumstances and investment objectives. No assurance can be given that the investment strategy on which the Index is based will be successful or that the Index will outperform any alternative strategy that might be employed in respect of the VIX futures contracts underlying the Index.

There may be significant fluctuations in the level of the Index, which could affect the value of the notes.

The performance of an Index is dependent on the performance of the synthetic positions in VIX futures contracts included in the Index. As a consequence, investors in investment products linked to the Index should understand that their investment is exposed to the performance of the synthetic positions in VIX futures contracts. The levels of the futures contracts underlying the Index can be volatile and move dramatically over short periods of time. There can be no assurance that the relevant synthetic exposures will not be subject to substantial negative returns. Positive returns on the Index may therefore be reduced or eliminated entirely due to movements in market parameters.

Because of the large and sudden price movements associated with VIX futures contracts, the historical and hypothetical back-tested performance of the Index has been highly volatile. It is likely that the Index will continue to be highly volatile in the future, with the potential for significant fluctuations in the daily performance of the Index. Accordingly, the notes are not designed for investors who are unwilling to be exposed to potential significant fluctuations in the level of the Index and, therefore, in the value of the notes.

Changing prices of the VIX futures contracts included in the Index may have an adverse effect on the level of the Index.

The Index is a rolling index, which rolls throughout each month. Unlike equities, which typically entitle the holder to a continuing stake in a corporation, futures contracts normally specify a certain date for the delivery of the underlying asset or financial instrument or, in the case of futures contracts relating to indices such as the VIX Index, a certain date for payment in cash of an amount determined by the level of the relevant index. As the VIX futures contracts included in the Index approach expiration, they are replaced by similar contracts that have a later expiration. Thus, for example, a VIX futures contract purchased and held in August may specify an October expiration. As time passes, the contract expiring in October may be gradually replaced by a contract for delivery in November, through incremental synthetic sales of a portion of the position in the October contract, accompanied by incremental synthetic purchases of the November contract. This process is referred to as "rolling."

The synthetic long position is not likely to generate positive returns when the market for VIX futures contracts is in "contango," meaning that the price of a VIX futures contract with a later expiration is higher than the price of a VIX futures contract with an earlier expiration. Excluding other considerations, if the market for the relevant VIX futures contracts is in contango, the purchase of the sixth-month VIX futures contract in connection with the roll of the synthetic long position would take place at a price that is higher than the price of the sale of the third-month VIX futures contract, thereby creating a negative "roll yield." Contango in VIX futures contracts is typical in a low-volatility market environment.

To reduce this potential weakness, the Index seeks to progressively activate a synthetic short position in short-dated VIX futures contracts when the relevant VIX futures contracts are in contango. Excluding other considerations, if the market for the relevant VIX futures contracts is in contango, the sale of the third-month VIX futures contract in connection with the roll of the synthetic short position would take place at a price that is higher than the price of the purchase of the second-month VIX futures contract, thereby creating a positive "roll yield," which is intended to offset in part the negative roll yield generated by the synthetic long position. If, however, the VIX futures contracts are in "backwardation," meaning that the price of a VIX futures contract with a later expiration is lower than the price of a VIX futures contract with an earlier expiration, the roll of the synthetic short position, if activated, would create a negative roll yield. Backwardation in VIX futures contracts is typical in a high-volatility market environment. When the relevant VIX futures contracts are in backwardation, the Index seeks to progressively deactivate the synthetic short position.

A strategy that simply provides synthetic exposure to equally weighted synthetic long and short positions in VIX futures contracts, where the VIX futures contracts underlying the synthetic short position are closer to expiration than the VIX futures contracts underlying the synthetic long position, may, over time, exhibit a negative sensitivity to volatility. That is, if volatility were to increase, losses on the synthetic short position would tend to be greater than gains on the synthetic long position, and, if volatility were to decrease, gains on the synthetic short position would tend to be greater than losses on the synthetic long position. This is because as volatility increases, VIX futures contracts that are closer to expiration tend to exhibit larger increases in price than VIX futures contracts with later expiration and, as volatility decreases, VIX futures contracts that are closer to expiration tend to exhibit larger decreases in price than VIX futures contracts with later expiration.

The Index targets a flat to positive sensitivity to volatility by (a) scaling the exposure to the synthetic short position, based on recent relative returns of the synthetic short position (assuming the synthetic short position is activated at all times) compared to the synthetic long position, in an attempt to avoid or mitigate the negative sensitivity to volatility that could result from constant 100% exposure to the synthetic short position and (b) progressively de-activating the synthetic short position under certain market conditions, each as described in more detail below.

While the Index strategy is intended to cause the synthetic short position to be activated during periods when the market for VIX futures contracts is in contango in order to continue to target flat to positive sensitivity to volatility, no assurance can be given that the investment strategy on which the Index is based will be successful. In addition, while the Index strategy is intended to cause the short position to be fully deactivated during periods when the market for the relevant VIX futures contracts is in backwardation so that negative roll yields for the synthetic short position would be avoided, no assurance can be given that negative roll yields will be avoided. See "— Due to the time lag inherent in the Index, the exposure to the synthetic short position may not be adjusted quickly enough in response to a change in market conditions for the investment strategy on which the Index is based to be successful" below for more information.

The Index may experience small positive, zero or even negative returns when the market for VIX futures contracts is in contango.

When the market for VIX futures contracts is in contango, the Index adjusts its exposure to the synthetic short position based on a measure of the correlation of the movement (*i.e.*, the positive or negative return) of the synthetic short position and the movement of the synthetic long position called the "Average Beta Weight" (defined in "The J.P. Morgan Strategic Volatility Dynamic Index (Series 1) (USD)"). On any relevant day, the Average Beta Weight is based on the 10-day average of the "beta" of the synthetic short position (assuming the synthetic short position is activated at all times) relative to the synthetic long position, where each of the 10 "betas" are, in turn, determined by referencing the daily return of the synthetic long position and the synthetic short position (assuming the synthetic short position is activated at all times) over a 10-day period. "Beta" measures the relative movement of one asset's return compared to the movement of another asset's return. Specifically, with respect to the Index, beta on any relevant day measures the movement of the return on the synthetic short position relative to the return on the synthetic long position over a 10-day period. Beta is a numerical value that is intended to show the degree of correlated movement between two assets (*i.e.*, the degree and direction of change in the performance of one asset given a specified change in the performance of another asset). With respect to the Index, the beta measures the sensitivity of the return on the synthetic short position relative to the return on the synthetic long position. When the market for VIX futures contracts is in contango, the Index seeks to progressively activate the synthetic short position but scales the weight of the synthetic short position to the Average Beta Weight (subject to a maximum exposure of 100%, a minimum exposure of 0% and a maximum daily change in the exposure of 25%) in order to provide investors flat or positive sensitivity to implied volatility. When the market for VIX futures contracts is in contango, this scaling can be expected to produce an exposure to the synthetic short position of substantially less than 100%. Because the synthetic long position tends to produce a negative roll yield when the market for VIX futures contracts is in contango and because any positive roll yield from the synthetic short position, if activated, will be

limited by the scaling previously described, the Index should be expected to generate only small positive, zero or even negative yields during periods of low volatility. Accordingly, during periods of low volatility, the Index will generally underperform a comparable index that does not adjust the exposure to the synthetic short position based on the Average Beta Weight.

The level of the Index, and therefore the value of the notes, may not increase even when the synthetic long position or the synthetic short position, when activated, generates a positive return.

The performance of a rolling excess return index, like the Index, is affected by the price return of the futures contracts underlying the Index and the roll return from rolling those futures contracts over time. See "— The Index is an excess return index, and not a total return index." In addition, the performance of a long-short index, such as the Index when the contingent synthetic short position is activated, is affected by the relative performance of the synthetic long position and the synthetic short position, and not by the absolute performance of either synthetic position. See "— When the synthetic short position is activated, your return on the notes is dependent on the net performance, not the absolute performance, of the synthetic positions." Furthermore, the Index rolls its futures contracts throughout each monthly period in order to keep the weighted average maturity of the relevant futures contracts underlying the synthetic positions to a specified level (approximately four months for the synthetic long position and approximately two months for the synthetic short position). Under this rolling process, with respect to the synthetic long position, after initially establishing synthetic long positions in the third-month, fourth-month and fifth-month VIX futures contracts (*i.e.*, synthetically buying the third-month, fourth-month and fifth-month VIX futures contracts) at the beginning of each monthly period, the Index will synthetically sell a portion of the third-month VIX futures contract and buy a portion of the sixth-month VIX futures contract on each rebalancing day during the monthly period. Similarly, with respect to the synthetic short position, when activated, after initially establishing a synthetic short position in the second-month VIX futures contract (*i.e.*, synthetically selling short the second-month VIX futures contract) at the beginning of each monthly period, the Index will synthetically buy a portion of the second-month VIX futures contract and sell a portion of the third-month VIX futures contract on each rebalancing day during the monthly period. Finally, when activating the synthetic short position, the Index does so progressively in increments of up to 25% on each rebalancing day (so long as the conditions for activating the synthetic short position continue to hold true on that day) until it is fully activated (*i.e.*, until the exposure to the synthetic short position is equal to the Average Beta Weight, subject to a maximum daily change in exposure of 25%); however, the synthetic short position may not be fully activated, may remain partially activated for a sustained period of time or may not be activated at all.

Effect of Market Conditions on the Performance of the Synthetic Positions

When the market for VIX futures contracts is in contango, excluding other considerations, the price of VIX futures contracts will decrease as the contracts move nearer to maturity. Under these market conditions, the price return of each VIX futures contract that composes the synthetic long position generally will be negative (as the price today would be less than the price observed the day before), and the roll return generally will also be negative (as the Index would be synthetically selling a portion of the third-month VIX futures contract at a price that is lower than the price it pays to synthetically buy a portion of the sixth-month VIX futures contract). Therefore, under these market conditions, and if the synthetic short position is not activated, generally, we expect the level of the Index and therefore the value of the notes to decline. We should note that, unless the market is in contango only for short periods of time, we do not expect this scenario to occur, as we expect the Index to activate the synthetic short position when the market is in contango for a sustained period of time. Conversely, under these market conditions, when the synthetic short position is activated, although the price return of each VIX futures contract that composes the synthetic short position generally will also be negative, because this is a synthetic short position, the negative price return of the relevant VIX futures contracts will generate a positive return for the synthetic short position. In addition, the roll return generally will also be positive (as the Index would be synthetically selling a portion of the third-month VIX futures contract at a price that is higher than the price it pays to synthetically buy a portion of the second-month VIX futures contract). Therefore, generally under these market conditions, the synthetic

short position, when activated, will generate a positive return. However, recall that, for a long-short index, the absolute performance of each synthetic position is irrelevant and only the relative performance of the two synthetic positions matters. Accordingly, under these market conditions, when the synthetic short position is activated, generally, we expect the level of the Index and therefore the value of the notes to decline if the positive return from the synthetic short position is not sufficient to offset the negative return from the synthetic long position.

When the market for VIX futures contracts is in backwardation, excluding other considerations, the price of VIX futures contracts will increase as the contracts move nearer to maturity. Under these market conditions, the price return of each VIX futures contract that composes the synthetic long position generally will be positive (as the price today would be higher than the price observed the day before), and the roll return generally will also be positive (as the Index would be synthetically selling a portion of the third-month VIX futures contract at a price that is higher than the price it pays to synthetically buy a portion of the sixth-month VIX futures contract). Therefore, under these market conditions and if the synthetic short position is not activated, generally, we expect the level of the Index and therefore the value of the notes to increase. Conversely, under these market conditions, when the synthetic short position is activated, although the price return of each VIX futures contract that composes the synthetic short position generally will also be positive, because this is a synthetic short position, the positive price return of the relevant VIX futures contracts will generate a negative return for the synthetic short position. In addition, the roll return generally will also be negative (as the Index would be synthetically selling a portion of the third-month VIX futures contract at a price that is lower than the price it pays to synthetically buy a portion of the second-month VIX futures contract). Therefore, generally under these market conditions, the synthetic short position, when activated, will generate a negative return. However, recall that, for a long-short index, the absolute performance of each synthetic position is irrelevant and only the relative performance of the two synthetic positions matter. Accordingly, under these market conditions, when the synthetic short position is activated, generally, we expect the level of the Index and therefore the value of the notes to decline if the positive return from the synthetic long position is not sufficient to offset the negative return from the synthetic short position. We should note that, unless the market is in backwardation only for short periods of time, we do not expect this scenario to occur, as we expect the Index to deactivate (or not activate) the synthetic short position when the market is in backwardation for a sustained period of time.

In some cases, the market for VIX futures contracts may not be in backwardation or contango, and the price of one VIX futures contract underlying a synthetic position may increase while the other VIX futures contracts underlying the same synthetic position may decrease. In this situation, whether a synthetic position generates positive or negative returns will depend on the relative weights and price movements of the VIX futures contracts underlying the synthetic position and the exposure to the synthetic short position. For example, if, on an Index Business Day, assuming the exposure to the synthetic short position is 100%, the third-month VIX futures contract underlying the synthetic short position has a weight of 25% and its price decreases by 1% and the second-month VIX futures contract underlying the synthetic short position has a weight of 75% and its price increases by 2%, the VIX futures contracts underlying the synthetic short position would generate a return of 1.25% (25% × -1% + 75% × 2%) on that Index Business Day, which would have a *negative* effect on the level of the index. See "The J.P. Morgan Strategic Volatility Dynamic Index (Series 1) (USD) — Calculation and Publication of Index Levels — Calculation of Index Levels".

Effect of the Performance of the Synthetic Positions on the Level of the Index and the Value of the Notes

Generally, we expect the level of the Index, and therefore the value of the notes, to increase in either of the following situations, assuming, in each case, that the return from the synthetic long position (if the synthetic short position is not activated) or the net return of the synthetic positions (when the synthetic short position is activated) is sufficient to offset the negative effect of the index fee and the daily rebalancing adjustment amount:

- the synthetic long position generates a negative return, but the synthetic short position generates a positive return (which is typical in markets exhibiting contango) (after taking into account the exposure to the synthetic short position) that is greater than the negative return generated by the synthetic long position; or

- the synthetic long position generates a positive return and the synthetic short position is not activated (which is typical in markets exhibiting backwardation).

Conversely, we expect the level of the Index, and therefore the value of the notes, to decrease in the following situations:

- the return from the synthetic long position (if the synthetic short position is not activated) or the net return of the synthetic positions (when the synthetic short position is activated) is not sufficient to offset the negative effect of the index fee and the daily rebalancing adjustment amount;

- the synthetic long position generates a negative return and the synthetic short position is not activated;

- both synthetic positions generate negative returns; or

- the negative return generated by one synthetic position is greater than the positive return generated by the other synthetic position (after taking into account the exposure to the synthetic short position).

There can be no assurance that the synthetic positions will always correlate in a manner that will result in an increase in the level of the Index, resulting in an increase in the value of the notes. You should understand that the notes involve a strategy that seeks to profit from a positive return for the synthetic long position, as described in the second bullet point above. Due to the adjustment of the exposure to the synthetic short position based on the Average Beta Weight, the scenario described in the first bullet point above is unlikely to occur. However, under the circumstances described in the third through sixth bullet points above, the level of the Index will decline, resulting in a decrease in the value of the notes.

Because exposure to the synthetic short position is adjusted only if the applicable conditions are satisfied for three consecutive Index Business Days, the exposure to the synthetic short position may not be adjusted during non-trending market conditions.

On any given Index Business Day (as defined in "The J.P. Morgan Strategic Volatility Dynamic Index (Series 1) (USD)" in this underlying supplement), the exposure to the synthetic short position that will be used in the calculation of the Index Level (as defined in "The J.P. Morgan Strategic Volatility Dynamic Index (Series 1) (USD)") on the following Index Business Day will vary between 0% and 100%. This exposure to the synthetic short position is determined as follows. If the level of the VIX Index on each of the three preceding Index Business Days is less than the rolling weighted average price of the second-month and third-month VIX futures contracts included (or that would have been included) in the synthetic short position, then the exposure to the synthetic short position on the relevant Index Business Day is adjusted to equal the Average Beta Weight on that Index Business Day, subject to a maximum exposure of 100%, a minimum exposure of 0% and a maximum change in the exposure relative to the immediately prior Index Business Day of 25%. Conversely, if the VIX Index on each of three immediately preceding Index Business Days is equal to or greater than the rolling weighted average price of the second-month and third-month VIX futures contracts included (or that would have been included) in the synthetic short position, then the exposure on the relevant Index Business Day will be reduced by 25%, again subject to a minimum exposure of 0%.

Because exposure to the synthetic short position is adjusted only if the applicable conditions are satisfied for three consecutive Index Business Days, the exposure to the synthetic short position may not be adjusted when the market for VIX futures contracts fluctuates from contango to backwardation rapidly. For example, the exposure to the synthetic short position will not be adjusted if the level of the VIX Index is greater than or equal to the rolling, weighted average price of the second-month and third-month VIX futures contracts included in the synthetic short position for one or two Index Business Days, after which the level of the VIX Index is less than the rolling, weighted average price of the second-month and third-month VIX futures contracts included in the synthetic short position for one or two Index Business Days. As a result, the synthetic short position may not be activated or deactivated or may be activated or deactivated over a long period when the market for VIX futures contracts fluctuates from contango to backwardation rapidly. Under these conditions, and contrary to the purpose of the Index, the Index may not reflect flat to positive sensitivity to volatility. Furthermore, under these conditions, the Index may incur negative roll yields from a synthetic short position that has not been deactivated or fully deactivated or may fail to capture positive roll yields from a synthetic short position that has not been activated or fully activated that otherwise might have offset negative roll yields from the synthetic long position. See the immediately following risk factor for additional information.

Due to the time lag inherent in the Index, the exposure to the synthetic short position may not be adjusted quickly enough in response to a change in market conditions for the investment strategy on which the Index is based to be successful.

Because large price movements in VIX futures contracts can occur suddenly and over a short period of time, the VIX futures contracts may rapidly move from backwardation to contango or from contango to backwardation; however, the exposure to the synthetic short position will remain unchanged until the applicable conditions described in the immediately preceding risk factor have been satisfied for three consecutive Index Business Days, after which the exposure to the synthetic short position will change in increments of up to 25% per Index Business Day, subject to a maximum exposure of 100% and a minimum exposure of 0%. Accordingly, several Index Business Days will pass following a change in the futures market before the synthetic short position can be fully activated (*i.e.*, the exposure to the synthetic short position is equal to the Average Beta Weight, subject to a maximum daily change in exposure of 25%) or deactivated (*i.e.*, the exposure to the synthetic short position is 0%, subject to a maximum daily decrease in the exposure of 25%), by which time market conditions may have changed. Due to this time lag, the exposure to the synthetic short position may not be adjusted quickly enough for the investment strategy on which the Index is based to be successful.

The Index may not activate or deactivate the synthetic short position at all due to short-term changes in the VIX futures contracts. Price movements in the VIX futures contracts over a period of three Index Business Days could be significant. Accordingly, the Index may not benefit from an activation of the synthetic short position in short periods of contango and the Index may be adversely affected if the synthetic short position is not deactivated during a short period of backwardation. In addition, because it takes several Index Business Days to activate or deactivate fully the synthetic short position, by the time the synthetic short position is activated or deactivated fully, the prices of the VIX futures contracts may be moving in the opposite direction, which may adversely affect the level of the Index.

See "— Changing prices of the VIX futures contracts included in the Index may have an adverse effect on the level of the Index" above for more information about the effect of contango and backwardation on the level of the Index.

The Index comprises synthetic assets.

The exposure to VIX futures contracts provided by the Index is purely synthetic and will exist solely in the records maintained by or on behalf of the Index Calculation Agent. There is no actual portfolio of assets to which any person is entitled or in which any person has any ownership interest. Consequently, you will not have any claim against any of the VIX futures contracts underlying the Index.

The Index is an excess return index, and not a total return index.

The Index is an excess return index and not a total return index. The return from investing in futures contracts derives from three sources: (a) changes in the price of the relevant futures contracts (which is known as the "price return"); (b) any profit or loss realized when rolling the relevant futures contracts (which is known as the "roll return"); and (c) any interest earned on the cash deposited as collateral for the purchase of the relevant futures contracts (which is known as the "collateral return").

Some indices linked to futures contracts are excess return indices that measure the returns accrued from investing in uncollateralized futures contracts (*i.e.*, the sum of the price return and the roll return associated with an investment in futures contracts). By contrast, a total return index, in addition to reflecting those returns, also reflects interest that could be earned on funds committed to the trading of the underlying futures contracts (*i.e.*, the collateral return associated with an investment in futures contracts). Because the Index is an excess return index, investing in the notes will therefore not generate the same return as would be generated from investing directly in the relevant VIX futures contracts or in a total return index related to the VIX futures contracts.

The Index has a limited operating history and may perform in unanticipated ways.

The Index was established on August 31, 2012 and therefore has a limited operating history. Any back-testing or similar analysis performed by any person in respect of the Index must be considered illustrative only and may be based on estimates or assumptions not used by the Index Calculation Agent when determining the level of the Index. Past performance should not be considered indicative of future performance.

The Index may in the future include contracts that are not traded on regulated futures exchanges.

The Index is currently based solely on futures contracts traded on regulated futures exchanges (referred to in the United States as "designated contract markets"). If these exchange-traded futures cease to exist, the Index may also cease to exist or may in the future include over-the-counter contracts (such as swaps and forward contracts) traded on trading facilities that are subject to lesser degrees of regulation or, in some cases, no substantive regulation. As a result, trading in those contracts, and the manner in which prices and volumes are reported by the relevant trading facilities, may not be subject to the provisions of, and the protections afforded by, the Commodity Exchange Act, or other applicable statutes and related regulations that govern trading on regulated U.S. futures exchanges. In addition, many electronic trading facilities have only recently initiated trading and do not have significant trading histories. As a result, the trading of contracts on those facilities, and the inclusion of those contracts in the Index, may be subject to certain risks not presented by U.S. exchange-traded futures contracts, including risks related to the liquidity and price histories of the relevant contracts.

Concentration risks associated with the Index may adversely affect the value of your notes.

The Index includes VIX futures contracts with a maturity of between two and six months and thus is less diversified than other funds, investment portfolios or indices investing in or tracking a broader range of products and, therefore, could experience greater volatility. You should be aware that other indices may be more diversified than the Index in terms of both the number and variety of VIX futures contracts. You will not benefit, with respect to the notes, from any of the advantages of a diversified investment and will bear the risks of a highly concentrated investment.

Daily rebalancing of the Index may affect trading in the relevant VIX futures contracts.

The daily rebalancing of the VIX futures contracts underlying the Index may cause us, our affiliates or third parties with whom we transact to adjust our or their hedges accordingly, and to do so frequently. The trading activity associated with these hedging transactions will contribute to the trading volume of the VIX futures contracts included in the Index and may affect the market price of these VIX futures contracts and, in turn, adversely affect the level of the Index.

The VIX futures contracts composing the Index or the VIX Index may be removed or replaced in certain extraordinary events.

Following the occurrence of certain extraordinary events with respect to the VIX futures contracts or the VIX Index, as described under "The J.P. Morgan Strategic Volatility Dynamic Index (Series 1) (USD) — Extraordinary Events with Respect to a VIX Futures Contract" and "The J.P. Morgan Strategic Volatility Index Dynamic — Extraordinary Events with Respect to the VIX Index," respectively, the affected futures contract may be replaced by a substitute futures contract or the VIX Index may be replaced by a successor base index, as applicable. You should realize that the changing of a futures contract or the base index may affect the performance of the Index, and therefore, the return on the notes, as the replacement futures contract or base index may perform significantly better or worse than the affected futures contract or the VIX Index.

The level of the VIX Index has tended to revert to a long-term mean level and any increase in the spot level of the VIX Index will likely continue to be constrained.

In the past, the level of the VIX Index has typically reverted over the longer term to a historical mean, and its absolute level has been constrained within a band. It is likely that the spot level of the VIX Index will continue to do so in the future, especially when economic uncertainties recede. If this happens, the value of VIX futures contracts may decrease, and the potential upside of your investment in the notes due to the synthetic long position may correspondingly be limited as a result. Under these circumstances, unless the synthetic short position, when activated, generates a positive return that is sufficient to offset any negative return for the synthetic long position and the daily deduction of the index fee and daily rebalancing adjustment amount, the level of the Index and the value of your notes will be adversely affected.

THE J.P. MORGAN STRATEGIC VOLATILITY DYNAMIC INDEX (SERIES 1) (USD)

The J.P. Morgan Strategic Volatility Dynamic Index (Series 1) (USD) (the "**Index**") was developed and is maintained and calculated by J.P. Morgan Securities plc ("**JPMS plc**"). The description of the strategy and methodology underlying the Index included in this underlying supplement is based on rules formulated by JPMS plc (the "**Rules**") and is qualified by the full text of the Rules. The Rules, and not this description, will govern the calculation and constitution of the Index and other decisions and actions related to its maintenance. The Rules in effect as of the date of this underlying supplement are attached as Annex A to this underlying supplement. The Index is the intellectual property of JPMS plc, and JPMS plc reserves all rights with respect to its ownership of the Index.

The Index is published by Bloomberg L.P. under the ticker symbol "JPUSSTVD."

The Index is a synthetic, dynamic strategy that aims to reflect flat to positive sensitivity to the volatility of large cap U.S. stocks by replicating the returns from combining a fixed long position and a contingent, scaled short position in futures contracts (each, a "**VIX futures contract**" and together, "**VIX futures contracts**") on the CBOE Volatility Index® (the "**VIX Index**"), where the synthetic long position and, when activated, the synthetic short position, are rolled throughout each month as described below. The VIX Index is a benchmark index designed to measure the market price of 30-day expected volatility of large cap U.S. stocks, and the calculation of the spot level of the VIX Index is based on prices of put and call options on the S&P 500® Index. Futures on the VIX Index allow investors the ability to invest in forward volatility based on their view of the direction of future movement of the VIX Index. Unlike equities, which typically entitle the holder to a continuing stake in a corporation, futures contracts normally specify a certain date for the delivery of the underlying asset or financial instrument or, in the case of futures contracts relating to indices such as the VIX Index, a certain date for payment in cash of an amount determined by the level of the relevant index.

The Index maintains a synthetic long position in third-month, fourth-month, fifth-month and sixth-month VIX futures contracts and, when the synthetic short position is activated, a synthetic short position in second-month and third-month VIX futures contracts. The Index is a rolling index, which rolls throughout each month. As explained in more detail below, the synthetic long position rolls throughout each month from the third-month VIX futures contract into the sixth-month VIX futures contract (while maintaining positions in the fourth-month VIX futures contract and the fifth-month VIX futures contract) and, when activated, the synthetic short position rolls throughout each month from the second-month VIX futures contract into the third-month VIX futures contract. Specifically, the synthetic long position is maintained by synthetically selling on a daily basis the third-month VIX futures contracts to reduce the synthetic long position in the third-month VIX futures contract and synthetically buying on a daily basis the sixth-month VIX futures contracts to increase the synthetic long position in the sixth-month VIX futures contract (while maintaining positions in the fourth-month VIX futures contract and the fifth-month VIX futures contract). On the other hand, the synthetic short position, when activated, is maintained by synthetically buying on a daily basis the second-month VIX futures contract to reduce the synthetic short position in the second-month VIX futures contract and synthetically selling on a daily basis the third-month VIX futures contract to increase the synthetic short position in the third-month VIX futures contract.

This process is known as "rolling" a futures position. One of the effects of daily rolling is to maintain a specified weighted average maturity for the underlying VIX futures contracts. The weighted average maturity for the VIX futures contracts underlying the synthetic long position is approximately four months on any day and for the VIX futures contracts underlying the synthetic short position is approximately two months on any day.

A synthetic long position may not generate positive returns when the market for VIX futures contracts is in "contango," meaning that the price of a VIX futures contract with a later expiration is higher than the price of a VIX futures contract with an earlier expiration. Excluding other considerations, if the market for the relevant VIX futures contracts is in contango, the synthetic purchase of the sixth-month VIX futures contract in connection with the roll of the synthetic long position would take place at a price that is higher than the price at which the synthetic sale of the third-month VIX futures contract would take place, thereby creating a negative "roll yield."

To reduce the potential for a negative roll yield when VIX futures contracts are in contango, the Index seeks to progressively activate a synthetic short position in VIX futures contracts with a weighted average maturity of approximately two months when the market for the relevant VIX futures contracts is in contango. Excluding other considerations, if the market for the relevant VIX futures contracts is in contango, the synthetic sale of the third-month VIX futures contract in connection with the roll of the synthetic short position would take place at a price that is higher than the price at which the synthetic purchase of the second-month VIX futures contract would take place, thereby creating a positive "roll yield," which is intended to offset in part the negative roll yield generated by the synthetic long position. If, however, the VIX futures contracts are in "backwardation," meaning that the price of a VIX futures contract with a later expiration is lower than the price of a VIX futures contract with an earlier expiration, the roll of the synthetic short position, if activated, would create a negative roll yield.

A strategy that simply provides synthetic exposure to equally weighted synthetic long and short positions in VIX futures contracts, where the VIX futures contracts underlying the synthetic short position are closer to expiration than the VIX futures contracts underlying the synthetic long position, may, over time, exhibit a negative sensitivity to volatility. That is, if volatility were to increase, losses on the synthetic short position would tend to be greater than gains on the synthetic long position, and, if volatility were to decrease, gains on the synthetic short position would tend to be greater than losses on the synthetic long position. This is because as implied volatility increases, VIX futures contracts that are closer to expiration tend to exhibit larger increases in price than VIX futures contracts with later expiration and, as volatility decreases, VIX futures contracts that are closer to expiration tend to exhibit larger decreases in price than VIX futures contracts with later expiration.

The Index targets a flat to positive sensitivity to volatility by (a) scaling the exposure to the synthetic short position, based on recent relative returns of the synthetic short position (assuming the synthetic short position is activated at all times) compared to the synthetic long position, in an attempt to avoid or mitigate the negative sensitivity to volatility that could result from constant 100% exposure to the synthetic short position and (b) progressively de-activating the synthetic short position under certain market conditions, each as described in more detail below.

Exposure to the synthetic short position will vary between 0% and 100%. On any Index Business Day (as defined below), the exposure to the synthetic short position that will be used in the calculation of the Index Level (as defined below) on the following Index Business Day will be adjusted based on the Average Beta Weight (as defined below) on that Index Business Day if the level of the VIX Index was less than the rolling, weighted average of the second-month and third-month VIX futures contracts included in the synthetic short position (whether activated or not) for each of the three immediately preceding Index Business Days, subject to a maximum of 100%, a minimum of 0% and a maximum daily change in the exposure of 25%. The Average Beta Weight is based on the 10-day average of the "beta" of the synthetic short position (assuming the synthetic short position is activated at all times) relative to the synthetic long position, where each of the 10 "betas" are, in turn, determined by referencing the daily return of the synthetic long position and the synthetic short position (assuming the synthetic short position is activated at all times) over a 10-day period. "Beta" measures the relative movement of one asset's return compared to another asset's return and is intended to show the degree of correlated movement between two assets (*i.e.*, the degree and direction of change in the performance of one asset given a specified change in the performance of another asset). With respect to the Index, the beta measures the sensitivity of the return from the synthetic short position relative to the return from the synthetic long position. Conversely, the exposure to the synthetic short position will be decreased by 25% on any Index Business Day if the level of the VIX Index was greater than or equal to the rolling, weighted average of the second-month and third-month VIX futures contracts included in the synthetic short position for each of the three immediately preceding Index Business Days, subject to a minimum of 0%. On any Index Business Day for which these conditions are not met, the synthetic short position will not be increased or decreased.

Because, at a minimum, several Index Business Days will pass following a change in the futures market before the synthetic short position will be fully activated (*i.e.*, where the exposure to the synthetic short position is equal to the Average Beta Weight, subject to a maximum daily change in the exposure of 25%) or deactivated (*i.e.*, where the exposure to the synthetic short position is equal to 0%, subject to a maximum daily decrease in the exposure of 25%), the Index is subject to a time lag. See "Risk Factors — Due to the time lag inherent in the Index, the exposure to the synthetic short position may not be adjusted quickly enough in response to a change in market conditions for the investment strategy on which the Index is based to be successful" in this underlying supplement.

No assurance can be given that the Index's strategy will be successful or that the Index will generate positive returns. See "Risk Factors" in this underlying supplement.

On each Index Business Day, the calculation of the Index reflects the deduction of (a) an adjustment factor of 0.75% per annum and (b) a daily rebalancing adjustment amount that is equal to the sum of (1) a rebalancing adjustment factor of between 0.20% and 0.50% per day (depending on the level of the VIX Index), applied to the aggregate notional amount of each of the VIX futures contracts hypothetically traded that day and (2) an additional amount equal to the rebalancing adjustment factor of between 0.20% and 0.50% per day (depending on the level of the VIX Index) applied to the amount of the change, if any, in the level of the exposure to the synthetic short position. Unlike the adjustment factor, the rebalancing adjustment factor is not a per annum fee. The daily rebalancing adjustment amount is intended to approximate the slippage costs that would be experienced by a professional investor seeking to replicate the hypothetical portfolio contemplated by the Index at prices that approximate the official settlement prices (which are not generally tradable) of the relevant VIX futures contracts. Slippage costs are costs that arise from deviations between the actual official settlement price of a VIX futures contract and the prices at which a hypothetical investor would expect to be able to execute trades in the market when seeking to match the expected official settlement price of a VIX futures contract.

The Index was established on August 31, 2012

For more information about VIX futures contracts and the VIX Index, please see "Background on Futures Contracts on the CBOE Volatility Index®" and "Background on the CBOE Volatility Index®," respectively, in this underlying supplement.

The Index is described as a "synthetic" portfolio or strategy because its reported value does not represent the value of any actual assets held by any person and there is no actual portfolio of assets in which any person has any ownership interest.

Contract Rolling and Rebalancing

Unlike equities, which typically entitle the holder to a continuing stake in a corporation, futures contracts normally specify a certain date for the delivery of the underlying asset or financial instrument or, in the case of futures contracts relating to indices such as the VIX Index, a certain date for payment in cash of an amount determined by the level of the relevant index. In the case of VIX futures contracts, one set of contracts settles each month on the settlement date published by the Exchange. At any time, the VIX futures contracts scheduled to settle on the next scheduled settlement date are referred to as the first-month VIX futures contracts, and the VIX futures contracts scheduled to settle on the following month's settlement date are referred to as the second-month VIX futures contracts. The longest dated VIX futures contracts available are the tenth-month VIX futures contracts. On the day that the first-month VIX futures contracts are scheduled to be settled, the old second-month VIX futures contracts become the new first-month VIX futures contracts, the old third-month VIX futures contracts become the new second-month VIX futures contracts and so forth.

A long position in VIX futures contracts can be maintained by selling VIX futures contracts that specify cash settlement on a nearby date and buying VIX futures contracts that specify cash settlement on a later date. On the other hand, a short position can be maintained by buying VIX futures contracts that specify cash settlement on a nearby date and selling VIX futures contracts that specify cash settlement on a later date. This process is known as "rolling" a futures position.

The Index is a rolling index. The synthetic long position maintains a weighted average maturity of approximately four months by synthetically selling third-month VIX futures contracts and synthetically buying sixth-month VIX futures contracts (while maintaining positions in fourth-month VIX futures contracts and fifth-month VIX futures contracts) on each Index Business Day (each, a "**Rebalancing Date**"). When activated, the synthetic short position maintains a weighted average maturity of approximately two months by synthetically buying second-month VIX futures contracts and synthetically selling third-month VIX futures contracts on each Rebalancing Date.

"**Rebalancing Settlement Date**" means, in respect of a VIX futures contract, the originally scheduled final settlement date as published by the Exchange (whether or not the effective final settlement date is the date that was originally scheduled to be the final settlement date), which is currently the Wednesday falling 30 calendar days before the S&P 500 option expiration for the following month.

The "**Exchange**" means the Chicago Board Options Exchange or any successor thereof or otherwise any exchange on which any Successor Futures Contract (as defined below) is traded or the VIX Index or any Successor Base Index (as defined below) is listed (as the case may be) from time to time.

On the Index Business Day immediately preceding each Rebalancing Settlement Date, the weight of the synthetic long position will be allocated equally among long positions in fourth-month VIX futures contracts, fifth-month VIX futures contracts and sixth-month VIX futures contracts. Because the first-month VIX futures contracts are settled on the Rebalancing Settlement Date, those fourth-month VIX futures contracts, fifth-month VIX futures contracts and sixth-month VIX futures contracts will become third-month VIX futures contracts, fourth-month VIX futures contracts and fifth-month VIX futures contracts, respectively, on that day. And then, on each succeeding Index Business Day, a fraction of the notional amount of third-month VIX futures contracts is sold, and an equivalent notional amount of sixth-month VIX futures contracts is purchased. The fraction, or quantity, purchased is proportional to the total number of scheduled Index Business Days that have elapsed since the last Index Business Day over the total number of scheduled Index Business Days in the period from, and including, one Rebalancing Settlement Date to, and including, the Rebalancing Date immediately preceding the next following Rebalancing Settlement Date in which the current Index Business Day falls. In this way, the initial long position in third-month VIX futures contracts is progressively moved to sixth-month VIX futures contracts over the course of the month so that, on the Index Business Day immediately preceding the following Rebalancing Settlement Date, the weight of the synthetic long position will once again be allocated equally among long positions in fourth-month VIX futures contracts, fifth-month VIX futures contracts and sixth-month VIX futures contracts.

If the synthetic short position is activated, on the Index Business Day immediately preceding each Rebalancing Settlement Date, all of the weight of the synthetic short position will be allocated to a short position in third-month VIX futures contracts. Because the first-month VIX futures contracts are settled on each Rebalancing Settlement Date, those third-month VIX futures contracts will become second-month VIX futures contracts on that day. And then, on each succeeding Index Business Day , a fraction of the notional amount of second-month VIX futures contracts is purchased, and an equivalent notional amount of third-month VIX futures contracts is sold. The fraction, or quantity, sold is proportional to the total number of scheduled Index Business Days that have elapsed since the last Index Business Day over the total number of scheduled Index Business Days in the period from, and including, one Rebalancing Settlement Date to, and including, the Rebalancing Date immediately preceding the next following Rebalancing Settlement Date in which the current Index Business Day falls. In this way, the initial short position in second-month VIX futures contracts is progressively moved to third-month VIX futures contracts over the course of the month so that, on the Index Business Day immediately preceding the following Rebalancing Settlement Date, all of the weight of the synthetic short position will once again be allocated to a short position in third-month VIX futures contracts.

Accordingly, the weights of the VIX futures contracts included in the Index on any Index Business Day are calculated as follows:

ContractWeight(A, p) = dr / dp,

ContractWeight(B, p) = (dp-dr) / dp

where:

ContractWeight(A, p)	means, (a) with respect to the synthetic long position, the weight of the third-month VIX futures contract with respect to the relevant Index Business Day and (b) with respect to the synthetic short position, the weight of the second-month VIX futures contract with respect to the relevant Index Business Day;
ContractWeight(B, p)	means, (a) with respect to the synthetic long position, the weight of the sixth-month VIX futures contract with respect to the relevant Index Business Day and (b) with respect to the synthetic short position, the weight of the third-month VIX futures contract with respect to the relevant Index Business Day;
dp	means the total number of Index Business Days in the period from, and including, one Rebalancing Settlement Date to, and including, the Rebalancing Date immediately preceding the next following Rebalancing Settlement Date in which the relevant Index Business Day falls (irrespective of whether any of those day(s) is or becomes an Index Disrupted Day); and
dr	means the total number of Index Business Days from, but excluding, the relevant Index Business Day to, but excluding, the next Rebalancing Settlement Date (irrespective of whether any of those day(s) is or becomes an Index Disrupted Day).

Calculation and Publication of Index Levels

Publication of Index Levels

Subject to the occurrence of an Index Disruption Event (as defined below), the Index Calculation Agent will calculate and publish the level of the Index (the "**Index Level**") with respect to each Index Business Day. The Index Level is rounded to two decimal places before being published.

The calculation agent for the Index is JPMS plc or any affiliate, subsidiary or third party designated by JPMS plc (the "**Index Calculation Agent**").

An "**Index Business Day**" means each day (other than a Saturday or Sunday) on which the Exchange(s) in respect of each VIX futures contract and the VIX Index are all open for trading during its or their regular trading sessions.

Calculation of Index Levels

The Index Level is calculated in U.S. dollars with respect to each Index Business Day by adjusting the Index Level as of the immediately preceding Index Business Day to reflect the return of the Index since the immediately preceding Index Business Day. On any Index Business Day, the return of the Index reflects the following:

- the returns of the synthetic long position and the synthetic short position, if activated, since the immediately preceding Index Business Day;

- the deduction of an adjustment factor of 0.75% per annum (the "**Adjustment Factor**"); and

- a deduction equal to the sum of a rebalancing adjustment factor of between 0.20% and 0.50% per day (depending on the level of the VIX Index on the immediately preceding Index Business Day) (the "**Rebalancing Adjustment Factor**"), applied to (1) the aggregate notional amount of each of the VIX futures contracts hypothetically traded that Index Business Day and (2) the amount of the change, if any, in the level of the exposure to the synthetic short position (the "**Daily Rebalancing Percentage**"). Unlike the Adjustment Factor, the Rebalancing Adjustment Factor is not a per annum fee.

The Index Level has a base level of 100.00 as of June 20, 2008 (the "**Base Date**").

Subject to the occurrence of an Index Disruption Event, the Index Level on each Index Business Day is calculated as follows:

$$\textbf{Index(t)} = \text{Index(t-1)} \times (1 + \text{Return(t)})$$

where:

Index(t) means the Index Level with respect to the current Index Business Day;

Index(t-1) means the Index Level published by the Index Calculation Agent with respect to the immediately preceding Index Business Day that is not an Index Disrupted Day (as defined below); and

Return(t) means the return of the Index from the immediately preceding Index Business Day that is not an Index Disrupted Day to the current Index Business Day, calculated as follows:

$$\textbf{Return(t)} = \text{Long Return(t)} - (\text{Short I(t-1)} \times \text{Short Return(t)}) - \text{AdjAmount(t)} - \text{RebAdjAmount(t)}$$

where:

Long Return(t) means the return of the synthetic long position from the immediately preceding Index Business Day that is not an Index Disrupted Day to the current Index Business Day, as described under "The Long Return and the Short Return" below;

Short Return(t) means the return of any synthetic short position from the immediately preceding Index Business Day that is not an Index Disrupted Day to the current Index Business Day, as described under "The Long Return and the Short Return" below;

Short I(t-1) means the amount of any exposure to the synthetic short position, which will be between 0% and 100%, as of the immediately preceding Index Business Day, as described under "The Short Position Exposure" below;

AdjAmount(t) means the amount deducted due to the Adjustment Factor with respect to the current Index Business Day, as described under "The Adjustment Factor" below; and

RebAdjAmount(t) means the percentage reduction in the Index Level due to the Rebalancing Adjustment Factor with respect to the current Index Business Day, as described under "The Rebalancing Adjustment Factor" below.

The Long Return and the Short Return

When the market for VIX futures contracts is in backwardation, excluding other considerations, the price of VIX futures contracts will increase as the contracts move nearer to maturity. If the prices of the VIX futures contracts that compose a synthetic position increase on any Index Business Day, the return with respect to a synthetic long position will be positive (which will have a *positive* effect on the Index Level), but because the synthetic short position represents short exposure to the underlying VIX futures contracts, the resulting positive return with respect to the synthetic short position, if activated, will have a *negative* effect on the Index Level.

On the other hand, when the market for VIX futures contracts is in contango, excluding other considerations, the price of VIX futures contracts will decrease as the contracts move nearer to maturity. If the prices of the VIX futures contracts that compose a synthetic position decrease on any Index Business Day, the return with respect to a synthetic long position will be negative (which will have a *negative* effect on the Index Level), but because the synthetic short position represents short exposure to the underlying VIX futures contracts, the resulting negative return with respect to the synthetic short position, if activated, will have a *positive* effect on the Index Level.

The long return and the short return reflect the weighted average return of the VIX futures contracts included in the synthetic long position or synthetic short position, respectively, from the immediately preceding Index Business Day. On any Index Business Day that is not a Rebalanced Portfolio Day (as defined below), the Long Return and the Short Return are calculated as follows:

$$\textbf{Short Return (t)} = \frac{\begin{array}{c}[\text{ContractWeight}(A, t\text{-}1) \times \text{ContractPrice}(2, t)] + \\ [\text{ContractWeight}(B, t\text{-}1) \times \text{ContractPrice}(3, t)]\end{array}}{\begin{array}{c}[\text{ContractWeight}(A, t\text{-}1) \times \text{ContractPrice}(2, t\text{-}1)] \\ + \\ [\text{ContractWeight}(B, t\text{-}1) \times \text{ContractPrice}(3, t\text{-}1)]\end{array}} - 1$$

$$\textbf{Long Return (t)} = \frac{\begin{array}{c}[\text{ContractWeight}(A, t\text{-}1) \times \text{ContractPrice}(3, t)] + \\ \text{ContractPrice}(4, t) + \text{ContractPrice}(5, t) + \\ [\text{ContractWeight}(B, t\text{-}1) \times \text{ContractPrice}(6, t)]\end{array}}{\begin{array}{c}[\text{ContractWeight}(A, t\text{-}1) \times \text{ContractPrice}(3, t\text{-}1)] \\ + \text{ContractPrice}(4, t\text{-}1) + \text{ContractPrice}(5, t\text{-}1) + \\ [\text{ContractWeight}(B, t\text{-}1) \times \text{ContractPrice}(6, t\text{-}1)]\end{array}} - 1$$

where:

ContractWeight(A, t-1) means, (a) with respect to the synthetic long position, the weight of the third-month VIX futures contract with respect to the immediately preceding Index Business Day and (b) with respect to the synthetic short position, the weight of the second-month VIX futures contract with respect to the immediately preceding Index Business Day, calculated as set forth under "Contract Rolling and Rebalancing" above;

ContractWeight(B, t-1) means, (a) with respect to the synthetic long position, the weight of the sixth-month VIX futures contract with respect to the immediately preceding Index Business Day and (b) with respect to the synthetic short position, the weight of the third-month VIX futures contract with respect to the immediately preceding Index Business Day, calculated as set forth under "Contract Rolling and Rebalancing" above;

ContractPrice(i, t) means the Daily Contract Reference Price of the i^{th}-month VIX futures contract on the current Index Business Day; and

ContractPrice(i, t-1) means the Daily Contract Reference Price of the i^{th}-month VIX futures contract on the immediately preceding Index Business Day that is not an Index Disrupted Day.

The "**Daily Contract Reference Price**" means, with respect to a VIX futures contract, (a) in respect of any Index Business Day that is the effective final settlement date for that VIX futures contract, the Final Settlement Value of that VIX futures contract; or (b) in respect of any other Index Business Day, the Closing Price of that VIX futures contract.

The "**Final Settlement Value**" means, with respect to a VIX futures contract and a Rebalancing Settlement Date, the final settlement value (howsoever described in the rules of the Exchange) for that VIX futures contract as published by the Exchange in respect of the effective final settlement date for that VIX future contract.

The "**Closing Price**" means, with respect to a VIX futures contract and an Index Business Day, the official settlement price (howsoever described in the rules of the Exchange) for that VIX futures contract as published by the Exchange.

If the Index Business Day immediately preceding a Rebalancing Settlement Date was not an Index Disrupted Day (such Index Business Day being the "**Prior Undisrupted Day**"), the first Index Business Day that is not an Index Disrupted Day that immediately follows that Prior Undisrupted Day is a "**Rebalanced Portfolio Day**."

"**Index Disrupted Day**" means an Index Business Day on which an Index Disruption Event occurs or exists. Index Disruption Events are descrupted under "— Index Disruption Events."

On any Index Business Day that is a Rebalanced Portfolio Day, the formulas for the Long Return and the Short Return are expressed differently to reflect that the third-month VIX futures contract has become the second-month VIX futures contract, the fourth-month VIX futures contract has become the third-month futures contract and so forth. In addition, the contract weights drop away because the weight of the synthetic long position is equally distributed among the three contracts on the Index Business Day immediately preceding a Rebalancing Settlement Date (if that Index Business Day is not an Index Disrupted Day) and the synthetic short position is concentrated in a single contract on the Index Business Day immediately preceding a Rebalancing Settlement Date. Accordingly, the Long Return and the Short Return on any Index Business Day that is a Rebalanced Portfolio Day are calculated as follows:

$$\textbf{Short Return (t)} = \frac{\text{ContractPrice}(2, t)}{\text{ContractPrice}(3, t\text{-}1)} - 1$$

$$\textbf{Long Return (t)} = \frac{\text{ContractPrice}(3, t) + \text{ContractPrice}(4, t) + \text{ContractPrice}(5, t)}{\text{ContractPrice}(4, t\text{-}1) + \text{ContractPrice}(5, t\text{-}1) + \text{ContractPrice}(6, t\text{-}1)} - 1$$

The Short Position Exposure

With respect to an Index Business Day, the exposure to the synthetic short position that will be used in the calculation of the Index Level on the following Index Business Day will vary between 0% and 100% and will be adjusted based on a comparison of the level of the VIX Index on each of the three immediately preceding Index Business Days to the weighted average of the Daily Contract Reference Prices of the second-month and third-month VIX futures contracts included (or that would have been included) in the synthetic short position (the "**Weighted Average Contract Price**") on that preceding Index Business Day:

- if the level of the VIX Index is less than the Weighted Average Contract Price on each of the three immediately preceding Index Business Days, the exposure to the synthetic short position on the relevant Index Business Day will equal the Average Beta Weight on that Index Business Day; *provided* that the exposure to the synthetic short position on the relevant Index Business Day will not be:

(a) less than 0%;

(b) greater than 100%;

(c) less than the exposure to the synthetic short position on the immediately preceding Index Business Day by more than 25%; or

(d) greater than the exposure to the synthetic short position on the immediately preceding Index Business Day by more than 25%.

- if the level of the VIX Index is greater than or equal to the Weighted Average Contract Price on each of the three immediately preceding Index Business Days, the exposure to the synthetic short position will be decreased by 25%, subject to a minimum of 0%, on the relevant Index Business Day; and

- if the conditions in neither of the immediately preceding bullets are satisfied on the relevant Index Business Day, the exposure to the synthetic short position will not be increased or decreased on that Index Business Day.

On any Index Business Day, the Weighted Average Contract Price is calculated as follows:

$$\text{ContractWeight}(A, t) \times \text{ContractPrice}(2, t) + \text{ContractWeight}(B, t) \times \text{ContractPrice}(3, t)$$

On any Index Business Day, the "**level of the VIX Index**" is the official closing level of the VIX Index published by the sponsor of the VIX Index with respect to that Index Business Day.

On any Index Business Day, the "**Average Beta Weight**" is the average of the inverse of the "beta" for each of the 10 consecutive Index Business Days to and including that Index Business Day. "Beta" measures the relative movement of one asset's return compared to the movement of another asset's return. Specifically, with respect to the Index, beta on any Index Business Day measures the movement of the Short Return to the Long Return over a period of 10 consecutive Index Business Days immediately preceding that Index Business Day, based on the daily return of the synthetic long position and the synthetic short position (assuming the synthetic short position is activated at all times) over that 10-Index Day Period. Beta is a numerical value that is intended to show the degree of correlated movement between two assets (*i.e.*, the degree and direction of change in the performance of one asset given a specified change in the performance of another asset). With respect to the Index, the beta measures the sensitivity of the Short Return relative to the Long Return. A positive beta means that the Short Return is positively correlated to the Long Return, and they move in the same direction. A negative beta means that the Short Return is negatively correlated to the Long Return, and they move in opposite directions. A zero beta means that the Short Return is not correlated at all to the Long Return. For example, if the Short Return were 2% and the Long Return were 1% for each Index Business Day in the 10-Index Business Day period immediately preceding an Index Business Day, the beta for that Index Business Day would be 2. This means that the synthetic short position was twice as sensitive to movements in volatility as the synthetic long position over that 10-Index Business Day period. If we assume further that the beta stayed constant at 2 for 10 consecutive Index Business Days, the Average Beta Weight (*i.e.*, the average of the inverse of the betas for those 10 Index Business Days) on the last of those 10 Index Business Days would be 0.50 (or 50%). In this scenario, if the exposure to the short synthetic position were set equal to the Average Beta Weight, the exposure would be 50%. The above example is merely illustrative. Actual betas are likely to change on a daily basis. For more information about how the Average Beta Weight is calculated, please see the Rules attached as Annex A to this underlying supplement.

Because large price movements in VIX futures contracts can occur suddenly, the VIX futures contracts may rapidly move from backwardation to contango or from contango to backwardation; however, the exposure to the synthetic short position will remain unchanged until the applicable conditions have been satisfied for three consecutive Index Business Days, after which the exposure to

the synthetic short position will change in increments of up to 25% per Index Business Day, subject to a maximum exposure of 100% and a minimum exposure of 0%. Accordingly, at a minimum, several Index Business Days will pass following a change in the futures market before the synthetic short position will be fully activated (*i.e.*, where the exposure to the synthetic short position is equal to the Average Beta Weight) or deactivated (*i.e.*, where the exposure to the synthetic short position is equal to 0%), by which time market conditions may have changed. No assurance can be given that the exposure to the synthetic short position will be adjusted quickly enough for the investment strategy on which the Index is based to be successful. See "Risk Factors — Due to the time lag inherent in the Index, the exposure to the synthetic short position may not be adjusted quickly enough in response to a change in market conditions for the investment strategy on which the Index is based to be successful" in this underlying supplement.

The following table shows whether an adjustment is made to the exposure to the synthetic short position on each of twenty Index Business Days based on hypothetical levels of the VIX Index and hypothetical Weighted Average Contract Prices.

Index Business Day	VIX Index Level	Weighted Average Contract Price	VIX Index Level is less than Weighted Average Contract Price	Type of Adjustment to the Exposure to the Synthetic Short Position
-2	25.00	26.00	Yes	N/A
-1	25.50	27.50	Yes	N/A
0	26.00	26.50	Yes	N/A
1	25.50	25.75	Yes	Average Beta Weight(1)
2	26.00	25.50	No	Average Beta Weight(1)
3	25.75	27.75	Yes	No Adjustment
4	26.50	27.00	Yes	No Adjustment
5	27.75	29.75	Yes	No Adjustment
6	31.00	28.00	No	Average Beta Weight(1)
7	33.75	31.75	No	No Adjustment
8	36.00	34.00	No	No Adjustment
9	37.75	35.75	No	25% Decrease(2)
10	39.00	37.00	No	25% Decrease(2)
11	39.75	39.00	No	25% Decrease(2)
12	40.00	40.25	Yes	25% Decrease(2)
13	39.75	37.75	No	No Adjustment
14	39.00	37.00	No	No Adjustment
15	37.75	35.75	No	No Adjustment
16	36.00	34.00	No	25% Decrease(2)
17	33.75	35.75	Yes	No Adjustment
18	31.00	33.00	Yes	No Adjustment
19	27.75	29.75	Yes	No Adjustment
20	24.00	26.00	Yes	Average Beta Weight(1)

(1) The exposure to the synthetic short position will be adjusted based on the Average Beta Weight, as described above, subject to a maximum daily change in exposure of 25%.

(2) The exposure to the synthetic short position will be decreased by 25%.

The numbers appearing in the table above are purely hypothetical, and actual VIX Levels and Weighted Average Contract Prices and the actual adjustments to the exposure to the synthetic short position may be different. These numbers should not be taken as an indication or prediction of future VIX Levels or Weighted Average Contract Prices or future adjustments to the exposure to the synthetic short position and are intended merely to illustrate whether an adjustment will be made to the exposure to the synthetic short position in response to changes in VIX Levels and Weighted Average Contract Prices in hypothetical scenarios.

The Adjustment Factor

On each Index Business Day, the Index Level is subject to the daily deduction of a hypothetical amount that reflects the Adjustment Factor of 0.75% per annum and the number of calendar days that have elapsed since the immediately preceding Index Business Day, calculated as follows:

$$\mathbf{AdjAmount(t)} = A \times n(t\text{-}1,t) / 360$$

where:

A means the Adjustment Factor of 0.75% per annum; and

n(t-1,t) means the number of calendar days from, and including, the immediately preceding Index Business Day that is not an Index Disrupted Day to, but excluding, the current Index Business Day.

The Rebalancing Adjustment Factor

On each Index Business Day, the Index Level is subject to the daily deduction of a hypothetical amount that reflects the Rebalancing Adjustment Factor of between 0.20% and 0.50% per day (depending on the level of the VIX Index on the immediately preceding Index Business Day), calculated as follows:

$$\mathbf{RebAdjAmount(t) = (DailyRebalPercentage(t) + ShortExpChange(t)) \times R}$$

where:

DailyRebalPercentage(t) means the Daily Rebalancing Percentage on the current Index Business Day, determined as described below;

ShortExpChange(t) means the Short Exposure Change, if any, on the current Index Business Day, determined as described below; and

R means the Rebalancing Adjustment Factor on the current Index Business Day, determined by reference to the level of the VIX Index on the immediately preceding Index Business Day, determined as follows:

Level of the VIX Index on the immediately preceding Index Business Day	Rebalancing Adjustment Factor
=< 35	0.20%
=< 50 and > 35	0.30%
=< 70 and > 50	0.40%
> 70	0.50%

The product of (a) the sum of the Daily Rebalancing Percentage as of the current Index Business Day and the Short Exposure Change as of the current Index Business Day and (b) the Rebalancing Adjustment Factor is intended to approximate the slippage costs (expressed as a percentage of the Index Level as of the immediately preceding Index Business Day) that would be experienced by a professional investor seeking to replicate the hypothetical portfolio contemplated by the Index at prices that approximate the official settlement prices (which are not generally tradable) of the relevant VIX futures contracts. Slippage costs are costs that arise from deviations between the actual official settlement price of a VIX futures contract and the prices at which a hypothetical investor would expect to be able to execute trades in the market when seeking to match the expected official settlement price of a VIX futures contract.

On any Index Business Day, the Daily Rebalancing Percentage is composed of the following:

(a) changes in the notional exposure allocated to the second-month VIX futures contract from the immediately preceding Index Business Day to the current Index Business Day due to the net effect of:

  (i) if the exposure to the synthetic short position is greater than 0% on the immediately preceding Index Business Day, the decrease in the synthetic short exposure to the second-month VIX futures contract from the immediately preceding Index Business Day to the current Index Business Day as a result of the roll for that day required to maintain the weighted average maturity of the synthetic short position; and

  (ii) the change, if any, in the exposure to the second-month VIX futures contract arising from the change, if any, in the exposure to the synthetic short position (this amount will be equal to 0% unless the relevant criteria set forth above are satisfied so that the exposure to the synthetic short position is either being adjusted based on the Average Beta Weight, subject to a maximum daily change in exposure of 25%, or being reduced by 25%, subject to the 0% minimum) from the immediately preceding Index Business Day to the current Index Business Day;

(b) changes in the notional exposure allocated to the third-month VIX futures contract from the immediately preceding Index Business Day to the current Index Business Day due to the net effect of:

  (i) (x) the decrease in the synthetic long position in the third-month VIX futures contract from the immediately preceding Index Business Day to the current Index Business Day as a result of the roll for that day required to maintain the weighted average maturity of the synthetic long position and (y) if the exposure to the synthetic short position is greater than 0% on the immediately preceding Index Business Day, the increase in the synthetic short exposure to the third-month VIX futures contract from the immediately preceding Index Business Day to the current Index Business Day as a result of the roll for that day required to maintain the weighted average maturity of the synthetic short position (note that both (x) and (y) result in synthetic sales of a portion of the third-month VIX futures contract); and

  (ii) the change, if any, in the exposure to the third-month VIX futures contract arising from the change, if any, in the exposure to the synthetic short position (this amount will be equal to 0% unless the relevant criteria set forth above are satisfied so that the exposure to the synthetic short position is either being adjusted based on the Average Beta Weight, subject to a maximum daily change in exposure of 25%, or being reduced by 25%, subject to the 0% minimum) from the immediately preceding Index Business Day to the current Index Business Day; and

(c) changes in the notional exposure allocated to the sixth-month VIX futures contract from the immediately preceding Index Business Day to the current Index Business Day due to the increase in the synthetic long exposure to the sixth-month VIX futures contract from the immediately preceding Index Business Day to the current Index Business Day as a result of the roll for that day required to maintain the weighted average maturity of the synthetic long position.

The decrease or increase in the exposure to a VIX futures contract is, in each case, the difference between the notional exposure based on the weight of the applicable VIX futures contract on the current Index Business Day and the notional exposure based on the weight of that VIX futures contract on the immediately preceding Index Business Day. In addition, the weights of the VIX futures contracts included in the synthetic short position are adjusted to reflect the exposure to the synthetic short position on the relevant Index Business Day.

On any Index Business Day, the Short Exposure Change represents the amount of the change in the level of the exposure to the synthetic short position (this amount will be equal to 0% unless the relevant criteria set forth above are satisfied so that the exposure to the synthetic short position is either being adjusted based on the Average Beta Weight, subject to a maximum daily change in exposure of 25%, or being reduced by 25%, subject to the 0% minimum) from the immediately preceding Index Business Day to the current Index Business Day. While the change in the exposure to the synthetic short position will be reflected in the Daily Rebalancing Percentage (see (a) and (b) above), the amount of the change in the level of the exposure to the synthetic short position is also included separately as the Short Exposure Change in order to approximate the additional slippage costs that would be incurred when hypothetically rebalancing a larger position of VIX futures contracts in connection with an increase or decrease in the exposure to the synthetic short position.

For example, assume that (a) the period from, and including, one Rebalancing Settlement Date to, and including, the Rebalancing Date immediately preceding the next following Rebalancing Settlement Date consists of 20 Index Business Days, (b) the immediately preceding Index Business Day was a Rebalancing Settlement Date and (c) the exposure to the synthetic short position is 75% on the immediately preceding Index Business Day and the current Index Business Day. Under these circumstances, 1/20, or 5%, of the VIX futures contracts included in the synthetic short position would be rolled on each Index Business Day and 1/60, or 1.6667%, of the VIX futures contracts included in the synthetic long position would be rolled on each Index Business Day. The Daily Rebalancing Percentage would be calculated as follows:

$$\underbrace{|(-90\% \times 75\%) - (-95\% \times 75\%)|}_{A} + \underbrace{|[(-10\% \times 75\%) - (-5\% \times 75\%)]}_{B(1)} + \underbrace{[(90\% \times 1/3) - (95\% \times 1/3)]|}_{B(2)}$$

$$+ \underbrace{|(10\% \times 1/3) - (5\% \times 1/3))|}_{C} =$$

$$\underbrace{3.75\%}_{A} + \underbrace{|(-3.75\%)}_{B(1)} + \underbrace{(-1.6667\%)|}_{B(2)} + \underbrace{1.6667\%}_{(C)} = \mathbf{10.8333\%}$$

As shown above,

- the roll of the synthetic short position requires an adjustment in the allocation of the synthetic short position to the second-month VIX futures contract from -95% to -90%, taking into account that the exposure to the synthetic short position remains at 75% (this is captured in part "A" of the equation above), and an adjustment in the allocation of the synthetic short position to the third-month VIX futures contract, taking into account that the exposure to the synthetic short position remains 75% (that is included in the synthetic short position) from -5% to -10% (this is captured in part "B(1)" of the equation above); and

- the roll of the synthetic long position requires an adjustment in the allocation of the synthetic long position to the third-month VIX futures contract from 31.6667% (or 95% × 1/3) to 30% (or 90% × 1/3) (this is captured in part "B(2)" of the equation above) and an adjustment in the allocation of the synthetic long exposure to the sixth-month VIX futures contract from 1.6667% (or 5% × 1/3) to 3.3333% (or 10% × 1/3) (this is captured in part "C" of the equation above).

The Short Exposure Change would be calculated as follows:

$$|75\% - 75\%| = \mathbf{0\%}$$

Because the exposure to the synthetic short position remains unchanged at 75%, the Short Exposure Change is 0%.

The percentage reduction in the Index Level due to the Rebalancing Adjustment Factor is equal to the product of (a) the sum of the Daily Rebalancing Percentage and the Short Exposure Change and (b) the Rebalancing Adjustment Factor. Assuming that the level of the VIX Index on the previous Index Business Day is less than or equal to 35, so that the Rebalancing Adjustment Factor on the current Index Business Day is equal to 0.20%, the percentage reduction in the Index Level due to the Rebalancing Adjustment Factor with respect to the current Index Business Day would be calculated as follows:

$$(10.8333\% + 0\%) \times 0.20\% = \mathbf{0.0217\%}$$

Given the assumptions stated above, the percentage reduction in the Index Level due to the Rebalancing Adjustment Factor over the course of a one-month roll period would be equal to 0.4333% (or 5.20% over the course of a year).

If, however, the level of the VIX Index were greater than 70, the Rebalancing Adjustment Factor on the current Index Business Day would be equal to 0.50%, and the percentage reduction in the Index Level due to the Rebalancing Adjustment Factor with respect to the current Index Business Day would be calculated as follows:

$$(10.8333\% + 0\%) \times 0.50\% = \mathbf{0.0542\%}$$

The Daily Rebalancing Percentage is significantly greater on Index Business Days on which the exposure to the synthetic short position changes than on Index Business Days on which no such change occurs. If, on the Index Business Day described above, the exposure to the synthetic short position had decreased by 25% instead of remaining unchanged, the Daily Rebalancing Percentage would be calculated as follows:

$$\underbrace{|(-90\% \times 50\%) - (-95\% \times 75\%)|}_{A} + \underbrace{|[(-10\% \times 50\%) - (-5\% \times 75\%)]}_{B(1)} + \underbrace{[(90\% \times 1/3) - (95\% \times 1/3)]|}_{B(2)}$$

$$+ \underbrace{|(10\% \times 1/3) - (5\% \times 1/3))|}_{C} =$$

$$\underbrace{26.25\%}_{A} + |\underbrace{(-1.25\%)}_{B(1)} + \underbrace{(-1.6667\%)}_{B(2)}| + \underbrace{1.6667\%}_{(C)} = \mathbf{30.8333\%}$$

As shown above,

- to effect the roll of the synthetic short position as well as to effect the reduction of the exposure to the synthetic short position, the allocation of the synthetic short position to the second-month VIX futures contract needs to be adjusted from -95% to -90%, taking into account that the exposure to the synthetic short position is also adjusted from 75% to 50% (this is captured in part "A" of the equation above), and the allocation of the synthetic short position to the third-month VIX futures contract (that is included in the synthetic short position) needs to be adjusted from 0% to -5%, taking into account that the exposure to the synthetic short position is also adjusted from 75% to 50% (this is captured in part "B(1)" of the equation above); and

- the roll of the synthetic long position requires an adjustment in the allocation of the synthetic long position to the third-month VIX futures contract from 31.6667% (or 95% × 1/3) to 30% (or 90% × 1/3) (this is captured in part "B(2)" of the equation above) and an adjustment in the allocation of the synthetic long exposure to the sixth-month VIX futures contract from 1.6667% (or 5% × 1/3) to 3.3333% (or 10% × 1/3) (this is captured in part "C" of the equation above).

The Short Exposure Change would be calculated as follows:

$$|50\% - 75\%| = \mathbf{25\%}$$

Because the exposure to the synthetic short position is reduced from 75% to 50%, the Short Exposure Change is 25%.

Assuming that the level of the VIX Index on the previous Index Business Day is less than or equal to 35, so that the Rebalancing Adjustment Factor on the current Index Business Day is equal to 0.20%, the percentage reduction in the Index Level due to the Rebalancing Adjustment Factor with respect to the current Index Business Day would be calculated as follows:

$$(30.8333\% + 25\%) \times 0.20\% = \mathbf{0.1117\%}$$

If, however, the level of the VIX Index were greater than 70, the Rebalancing Adjustment Factor on the current Index Business Day would be equal to 0.50%, and the percentage reduction in the Index Level due to the Rebalancing Adjustment Factor with respect to the current Index Business Day would be calculated as follows:

$$(30.8333\% + 25\%) \times 0.50\% = \mathbf{0.2792\%}$$

As shown above, the sum of the Daily Rebalancing Percentage and the Short Exposure Change is significantly greater on Index Business Days on which the exposure to the synthetic short position changes than on Index Business Days on which no such change occurs. In addition, the Rebalancing Adjustment Factor increases as the level of the VIX Index increases, and the Rebalancing Adjustment Factor can be as high as 0.50% per day. These examples are purely hypothetical, and the actual percentage reduction in the Index Level due to the Rebalancing Adjustment Factor on any Index Business Day may be different from the percentages shown above. See "Risk Factors — The daily rebalancing adjustment amount is likely to have a substantial adverse effect on the level of the Index over time" in this underlying supplement.

For more information about how the Daily Rebalancing Percentage and the Short Exposure Change are calculated for purposes of determining the percentage reduction in the Index Level due to the Rebalancing Adjustment Factor, please see the Rules attached as Annex A to this underlying supplement.

Index Disruption Events

The Index Calculation Agent will calculate and publish the Index Level on each Index Business Day so long as no Index Disruption Event has occurred or is continuing on that day. If any Index Business Day is an Index Disrupted Day, then the Index Calculation Agent may suspend the calculation and publication of the Index Level until the first succeeding Index Business Day that is not an Index Disrupted Day.

If any Rebalancing Date is an Index Disrupted Day, then the relevant Rebalancing Date will be deemed to be the first following Rebalancing Date that is not an Index Disrupted Day.

On the first Rebalancing Date following one or more consecutive Index Disrupted Days (the first such day being the "**First Index Disrupted Day**" and the last such day being the "**Final Index Disrupted Day**"), the Index Calculation Agent will determine the Index Level in accordance with the methodology set out in "Calculation and Publication of Index Levels" above, *provided* that references to any Index Business Day preceding any Rebalancing Date that is an Index Disrupted Day will be deemed to be references to the applicable Index Business Day that is itself not an Index Disrupted Day preceding the First Index Disrupted Day.

If the first Rebalancing Date following the Final Index Disrupted Day falls on or after a Rebalancing Settlement Date and the relevant First Index Disrupted Day falls before such Rebalancing Settlement Date, then, for the purposes of calculating the Index Level:

- except with respect to ContractPrice (1, t), references to ContractPrice(i, t) will be deemed to be references to ContractPrice(i-1, t); and

- ContractPrice(1, t) will be deemed to be the Final Settlement Value of the relevant VIX futures contract scheduled to expire on that Rebalancing Settlement Date (as published by the Exchange).

If the period from and including the First Index Disrupted Day to and including the Final Index Disrupted Day includes more than one Rebalancing Settlement Date, the Index Calculation Agent will make such adjustments to the Rules, as it determines in good faith are appropriate, to account for that fact.

An "**Index Disruption Event**" means the occurrence of one or more of the following events that, in the determination of the Index Calculation Agent in its sole discretion, materially interferes with the ability of market participants to transact in positions with respect to the Index, the VIX futures contracts or the VIX Index:

- a failure by the Exchange to publish the Closing Price for any VIX futures contract on an Index Business Day;

- a failure by the Relevant Exchange to publish the Final Settlement Value on any of (x) the Rebalancing Settlement Date, (y) a later date to which the final settlement date for any such Futures Contract has been postponed, but that is not the effective final settlement date for the relevant Futures Contract or (z) the effective final settlement date for any such Futures Contract;

- the occurrence or existence of a suspension, absence or material limitation of trading of any VIX futures contract or any futures or options contracts relating to the VIX Index on the Exchange during the last one-hour period preceding the close of the principal trading session on the Exchange;

- a breakdown or failure in the price and trade reporting systems of the Exchange as a result of which the reported trading prices for any VIX futures contract or any futures or options contracts relating to the VIX Index are materially inaccurate during the last one-hour period preceding the close of the principal trading session on the Exchange ;

- any event that disrupts or impairs the ability of market participants generally to effect transactions in or obtain market values for any VIX futures contract or the VIX Index on an Index Business Day during the last one-hour period preceding the close of the principal trading session on the Exchange. Such events may include, but are not limited to, the occurrence of a Trading Disruption, Exchange Disruption or Early Closure; or

- a failure by the sponsor for the VIX Index to calculate and publish the level for the VIX Index on an Index Business Day.

"**Trading Disruption**" means any suspension of or limitation imposed on trading by the Exchange or otherwise and whether by reason of movements in a price exceeding limits permitted by the Exchange or otherwise in futures contracts (including, without limitation, the VIX futures contracts) or options contracts (including, without limitation, options on the VIX futures contracts) relating to the VIX Index on any Exchange.

"**Exchange Disruption**" means any event (other than an Early Closure) that disrupts or impairs (as determined by the Index Calculation Agent) the ability of market participants in general to effect transactions in, or obtain market values for, futures contracts (including, without limitation, any of the VIX futures contracts) or options contracts (including, without limitation, options on any of the VIX futures contracts) relating to the VIX Index on any Exchange.

"**Early Closure**" means the closure on any Index Business Day of the Exchange prior to its scheduled closing time unless such earlier closing time is announced by such exchange(s) at least one hour prior to the actual closing time for the regular trading session on such exchange(s) on that Index Business Day.

Extraordinary Events with Respect to a VIX Futures Contract

Certain events, which we refer to as "Extraordinary Events," will cause the Index Calculation Agent to replace or remove any relevant VIX futures contract to which the Index has exposure, or make an adjustment to the Rules as it determines in good faith is appropriate.

Successor Futures Contract

If any VIX futures contract is:

- not calculated and quoted by the Exchange but is calculated and quoted by a successor exchange acceptable to the Index Calculation Agent; or

- replaced by a successor futures contract using, in the determination of the Index Calculation Agent, the same or substantially similar contract specifications, formula and method of calculation as for the relevant VIX futures contract,

then, in each case, that successor futures contract (the "**Successor Futures Contract**") will replace the relevant VIX futures contract with effect from a date determined by the Index Calculation Agent, who may make such adjustments to the Rules, as it determines in good faith are appropriate, to account for such change.

Material Change to a VIX Futures Contract, Cancellation or Non-Publication

Without prejudice to the ability of the Index Calculation Agent to amend the Rules, if, at any time in respect of any VIX futures contract (the "**Affected Contract**"):

- the Index Calculation Agent considers it reasonably necessary to exclude or substitute the Affected Contract to reflect the purpose and objectives of the Index, including (without prejudice to the generality of the foregoing) changes announced by the Exchange relating to the modification, exclusion, inclusion or substitution of any VIX futures contract;

- there is a perception among market participants generally that the published price of the relevant VIX futures contract is inaccurate (and the Exchange fails to correct that level);

- any Exchange:

  - announces that it will make a material change to the contract specifications or definition of any VIX futures contract or in any other way materially modifies that contract (other than a modification prescribed in the contract specifications or definition of that contract); or

  - permanently cancels any VIX futures contract and no Successor Futures Contract exists or announces its intention to cease publishing a level for the VIX futures contract; or

- the Index Calculation Agent determines that a Change in Law has occurred in respect of a VIX futures contract,

then the Index Calculation Agent may (a) exclude or substitute the Affected Contract from the Index and may adjust the Rules as it determines in good faith to be appropriate to account for such change(s) (including, without limitation, selecting (i) a replacement futures contract traded on the Exchange or an equivalent exchange and having similar characteristics to the Affected Contract and (ii) the date of such replacement) on such date(s) as selected by the Index Calculation Agent or (b) cease publication of the Index.

"**Change in Law**" means, on or after August 31, 2012, due to the adoption of, or any change in, any applicable law, regulation or rule (including, without limitation, (a) any tax law or (b) adoption or promulgation of new regulations authorized or mandated by existing statute)) or the promulgation of, or any change in, the announcement or statement of a formal or an informal interpretation, application, exercise or operation by any court, tribunal or regulatory authority with competent jurisdiction of any applicable law, rule, regulation or order (including, without limitation, any action taken by a taxing authority, or any exchange or trading facility), the Index Calculation Agent determines in good faith that it has become illegal to hold, acquire or dispose of any of the VIX futures contracts.

Extraordinary Events with Respect to the VIX Index

Certain events, which we refer to as "Extraordinary Events," will cause the Index Calculation Agent to replace or remove the VIX Index, make an adjustment to the Rules as it determines in good faith is appropriate, or cease publication of the Index.

Successor Base Index

If the VIX Index is:

- not calculated and quoted by the applicable sponsor but is calculated and quoted by a successor sponsor acceptable to the Index Calculation Agent; or

- replaced by a successor index using, in the determination of the Index Calculation Agent, the same or a substantially similar formula and method of calculation as used in the calculation of the VIX Index,

then, in each case, that successor base index (the "**Successor Base Index**") will replace the VIX Index with effect from a date determined by the Index Calculation Agent who may make such adjustments to the Rules, as it determines in good faith are appropriate, to account for such change.

Material Change to the VIX Index, Cancellation or Non-Publication

Without prejudice to the ability of the Index Calculation Agent to amend the Rules, if, at any time in respect of the VIX Index (the "**Affected Base Index**"):

- the Index Calculation Agent considers it reasonably necessary to exclude or substitute the Affected Base Index to reflect the purpose and objectives of the Index, including (without prejudice to the generality of the foregoing) changes announced by the applicable sponsor of the Affected Base Index relating to the modification, exclusion, inclusion or substitution of the Affected Base Index or one or more components of the Affected Base Index;

- there is a perception among market participants generally that the published level of the VIX Index is inaccurate (and the applicable sponsor of the VIX Index fails to correct that level); or

- the sponsor of the VIX Index:

    - announces that it will make a material change in the formula for or the method of calculating the VIX Index or in any other way materially modifies that VIX Index (other than a modification prescribed in the formula or method of calculation of the VIX Index to maintain the VIX Index in the event of routine events); or

    - permanently cancels the VIX Index and no Successor Base Index exists or announces its intention to cease publishing a level of the VIX Index,

then the Index Calculation Agent may (a) exclude or substitute the Affected Base Index from the Index and may adjust the Rules as it determines in good faith to be appropriate to account for such change(s) (including, without limitation, selecting (i) a replacement base index on the Exchange or an equivalent exchange that has similar characteristics to the Affected Base Index and (ii) the date of such replacement) on such date(s) as selected by the Index Calculation Agent or (b) cease publication of the Index.

Cancellation of License or Permission

If in respect of the Index, at any time, any license granted (if required) to the Index Calculation Agent (or its affiliates) to use the VIX Index or any other component ("**Affected Component**") for the purposes of the Index terminates, or the Index Calculation Agent's rights to use the VIX Index or any other component for the purpose of the Index is otherwise disputed, impaired or ceases (for any reason), the Index Calculation Agent may remove that Affected Component from the Index and may adjust the Rules as it determines in good faith to be appropriate to account for such change(s) (including, without limitation, selecting (a) a replacement for any such Affected Component having characteristics similar to that Affected Component and (b) the date of such replacement) on such dates as selected by the Index Calculation Agent or cease publication of the Index.

Amendments to the Rules

The Rules may be amended from time to time at the discretion of the Index Calculation Agent and will be re-published (in a manner determined by the Index Calculation Agent from time to time) no later than one calendar month following that amendment.

Although the Rules are intended to be comprehensive, ambiguities may arise. If so, the Index Calculation Agent will resolve such ambiguities and, if necessary, amend the Rules to reflect such resolution.

Corrections

If, in respect of the Index:

- the level or price of the VIX Index or any VIX futures contract, any variable, input or other parameter that is used for any calculation relevant to the Index Level for any Index Business Day is subsequently corrected and the correction is published by the Exchange or relevant publication source; or

- the Index Calculation Agent identifies an error or omission in any of its calculations or determinations in respect of the Index Level for any Index Business Day,

then the Index Calculation Agent, if practicable and if it considers such correction, error or omission material, may correct the published Index Level for such day and/or each subsequent Index Business Day and will publish (in such manner determined by the Index Calculation Agent) such corrected Index Level(s) as soon as reasonably practicable.

Index Calculation Agent Determinations

The Index Calculation Agent will act in good faith and in a commercially reasonable manner with respect to determinations made by it pursuant to the Rules.

All determinations of the Index Calculation Agent pursuant to the Rules with respect to the Index and the Index Calculation Agent's interpretation of the Rules will be final, conclusive and binding and no person shall be entitled to make any claim against the Index Calculation Agent or any of the Relevant Persons in respect thereof. Neither the Index Calculation Agent nor any Relevant Person will:

- be under any obligation to revise any determination or calculation made or action taken for any reason in connection with the Rules or the Index; or

- have any responsibility to any person (whether as a result of negligence or otherwise) for any determinations made or anything done (or omitted to be determined or done) with respect to the Index or with respect to the publication of any Index Level (or failure to publish such level) or any use to which any person may put the Index or the Index Levels.

"**Relevant Person**" means any affiliate or subsidiary of the Index Calculation Agent or their respective directors, officers, employees, representatives, delegates or agents.

BACKGROUND ON FUTURES CONTRACTS ON THE CBOE VOLATILITY INDEX®

Futures contracts on the VIX Index ("VIX futures contracts") were first launched for trading by the CBOE in 2004. VIX futures contracts have expirations ranging from the front month consecutively out to the tenth month. VIX futures contracts allow investors the ability to invest in forward market volatility based on their view of the future direction or movement of the VIX Index. Investors who believe the implied volatility of the S&P 500® Index will increase may buy VIX futures contracts, expecting that the level of the VIX Index will increase. Conversely, investors who believe that the implied volatility of the S&P 500® Index will decline may sell VIX futures contracts, expecting that the level of the VIX Index will fall.

VIX futures contracts are reported by Bloomberg L.P. under the ticker symbol "VX."

Overview of Futures Markets

The Index maintains a synthetic long position in third-month, fourth-month, fifth-month and sixth-month VIX futures contracts and, when the synthetic short position is activated, a synthetic short position in second-month and third-month VIX futures contracts. VIX futures contracts are traded on regulated futures exchanges, in the over-the-counter market and on various types of electronic trading facilities and markets. At present, all of the VIX futures contracts included in the Index are exchange-traded futures contracts. An exchange-traded futures contract provides for the purchase and sale of a specified type and quantity of an underlying asset or financial instrument during a stated delivery month for a fixed price. Because the VIX Index is not a tangible item that can be purchased and sold directly, a VIX futures contract provides for the payment and receipt of cash based on the level of the VIX Index at settlement or liquidation of the VIX futures contract. A futures contract provides for a specified settlement month in which the cash settlement is made or in which the underlying asset or financial instrument is to be delivered by the seller (whose position is therefore described as "short") and acquired by the purchaser (whose position is therefore described as "long").

No purchase price is paid or received on the purchase or sale of a futures contract. Instead, an amount of cash or cash equivalents must be deposited with the broker as "initial margin." This amount varies based on the requirements imposed by the exchange clearing houses, but it may be lower than 5% of the notional value of the contract. This margin deposit provides collateral for the obligations of the parties to the futures contract.

By depositing margin, which may vary in form depending on the exchange, with the clearing house or broker involved, a market participant may be able to earn interest on its margin funds, thereby increasing the total return that it may realize from an investment in futures contracts.

In the United States, futures contracts are traded on organized exchanges, known as "designated contract markets." At any time prior to the expiration of a futures contract, a trader may elect to close out its position by taking an opposite position on the exchange on which the trader obtained the position, subject to the availability of a liquid secondary market. This operates to terminate the position and fix the trader's profit or loss. Futures contracts are cleared through the facilities of a centralized clearing house and a brokerage firm, referred to as a "futures commission merchant," which is a member of the clearing house.

Unlike equity securities, futures contracts, by their terms, have stated expirations at a specified point in time prior to expiration. At a specific point in time prior to expiration, trading in a futures contract for the current delivery month will cease. As a result, a market participant wishing to maintain its exposure to a futures contract on a particular asset or financial instrument with the nearest expiration must close out its position in the expiring contract and establish a new position in the contract for the next delivery month, a process referred to as "rolling." For example, a market participant with a long position in a VIX futures contract expiring in November who wishes to maintain a position in the nearest delivery month will, as the November contract nears expiration, sell the November contract, which serves to close out the existing long position, and buy a VIX futures contract expiring in December. This will "roll" the November position into a December position, and, when the November contract expires, the market participant will still have a long position in the nearest delivery month.

Futures exchanges and clearing houses in the United States are subject to regulation by the Commodity Futures Trading Commission. Exchanges may adopt rules and take other actions that affect trading, including imposing speculative position limits, maximum price fluctuations and trading halts and suspensions and requiring liquidation of contracts in certain circumstances. Futures markets outside the United States are generally subject to regulation by comparable regulatory authorities. The structure and nature of trading on non-U.S. exchanges, however, may differ from this description.

BACKGROUND ON THE CBOE VOLATILITY INDEX®

We have derived all information contained in this underlying supplement regarding the CBOE Volatility Index® (the "VIX Index") including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, the Chicago Board Options Exchange, Incorporated (the "CBOE"). The VIX Index was developed by the CBOE and is calculated, maintained and published by the CBOE. The CBOE has no obligation to continue to publish, and may discontinue the publication of, the VIX Index.

The VIX Index is reported by Bloomberg L.P. under the ticker symbol "VIX."

Index Overview

The VIX Index is a benchmark index designed to measure the market price of 30-day expected volatility of large cap U.S. stocks, and is calculated based on the prices of certain put and call options on the S&P 500® Index. For more information about the S&P 500® Index, please see "Background on the S&P 500® Index" in this underlying supplement.

The VIX Index measures the premium paid by investors for certain options linked to the level of the S&P 500® Index. During periods of market instability, the implied level of volatility of the S&P 500® Index typically increases and, consequently, the prices of options linked to the S&P 500® Index typically increase (assuming all other relevant factors remain constant or have negligible changes). This, in turn, causes the level of the VIX Index to increase. The VIX Index has historically had negative correlations to the S&P 500® Index.

The calculation of the VIX Index involves a formula that uses the prices of a weighted series of out-of-the money put and call options on the level of the S&P 500® Index ("SPX Options") with two adjacent expiry terms to derive a constant 30-day measure of expected market volatility. The VIX Index is calculated independent of any particular option pricing model.

Calculation of the VIX Index Level

Although the VIX Index measures the 30-day forward volatility of the S&P 500® Index as implied by the SPX Options, 30-day options are available only once a month. To arrive at the VIX Index Level, a broad range of out-of-the money SPX Options expiring on the two closest nearby months ("near-term options" and "next-term options," respectively) are selected to bracket a 30-day calendar period. SPX Options having a maturity of less than eight days are excluded at the outset and, when the near-term options have eight days or less left to expiration, the VIX Index rolls to the second and third contract months in order to minimize pricing anomalies that occur close to expiration. The model-free implied volatility using prices of the near-term options and next-term options are then calculated on a strike price weighted average basis to arrive at a single average implied volatility value for each month. The results of each of the two months are then interpolated to arrive at a single value with a constant maturity of 30 days to expiration. The VIX Index Level is expressed in percentage points.

Stock indices, such as the S&P 500® Index, are calculated using the prices of their component stocks. Each index employs rules that govern the selection of component securities and a formula to calculate index values. The VIX Index is a volatility index comprised of options rather than stocks, with the price of each option reflecting the market's expectation of future volatility. Like conventional indices, the VIX Index employs rules for selecting component options and a formula to calculate index values.

The generalized formula used in the VIX Index Level calculation:

$$\sigma^2 = \frac{2}{T}\sum_i \frac{\Delta K_i}{K_i^2} e^{RT} Q(K_i) - \frac{1}{T}\left[\frac{F}{K_0} - 1\right]^2$$

where:

σ is	VIX Index Level/100 ⇨ VIX Index Level = σ x 100
T	Time to expiration
F	Forward index level derived from index option prices
K_0	First strike below the forward index level, F
K_i	Strike price of i^{th} out-of-the-money option; a call if $K_i > K_0$ and a put if $K_i < K_0$; both put and call if $K_i = K_0$
ΔK_i	Interval between strike prices - half the distance between the strike on either side of K_i: $$\Delta K_i = \frac{K_{i+1} - K_{i-1}}{2}$$ (Note: ΔK for the lowest strike is simply the difference between the lowest strike and the next higher strike. Likewise, ΔK for the highest strike is the difference between the highest strike and the next lower strike.)
R	Risk-free interest rate to expiration
$Q(K_i)$	The midpoint of the bid-ask spread for each option with strike K_i.

Hypothetical Calculation of VIX Index Level

The following example illustrates how the VIX Index Level may be calculated in a hypothetical scenario.

Getting Started

The VIX Index measures 30-day expected volatility of the S&P 500® Index. The components of the VIX Index are near- and next-term put and call options, usually in the first and second SPX Option contract months. "Near-term" options must have at least one week to expiration; a requirement intended to minimize pricing anomalies that might occur close to expiration. When the near-term options have less than a week to expiration, the VIX Index "rolls" to the second and third SPX Option contract months. For example, on the second Friday in June, the VIX Index would be calculated using SPX options expiring in June and July. On the following Monday, July would replace June as the "near-term" and August would replace July as the "next-term."

In this hypothetical example, the near-term and next-term options have 9 days and 37 days to expiration, respectively, and reflect prices observed at the open of trading – 8:30 a.m. Chicago time. For the purpose of calculating time to expiration, SPX Options are deemed to "expire" at the open of trading on SPX Option settlement day - the third Friday of the month.

Technically, the expiration date for the SPX Options is the "Saturday following the third Friday of the expiration month." In this example, however, expiration is deemed to take place at the determination of the exercise settlement value of the SPX Option, which is based on the opening prices of component securities of the S&P 500® Index.

The VIX Index calculation measures time to expiration, T, in calendar days and divides each day into minutes in order to replicate the precision that is commonly used by professional option and volatility traders. The time to expiration is given by the following expression:

$$T = \{M_{Current\ day} + M_{Settlement\ day} + M_{Other\ days}\}/\text{Minutes in a year}$$

where:

$M_{Current\ day}$ = number of minutes remaining until midnight of the current day

$M_{Settlement\ day}$ = number of minutes from midnight until 8:30 a.m. on SPX settlement day

$M_{Other\ days}$ = total number of minutes in the days between current day and settlement day

Using 8:30 a.m. as the time of the calculation, T for the near-term and next-term options, T1 and T2, respectively, is:

$$T1 = \{930 + 510 + 11{,}520\} / 525{,}600 = \mathbf{0.0246575}$$
$$T2 = \{930 + 510 + 51{,}840\} / 525{,}600 = \mathbf{0.1013699}$$

The risk-free interest rate, R, is the bond-equivalent yield of the U.S. T-bill maturing closest to the expiration dates of relevant SPX options. As such, the VIX Index calculation may use different risk-free interest rates for near- and next-term options. In this example, however, assume that R = 0.38% for both sets of options.

Since many of the interim calculations are repetitive, only representative samples appear below.

Step 1: Select the options to be used in the VIX Index Level calculation

The selected options are out-of-the-money SPX calls and out-of-the-money SPX puts centered around an at-the-money strike price, K0. Only SPX Options quoted with non-zero bid prices are used in the VIX Index Level calculation.

As volatility rises and falls, the strike price range of options with non-zero bids tends to expand and contract. As a result, the number of options used in the VIX Index Level calculation may vary from month-to-month, day-to-day and possibly, even minute-to-minute.

For each contract month:

- Determine the forward SPX level, F, by identifying the strike price at which the absolute difference between the call and put prices is smallest. The call and put prices in the following table reflect the average of each option's bid / ask quotation. As shown below, the difference between the call and put prices is smallest at the **920** strike for both the near- and next-term options.

Near-term options				Next-term options			
Strike Price	Call	Put	Absolute Difference	Strike Price	Call	Put	Absolute Difference
900	48.95	27.25	21.70	900	73.60	52.80	20.80
905	46.15	29.75	16.40	905	70.35	54.70	15.65
910	42.55	31.70	10.85	910	67.35	56.75	10.60
915	40.05	33.55	6.50	915	64.75	58.90	5.85

Near-term options				Next-term options			
Strike Price	Call	Put	Absolute Difference	Strike Price	Call	Put	Absolute Difference
920	***37.15***	***36.65***	***0.50***	***920***	***61.55***	***60.55***	***1.00***
925	33.30	37.70	4.40	925	58.95	63.05	4.10
930	32.45	40.15	7.70	930	55.75	65.40	9.65
935	28.75	42.70	13.95	935	53.05	67.35	14.30
940	27.50	45.30	17.80	940	50.15	69.80	19.65

Using the 920 call and put options in each contract month and the formula,

$$F = \text{Strike Price} + e^{RT} \times (\text{Call Price} - \text{Put Price})$$

the forward index prices, F_1 and F_2, for the near-term and next-term options, respectively, are:

$$F_1 = 920 + e^{(0.0038 \times 0.0246575)} \times (37.15 - 36.65) = \mathbf{920.50005}$$
$$F_2 = 920 + e^{(0.0038 \times 0.1013699)} \times (61.55 - 60.55) = \mathbf{921.00039}$$

- Next, determine K_0 - the strike price immediately below the forward index level, F - for the near- and next-term options. In this example, K_0,1 = 920 and K_0,2 = 920.

- Select out-of-the-money put options with strike prices < K_0. Start with the put strike immediately lower than K_0 and move to successively lower strike prices. Exclude any put option that has a bid price equal to zero (*i.e.*, no bid). As shown below, once two puts with consecutive strike prices are found to have zero bid prices, no puts with lower strikes are considered for inclusion.

Put Strike	Bid	Ask	"
200	0.00	0.05	*Not considered following two zero bids*
250	0.00	0.05	
300	0.00	0.05	
350	0.00	0.05	No
375	0.00	0.10	No
400	0.05	0.20	Yes
425	0.05	0.20	Yes
450	0.05	0.20	Yes

- Next, select out-of-the-money call options with strike prices > K_0. Start with the call strike immediately higher than K_0 and move to successively higher strike prices, excluding call options that have a bid price of zero. As with the puts, once two consecutive call options are found to have zero bid prices, no calls with higher strikes are considered. (Note that the 1250 call option is not included despite having a nonzero bid price.)

Call Strike	Bid	Ask	Include?
1215	0.05	0.05	Yes
1220	0.05	1.00	Yes
1225	0.00	1.00	No
1230	0.00	1.00	No
1235	0.00	0.75	*Not considered following two zero bids*
1240	0.05	0.50	

Call Strike	Bid	Ask	Include?
1245	0.05	0.15	
1250	***0.05***	***0.10***	
1255	0.00	1.00	

- Finally, select both the put and call with strike price K_0. Notice that two options are selected at K_0, while a single option, either a put or a call, is used for every other strike price.

The following table contains the options used to calculate the VIX Index Level in this example. The VIX Index Level uses the average of quoted bid and ask, or mid-quote, prices for each option selected. The K_0 put and call prices are averaged to produce a single value. The price used for the 920 strike in the near-term is, therefore, (37.15 + 36.65)/2 = 36.90; and the price used in the next-term is (61.55 + 60.55)/2 = 61.05.

Near term Strike	Option Type	Mid-quote price	Next term Strike	Option Type	Mid-quote Price
400	Put	0.125	200	Put	0.325
425	Put	0.125	300	Put	0.30
450	Put	0.125	350	Put	0.50
-	-	-	-	-	-
910	Put	31.70	910	Put	56.75
915	Put	33.55	915	Put	58.90
920	***Put/Call Average***	***36.90***	***920***	***Put/Call Average***	***61.05***
925	Call	33.30	925	Call	58.95
930	Call	32.45	930	Call	55.75
-	-	-	-	-	-
1210	Call	0.275	1150	Call	0.825
1215	Call	0.275	1155	Call	0.725
1220	Call	0.525	1160	Call	0.60

Step 2: Calculate the volatility for both near term and next-term options

Applying the VIX Index formula described under "— Calculation of the VIX Index Level" to the near-term and next-term options with time to expiration of T_1 and T_2, respectively, yields:

$$\sigma^2_1 = \frac{2}{T_1}\sum_i \frac{\Delta K_i}{K_i^2} e^{RT_1} Q(K_i) - \frac{1}{T_1}\left[\frac{F_1}{K_0} - 1\right]^2$$

$$\sigma^2_2 = \frac{2}{T_2}\sum_i \frac{\Delta K_i}{K_i^2} e^{RT_2} Q(K_i) - \frac{1}{T_2}\left[\frac{F_2}{K_0} - 1\right]^2$$

The VIX Index is an amalgam of the information reflected in the prices of all of the selected options. The contribution of a single option to the VIX Index value is proportional to ΔK and the price of that option, and inversely proportional to the square of the option's strike price.

Generally, ΔK_i is half the distance between the strike prices on either side of K_i. For example, ΔK for the next-term 300 Put is 75: $\Delta K_{300\ Put}$ = (350 – 200)/2. At the upper and lower edges of any given strip of options, ΔK_i is simply the difference between K_i and the adjacent strike price. In this example, the 400 Put is the lowest strike in the strip of near-term options and 425 is the adjacent strike price. Therefore, $\Delta K_{400\ Put}$ = 25 (*i.e.*, 425 – 400).

The contribution of the near-term 400 Put is given by:

$$\frac{\Delta K_{400Put}}{K_{400Put}^2} e^{RT_1} Q(400Put)$$

$$\frac{\Delta K_{400Put}}{K_{400Put}^2} e^{RT_1} Q(400Put) = \frac{25}{400^2} e^{(0.0038 \times 0.0246575)} (0.125) = 0.0000195$$

A similar calculation is performed for each option. The resulting values for the near-term options are then summed and multiplied by $2/T_1$. Likewise, the resulting values for the next-term options are summed and multiplied by $2/T_2$. The table below summarizes the results for each strip of options in our example:

Near term Strike	Option Type	Mid-quote Price	Contribution by Strike	Next term Strike	Option Type	Mid-quote Price	Contribution by Strike
400	Put	0.125	0.0000195	200	Put	0.325	0.0008128
425	Put	0.125	0.0000173	300	Put	0.300	0.0002501
450	Put	0.125	0.0000139	350	Put	0.500	0.0001531
-	-	-	-	-	-	-	-
910	Put	31.70	0.0001914	910	Put	56.75	0.0003428
915	Put	33.55	0.0002004	915	Put	58.90	0.0003519
920	***Put/Call Average***	***36.90***	***0.0002180***	***920***	***Put/Call Average***	***61.05***	***0.0003608***
925	Call	33.30	0.0001946	925	Call	58.95	0.0003446
930	Call	32.45	0.0001876	930	Call	55.75	0.0003224
-	-	-	-	-	-	-	-
1210	Call	0.275	0.0000009	1150	Call	0.825	0.0000031
1215	Call	0.275	0.0000009	1155	Call	0.725	0.0000027
1220	Call	0.525	0.0000018	1160	Call	0.600	0.0000022
$\frac{2}{T}\sum_i \frac{\Delta K_i}{K_i^2} e^{RT} Q(K_i)$	=	**0.4727799**		$\frac{2}{T}\sum_i \frac{\Delta K_i}{K_i^2} e^{RT} Q(K_i)$	=	**0.3668297**	

Next, calculate $\frac{1}{T}\left[\frac{F}{K_0} - 1\right]^2$ for the near term (T_1) and next term (T_2):

$$\frac{1}{T_1}\left[\frac{F_1}{K_0} - 1\right]^2 = \frac{1}{0.0246575}\left[\frac{920.50005}{920} - 1\right]^2 = 0.0000120$$

$$\frac{1}{T_2}\left[\frac{F_2}{K_0} - 1\right]^2 = \frac{1}{0.1013699}\left[\frac{921.00039}{920} - 1\right]^2 = 0.0000117$$

Now calculate σ^2_1 and σ^2_2*:*

$$\sigma^2_1 = \frac{2}{T_1}\sum_i \frac{\Delta K_i}{K_i^2} e^{RT_1} Q(K_i) - \frac{1}{T_1}\left[\frac{F_1}{K_0} - 1\right]^2 = 0.4727799 - 0.0000120 = \mathbf{0.4727679}$$

$$\sigma^2_2 = \frac{2}{T_2}\sum_i \frac{\Delta K_i}{K_i^2} e^{RT_2} Q(K_i) - \frac{1}{T_2}\left[\frac{F_2}{K_0} - 1\right]^2 = 0.3668297 - 0.0000117 = \mathbf{0.3668180}$$

Step 3: Calculate the 30-day weighted average of σ^2_1 and σ^2_2. Then take the square root of that value and multiply by 100 to get the VIX Index Level

$$\text{VIX Index Level} = 100 \times \sqrt{\left\{T_1\sigma_1^2\left[\frac{N_{T_2} - N_{30}}{N_{T_2} - N_{T_1}}\right] + T_2\sigma_2^2\left[\frac{N_{30} - N_{T_1}}{N_{T_2} - N_{T_1}}\right]\right\} \times \frac{N_{365}}{N_{30}}}$$

When the near-term options have less than 30 days to expiration and the next-term options have more than 30 days to expiration, the resulting VIX Index value reflects an interpolation of σ^2_1 and σ^2_2; *i.e.*, each individual weight is less than or equal to 1 and the sum of the weights equals 1.

At the time of the VIX Index "roll," both the near-term and next-term options have more than 30 days to expiration. The same formula is used to calculate the 30-day weighted average, but the result is an extrapolation of σ^2_1 and σ^2_2; *i.e.*, the sum of the weights is still 1, but the near-term weight is greater than 1 and the next-term weight is negative (*e.g.*, 1.25 and –0.25).

Returning to the example…

N_{T1} = number of minutes to expiration of the near-term options (12,960)
N_{T2} = number of minutes to expiration of the next-term options (53,280)
N_{30} = number of minutes in 30 days (30 x 1,440 = 43,200)
N_{365} = number of minutes in a 365-day year (365 x 1,440 = 525,600)

VIX Index Level =

$$100 \times \sqrt{\left\{0.0246575 \times 0.4727679 \times \left[\frac{53{,}280 - 43{,}200}{53{,}280 - 12{,}960}\right] + 0.1013699 \times 0.3668180 \times \left[\frac{43{,}200 - 12{,}960}{53{,}280 - 12{,}960}\right]\right\} \times \frac{525{,}600}{43{,}200}}$$

VIX Index Level = 100 x 0.612179986 = 61.22

Licensing Agreement with the CBOE and S&P

We have entered into an agreement with the CBOE and S&P that provides us and certain of our affiliates or subsidiaries identified in that agreement with a non-exclusive license and, for a fee, with the right to use the VIX Index in connection with certain securities. The notes are not sponsored, endorsed, sold or promoted by S&P or the CBOE. S&P and the CBOE make no representation, condition or warranty, express or implied, to the owners of the notes or any member of the public regarding the advisability of investing in securities generally or in the notes. S&P's and the CBOE's only relationship to JPMS and its affiliates, is the licensing of certain trademarks and trade names of S&P, CBOE and the VIX Index which is determined, composed and calculated by CBOE without regard to JPMS and its affiliates or the notes. The CBOE has no obligation to take the needs of JPMS and its affiliates or the owners of the notes into consideration in determining, composing or calculating the VIX Index. S&P and the CBOE are not responsible for and have not participated in the determination of the timing of, prices, or quantities of the notes to be issued or in the determination or calculation of the equation by which the notes are to be converted into cash. S&P and the CBOE have no obligation or liability in connection with the administration, marketing or trading of the notes.

THE CBOE SHALL OBTAIN INFORMATION FOR INCLUSION IN OR FOR USE IN THE CALCULATION OF THE VIX INDEX FROM SOURCES THAT THE CBOE CONSIDERS RELIABLE, BUT S&P AND THE CBOE ACCEPT NO RESPONSIBILITY FOR, AND SHALL HAVE NO LIABILITY FOR, ANY ERRORS, OMISSIONS OR INTERRUPTIONS THEREIN. S&P AND THE CBOE DO NOT GUARANTEE THE ACCURACY AND/OR THE COMPLETENESS OF THE VIX INDEX OR ANY DATA INCLUDED THEREIN. S&P AND THE CBOE MAKE NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE RESULTS TO BE OBTAINED BY ANY PERSON OR ENTITY FROM THE USE OF THE VIX INDEX OR ANY DATA INCLUDED THEREIN. S&P AND THE CBOE MAKE NO EXPRESS OR IMPLIED WARRANTIES AND EXPRESSLY DISCLAIM ALL CONDITIONS AND WARRANTIES IMPLIED BY STATUTE, GENERAL LAW OR CUSTOM WITH RESPECT TO THE VIX INDEX OR ANY DATA INCLUDED THEREIN.

In addition, (i) the CBOE has no relationship to the notes other than authorizing S&P to grant a license to JPMS and its affiliates to use the VIX Index as the basis for the notes; (ii) the CBOE has no obligation to take the needs of JPMS and its affiliates, purchasers or sellers of the notes or any other persons into consideration in maintaining the VIX Index or modifying the methodology underlying the VIX Index, and (iii) the CBOE has no obligation or liability in connection with the administration, marketing or trading of the VIX Index, the notes or any other investment product of any kind or character that is based thereon.

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BACKGROUND ON THE S&P 500® INDEX

We have derived all information contained in this underlying supplement regarding the S&P 500® Index from publicly available information, without independent verification. This information reflects the policies of, and is subject to change by, Standard & Poor's Financial Services LLC ("S&P"). The S&P 500® Index was developed by S&P and is calculated, maintained and published by S&P. S&P has no obligation to continue to publish, and may discontinue the publication of, the S&P 500® Index.

In July 2012, The McGraw-Hill Companies, Inc. ("McGraw-Hill"), the owner of the S&P Indices business, and CME Group Inc. ("CME Group"), the 90% owner of the CME Group and Dow Jones & Company, Inc. joint venture that owns the Dow Jones Indexes business, formed a new joint venture, S&P Dow Jones Indices, which owns the S&P Indices business and the Dow Jones Indexes business, including the S&P 500® Index.

The S&P 500® Index is reported by Bloomberg L.P. under the ticker symbol "SPX."

The S&P 500® Index is intended to provide a performance benchmark for the U.S. equity markets. The calculation of the level of the S&P 500® Index is based on the relative value of the aggregate market value of the common stocks of 500 companies as of a particular time as compared to the aggregate average Market Value of the common stocks of 500 similar companies during the base period of the years 1941 through 1943. The 500 companies are not the 500 largest companies listed on the New York Stock Exchange and not all 500 companies are listed on such exchange.

S&P chooses companies for inclusion in the S&P 500® Index with the objective of achieving a distribution by broad industry groupings that approximates the distribution of these groupings in the common stock population of the U.S. equity market. S&P may from time to time, in its sole discretion, add companies to, or delete companies from, the S&P 500® Index to achieve the objectives stated above. Relevant criteria employed by S&P include the viability of the particular company, the extent to which that company represents the industry group to which it is assigned, the extent to which the company's common stock is widely held and the market value and trading activity of the common stock of that company.

J.P. Morgan Strategic Volatility Dynamic Index Series

Index Rules

J.P.Morgan

August 31, 2012

PART A

General Rules

1. This Document

1.1 Introduction

This document comprises the rules of the J.P. Morgan Strategic Volatility Dynamic Index Series, a family of notional rules-based proprietary indices.

The table below sets out certain of the Indices comprised in the J.P. Morgan Strategic Volatility Dynamic Index Series and relevant Parts and Modules of this document that comprise the Index Rules for each Index:

Index	Index Rules – applicable Parts and Module
J.P. Morgan Strategic Volatility Dynamic Index (Series 1) (USD)	Part A, Part B and Module B1.0

This Part A sets out the general rules applicable to each Index. The other applicable Part for the Index:

(a) sets out the rules of the strategy applicable to the Index; and

(b) contains the Applicable Module that sets out the specific information pertaining to the Index such as (among other information): (1) the name of the Index and Bloomberg ticker; (2) the Futures Contracts referenced in the Index; and (3) other specific rules (if any) applicable to the Index.

1.2 Publication and availability of the Index Rules

The Index Rules are published by J.P. Morgan Securities plc of London, UK in its capacity as Index Calculation Agent of the Indices.

The Index Calculation Agent may, in its discretion, publish only the Index Rules applicable to one or more of the Indices by removing the Parts and Modules from this document that do not apply to such Indices and amending section 1.1 above as necessary.

Copies of the Index Rules may be obtained by holders of investments linked to one or more Indices free of charge on request to the Index Calculation Agent.

1.3 Amendments

The Index Rules for an Index may be amended from time to time at the discretion of the Index Calculation Agent and will be re-published (in a manner determined by the Index Calculation Agent from time to time) no later than one calendar month following such amendment.

Although the Index Rules are intended to be comprehensive, ambiguities may arise. If so, the Index Calculation Agent will resolve such ambiguities and, if necessary, amend the Index Rules to reflect such resolution.

1.4 No offer of securities

The Index Rules neither constitute an offer to purchase or sell securities nor specific advice of whatever form (tax, legal, accounting or regulatory) in respect of any investment strategy or investment that may be linked to an Index.

2. Indices are synthetic

The Indices are constructed on notional or synthetic exposure to the Futures Contracts referenced in the Indices. There is no actual portfolio of Futures Contracts or assets to which any person is entitled or in which any person has any ownership interest. The Indices merely identify certain Futures Contracts and rules-based trading strategies, the performances of which are used as reference points for the purposes of calculating the level of each Index.

3. Index Calculation Agent

3.1 Identity

J.P. Morgan Securities plc or any affiliate, subsidiary or third party designated by it will act as calculation agent in connection with each Index (the "**Index Calculation Agent**").

3.2 Index Calculation Agent standards

The Index Calculation Agent shall act in good faith and in a commercially reasonable manner in respect of determinations made by it pursuant to the Index Rules.

3.3 Index Calculation Agent determinations

All determinations of the Index Calculation Agent pursuant to the Index Rules in respect of an Index and the Index Calculation Agent's interpretation of the Index Rules shall be final, conclusive and binding and no person shall be entitled to make any claim against the Index Calculation Agent or any of the Relevant Persons in respect thereof. Neither the Index Calculation Agent nor any Relevant Person shall:

(a) be under any obligation to revise any determination or calculation made or action taken for any reason in connection with the Index Rules or an Index; or

(b) have any responsibility to any person (whether as the result of negligence or otherwise) for any determinations made or anything done (or omitted to be determined or done) in respect of any Index or in respect of the publication of any Index Level (or failure to publish such level) or any use to which any person may put an Index or the Index Levels.

4. Calculation of Index Levels

4.1 Base Level and Base Date

The Base Level and Base Date of an Index are specified in the Applicable Module.

4.2 Publication of Index Levels

Subject to the occurrence of a Market Disruption Event, in respect of each Index, the Index Calculation Agent shall calculate and publish (in a manner determined by the Index Calculation Agent from time to time) the level of the Index (the "**Index Level**") in respect of each Index Business Day. All Index Levels are rounded to 2 decimal places before being published and calculated in the Currency of the Index.

5. Corrections in respect of Indices

If, in respect of an Index:

(a) the level or price of the Base Index or any Futures Contract, variable, input or other parameter that is used for any calculation relevant to the Index Level for any Index Business Day is subsequently corrected and the correction is published by the Relevant Exchange or relevant publication source; or

(b) the Index Calculation Agent identifies an error or omission in any of its calculations or determinations in respect of the Index Level for any Index Business Day,

then, the Index Calculation Agent, if practicable and if it considers such correction, error or omission material, may correct the published Index Level for such day and/or each subsequent Index Business Day and shall publish (in such manner determined by the Index Calculation Agent) such corrected Index Level(s) as soon as reasonably practicable.

6. Extraordinary Events – Futures Contract

6.1 Successor Futures Contract

If, in respect of an Index, any Futures Contract is:

(a) not calculated and quoted by the Relevant Exchange but is calculated and quoted by a successor exchange acceptable to the Index Calculation Agent; or

(b) replaced by a successor futures contract using, in the determination of the Index Calculation Agent, the same or substantially similar contract specifications, formula and method of calculation as used for the relevant Futures Contract,

then, in each case, that successor futures contract (the "**Successor Futures Contract**") shall replace the relevant Futures Contract with effect from a date determined by the Index Calculation Agent who may make such adjustments to the Index Rules, as it determines in good faith are appropriate, to account for such change.

6.2 Material change to Futures Contracts, cancellation or non-publication

Without prejudice to the ability of the Index Calculation Agent to amend the Index Rules (see section 1.3), if, at any time in respect of any Futures Contract (the "**Affected Contract**"):

(a) the Index Calculation Agent considers it reasonably necessary to exclude or substitute the Affected Contract to reflect the purpose and objectives of the relevant Index, including (without prejudice to the generality of the foregoing) changes announced by the Relevant Exchange relating to the modification, exclusion, inclusion or substitution of any Futures Contracts; or

(b) there is a perception among market participants generally that the published price of the relevant Futures Contract is inaccurate (and the Relevant Exchange fails to correct such level); or

(c) any Relevant Exchange:

(i) announces that it will make a material change to the contract specifications or definition of any Futures Contract or in any other way materially modifies such contract (other than a modification prescribed in the contract specifications or definition of such contract); or

(ii) permanently cancels any Futures Contract and no Successor Futures Contract exists or announces its intention to cease publishing a level for the Futures Contract; or

(d) the Index Calculation Agent determines that a Change in Law has occurred in respect of a Futures Contract,

then the Index Calculation Agent may (x) exclude or substitute the Affected Contract from the relevant Index and may adjust the Index Rules as it determines in good faith to be appropriate to account for such change(s) (including, without limitation, selecting (a) a replacement futures contract traded on the Relevant Exchange or an equivalent exchange and having similar characteristics to the Affected Contract and (b) the date of such replacement) on such date(s) as selected by the Index Calculation Agent or (y) cease publication of the relevant Index.

7. Extraordinary Events – Base Index

7.1 Successor Base Index

If, in respect of an Index, the Base Index is:

(a) not calculated and quoted by the applicable sponsor but by a successor sponsor acceptable to the Index Calculation Agent; or

(b) replaced by a successor index using, in the determination of the Index Calculation Agent, the same or a substantially similar formula and method of calculation as used in the calculation of the relevant Base Index,

then, in each case, that successor base index (the "**Successor Base Index**") shall replace the relevant Base Index with effect from a date determined by the Index Calculation Agent who may make such adjustments to these Index Rules, as it determines in good faith are appropriate, to account for such change.

7.2 Material change to the Base Index, cancellation or non-publication

Without prejudice to the ability of the Index Calculation Agent to amend the Index Rules (see section 1.3), if, at any time in respect of any applicable Base Index (the "**Affected Base Index**"):

(a) the Index Calculation Agent considers it reasonably necessary to exclude or substitute the Affected Base Index to reflect the purpose and objectives of the relevant Index, including (without prejudice to the generality of the foregoing) changes announced by the applicable sponsor of the Affected Base Index relating to the modification, exclusion, inclusion or substitution of the Affected Base Index or one or more components of the Affected Base Index; or

(b) there is a perception among market participants generally that the published level of the relevant Base Index is inaccurate (and the applicable sponsor of the Base Index fails to correct such level); or

(c) the sponsor of any applicable Base Index:

(i) announces that it will make a material change in the formula for or the method of calculating the Base Index or in any other way materially modifies that Base Index (other than a modification prescribed in the formula or method of calculation of that Base Index to maintain that Base Index in the event of routine events); or

(ii) permanently cancels the Base Index and no Successor Base Index exists or announces its intention to cease publishing a level of the Base Index,

then the Index Calculation Agent may (x) exclude or substitute the Affected Base Index from the relevant Index and may adjust the Index Rules as it determines in good faith to be appropriate to account for such change(s) (including, without limitation, selecting (a) a replacement base index having similar characteristics to the Affected Base Index and

(b) the date of such replacement) on such date(s) as selected by the Index Calculation Agent or (y) cease publication of the relevant Index.

7.3 Cancellation of licence or permission

If in respect of an Index, at any time, any license granted (if required) to the Index Calculation Agent (or its affiliates) to use any Base Index or any other component ("**Affected Component**") for the purposes of the Index terminates, or the Index Calculation Agent's rights to use the Base Index or any other component for the purpose of the Index is otherwise disputed, impaired or ceases (for any reason), the Index Calculation Agent may remove such Affected Component from the Index and may adjust the Index Rules as it determines in good faith to be appropriate to account for such change(s) (including, without limitation, selecting (a) a replacement for any such Affected Component having characteristics similar to such Affected Component and (b) the date of such replacement) on such dates as selected by the Index Calculation Agent or cease publication of the relevant Index.

8 Definitions

In respect of each Index, the capitalized terms defined below shall have the following meanings in the Index Rules:

"**Applicable Module**" means the Module which is applicable to the Index as specified in the table in section 1.1 above.

"**Applicable Parts**" means the Part(s) which are applicable to the Index as specified in the table in section 1.1 above.

"Applicable Parts / Module" means the Parts and Module which are applicable to the Index as specified in the table in section 1.1 above.

"**Base Date**" means the date specified in the Applicable Parts / Module.

"**Base Index**" means the index as specified in the Applicable Parts / Module.

"**Base Level**" means the level specified in the Applicable Parts / Module.

"**Change in Law**" means on or after August 31, 2012 due to the adoption of, or any change in, any applicable law, regulation or rule (including, without limitation, (x) any tax law or (y) adoption or promulgation of new regulations authorized or mandated by existing statute) or the promulgation of, or any change in, the announcement or statement of a formal or an informal interpretation, application, exercise or operation by any court, tribunal or regulatory authority with competent jurisdiction of any applicable law, rule, regulation or order (including, without limitation, any action taken by a taxing authority, or any exchange or trading facility), the Index Calculation Agent determines in good faith that it has become illegal to hold, acquire or dispose of any of the Futures Contracts.

"**Closing Price**" means, in respect of a Futures Contract and an Index Business Day, the official settlement price (howsoever described in the rules of the Relevant Exchange) for the Futures Contract published by the Relevant Exchange.

"**Currency of the Index**" means the currency specified as such in the Applicable Module.

"**Disrupted Day**" means, in respect of an Index, an Index Business Day on which a Market Disruption Event occurs or exists.

"**Early Closure**" means the closure on any Index Business Day of the Relevant Exchange prior to its scheduled closing time unless such earlier closing time is announced by such exchange(s) at least one hour prior to the actual closing time for the regular trading session on such exchange(s) on such Index Business Day.

"**Exchange Disruption**" means any event (other than an Early Closure) that disrupts or impairs (as determined by the Index Calculation Agent) the ability of market participants in general to effect transactions in, or obtain market values for, futures contracts (including, without limitation, any of the Futures Contracts) or options contracts (including, without limitation, options on any of the Futures Contracts) relating to the Base Index on any Relevant Exchange.

"**Final Settlement Value**" means, in respect of a Futures Contract and a Rebalancing Settlement Date, the final settlement value (howsoever described in the rules of the Relevant Exchange) for the Futures Contract as published by the Relevant Exchange in respect of the effective final settlement date for such Futures Contract.

"**Futures Contract**" means the futures contract(s) in respect of the Base Index specified in the Applicable Parts / Module. Each Futures Contract is identified by a contract letter that corresponds to the Rebalancing Settlement Date on which that Futures Contract is scheduled to expire. In respect of the period from, and including, one Rebalancing Settlement Date to, and including, the Rebalancing Date immediately preceding the next following

Rebalancing Settlement Date, the number applicable to a Futures Contract (i.e., i=1, 2, 3, 4, 5, 6) applies to such Futures Contract.

"**Index Business Day**" means the index business days specified as such in the Applicable Module, subject to adjustment in accordance with the Index Rules.

"**Index Calculation Agent**" has the meaning given in section 3.1 above.

"**Index**" means each Index specified in the table in section 1.1 above.

"**Index Level**" has the meaning given in section 4.2 above.

"**Index Rules**" means the relevant Parts and Modules of the document that comprise the Index Rules for the Index as specified in the table in section 1.1 above.

"**Market Disruption Event**" means the occurrence of one or more of the following events that, in the determination of the Index Calculation Agent in its sole discretion, materially interferes with the ability of market participants to transact in positions with respect to the relevant Index, any Futures Contract relevant to such Index or the Base Index relevant to such Index:

(a) a failure by the Relevant Exchange to publish the Closing Price for any such Futures Contract on an Index Business Day;

(b) a failure by the Relevant Exchange to publish the Final Settlement Value on any of (x) the Rebalancing Settlement Date, (y) a later date to which the final settlement date for any such Futures Contract has been postponed, but that is not the effective final settlement date for the relevant Futures Contract or (z) the effective final settlement date for any such Futures Contract;

(c) the occurrence or existence of a suspension, absence or material limitation of trading of any such Futures Contract or any futures or options contracts relating to the Base Index on the Relevant Exchange during the last one hour period preceding the close of the principal trading session on such Relevant Exchange;

(d) a breakdown or failure in the price and trade reporting systems of the Relevant Exchange as a result of which the reported trading prices for any such Futures Contract or any futures or options contracts relating to the Base Index are materially inaccurate during the last one hour period preceding the close of the principal trading session on the Relevant Exchange;

(e) any event that disrupts or impairs the ability of market participants generally to effect transactions in or obtain market values for any such Futures Contract or the Base Index on an Index Business Day during the last one hour period preceding the close of the principal trading session on the Relevant Exchange. Such events may include, but are not limited to, the occurrence of a Trading Disruption, Exchange Disruption or Early Closure; or

(f) a failure by the sponsor for the Base Index to calculate and publish the level for the Base Index on an Index Business Day.

"**Module**" means the Module of this document applicable to the Index as specified in the table in section 1.1 above.

"**Parts**" means the Parts of this document applicable to the Index as specified in the table in section 1.1 above.

"**Rebalancing Settlement Date**" in respect of an Index, means the relevant rebalancing settlement date specified in the Applicable Parts / Module.

"**Relevant Exchange**" in respect of an Index, means the relevant exchange or quotation system specified in the Applicable Parts / Module.

"**Relevant Persons**" means any affiliate or subsidiary of the Index Calculation Agent or their respective directors, officers, employees, representatives, delegates or agents.

"**Trading Disruption**" means any suspension of or limitation imposed on trading by the Relevant Exchange or otherwise and whether by reason of movements in a price exceeding limits permitted by the Relevant Exchange or otherwise in futures contracts (including, without limitation, the Futures Contracts) or options contracts (including, without limitation, options on any of the Futures Contracts) relating to the Base Index on any Relevant Exchange.

Notices, Disclaimers and Conflicts

These Index Rules have been developed with the possibility of the Index Calculation Agent or any of the Relevant Persons entering into or promoting, offering or selling transactions or investments (structured or otherwise) linked to one or more Indices and the hedging of such transactions or investments in any manner that they see fit.

No one may reproduce or disseminate the information contained in this document or an Index Level without the prior written consent of the Index Calculation Agent. This document is not intended for distribution to, or use by, any person in a jurisdiction where such distribution is prohibited by law or regulation.

THIS DOCUMENT IS IMPORTANT. YOU SHOULD NOT INVEST IN A PRODUCT LINKED TO THE INDEX UNLESS YOU HAVE ENSURED THAT YOU FULLY UNDERSTAND THE NATURE OF SUCH AN INVESTMENT AND THE RISKS INVOLVED AND ARE SATISFIED THAT THE INVESTMENT IS SUITED TO YOUR CIRCUMSTANCES AND OBJECTIVES. IF YOU ARE IN ANY DOUBT ABOUT THIS YOU SHOULD TAKE ADVICE FROM AN APPROPRIATELY QUALIFIED ADVISER. UNLESS YOU ARE A HIGHLY SOPHISTICATED INVESTOR WHO REGULARLY TRANSACTS IN PRODUCTS LINKED TO INDICES OF THIS TYPE, YOU ARE STRONGLY ADVISED TO TAKE SUCH ADVICE IN ANY EVENT.

Part B

J.P. Morgan Strategic Volatility Dynamic Index

1. Introduction

The Strategic Volatility Dynamic Index rules set out in this Part B apply to each of the Indices in the Module(s) to this Part B. The Index Rules of each Strategic Volatility Dynamic Index are comprised of Part A of this document, this Part B and the Applicable Module to this Part B.

The Strategic Volatility Dynamic Index references Futures Contracts in both the long position and contingent short position that are different from those in the J.P. Morgan Strategic Volatility Index (the "**Strategic Volatility Index**") and references a greater number of Futures Contracts in the long position than the Strategic Volatility Index. In addition, in contrast to the Strategic Volatility Index, the exposure of the Index to the synthetic short position is subject to a dynamic weighting mechanism that is based on the short term beta of the short return to the long return. It is for these reasons that this version of the Index is referred to as the Strategic Volatility Dynamic Index.

The Strategic Volatility Dynamic Index models returns by combining a fixed long synthetic exposure and a contingent short synthetic exposure to the Futures Contracts that are rolled continuously.

The synthetic long exposure to the Futures Contracts measures the return from a rolling long position in the third, fourth, fifth and sixth month Futures Contracts. Subject to the occurrence of a Market Disruption Event, the long exposure in the Strategic Volatility Dynamic Indices rolls continuously throughout each month from the third month Futures Contract into the sixth month Futures Contract.

The synthetic short exposure to the Futures Contracts measures the return from a rolling short position in the second and third month Futures Contracts and is designed to be activated when the volatility term structure is upward-sloping. Subject to the occurrence of a Market Disruption Event, the short exposure in the Strategic Volatility Dynamic Indices rolls continuously throughout each month from the second month Futures Contract into the third month Futures Contract.

The short exposure is adjusted following three consecutive days of the level of the Base Index being (x) less than or (y) greater than or equal to, in either case, the rolling average price of the second and third month Futures Contracts, with the size of the adjustment in exposure (being an increase or a decrease in the case of (x) or a decrease in the case of (y)) being no more than 25% on any given day and being subject to an overall maximum short exposure of 100% and minimum short exposure of 0%. If the level of the Base Index has been less than the rolling average price of the second and third month Futures Contracts for three consecutive days, then the short exposure will be dynamically reweighted. The dynamic weighting is calculated as the 10 day rolling average of one divided by the 10 day beta of the short return versus the long return. The size of the adjustment in short exposure (whether an increase or a decrease) will be no more than 25% on any given day and is subject to an overall maximum short exposure of 100% and minimum short exposure of 0%. If the level of the Base Index has been greater than or equal to the rolling average of the second and third month Futures Contracts for three consecutive days, then the short exposure will be decreased by 25% from the existing short exposure, subject to an overall minimum short exposure of 0%. If neither of the conditions described in the first sentence of this paragraph are met, the short position is rolled over with the same short exposure as the previous day.

For each Strategic Volatility Dynamic Index, the Applicable Module sets out (among other things) the:

- name of the Index and Bloomberg ticker;
- Base Index;
- Index Business Days of the Index;
- Rebalancing Settlement Dates; and
- Adjustment Factor of the Index.

2. Futures Contracts

The table below sets out the futures contracts in respect of the Base Index (each a "**Futures Contract**"), together with the applicable "**Contract Letter**" and "**Settlement Month**".

Each Futures Contract is scheduled to expire on the Rebalancing Settlement Date occurring in the Settlement Month specified in the first table below. For example, a Futures Contract with the Contract Letter "J" expires in Settlement Month April.

In respect of the period from, and including, one Rebalancing Settlement Date to, and including, the Rebalancing Date immediately preceding the next following Rebalancing Settlement Date (the "**Relevant Period**"), each row in

the first table below provides the applicable Contract Letter for each Futures Contract (i = 1, 2, 3, 4, 5, 6) by reference to the month in which such next following Rebalancing Settlement Date occurs. For example, if the month in which such next following Rebalancing Settlement Date occurs is June, the Contract Letter for Futures Contract i = 3 is "Q".

In respect of the Relevant Period, in the first table below, references to Futures Contract(s) (i=1, 2, 3, 4, 5, 6) are to the futures contract(s) by reference to the month in which such next following Rebalancing Settlement Date occurs. For example, Futures Contract i=1 means the Futures Contract scheduled to expire on such next following Rebalancing Settlement Date and Futures Contract i=2 means the Futures Contract scheduled to expire on the second following Rebalancing Settlement Date.

Each Futures Contract is identified by a Contract Letter that corresponds to the Rebalancing Settlement Date on which that Futures Contract is scheduled to expire.

In respect of the Relevant Period, the number applicable to a Futures Contract (i.e., i=1, 2, 3, 4, 5, 6) applies to such Futures Contract to, and including, the Rebalancing Date immediately preceding such next following Rebalancing Settlement Date.

Table: Futures Contracts

Futures Contract(s)	In respect of the period from, and including, one Rebalancing Settlement Date to, and including, the Rebalancing Date immediately preceding the next following Rebalancing Settlement Date, the month in which that next following Rebalancing Settlement Date occurs											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Futures Contract (i=1)	F	G	H	J	K	M	N	Q	U	V	X	Z
Futures Contract (i=2)	G	H	J	K	M	N	Q	U	V	X	Z	F
Futures Contract (i=3)	H	J	K	M	N	Q	U	V	X	Z	F	G
Futures Contract (i=4)	J	K	M	N	Q	U	V	X	Z	F	G	H
Futures Contract (i=5)	K	M	N	Q	U	V	X	Z	F	G	H	J
Futures Contract (i=6)	M	N	Q	U	V	X	Z	F	G	H	J	K

Contract Letter	F	G	H	J	K	M	N	Q	U	V	X	Z
Settlement Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

3. Rebalancing

The Futures Contracts referenced in the Index are rebalanced on each Rebalancing Date.

4. Calculation of Index Levels

Subject to the occurrence of a Market Disruption Event, the Index Level ("**Index (t)**") for each Index shall be calculated in respect of each Index Business Day as follows:

Index (t) = Index (t-1) * (1 + Return (t))

Where:

Index (t-1) means the Index Level published by the Index Calculation Agent in respect of the immediately preceding Index Business Day that was not a Disrupted Day

Return (t) = Long Return (t) – (Short I(t-1) * Short Return (t)) – *(Rebal Fut (t) * R) – ASRR Deduction (t) – (A * n(t-1, t) / 360)*

Where:

Short I is the signal used to determine the exposure of the Index to the Short Return and is defined below.

If the Index Business Day immediately preceding the Rebalancing Settlement Date was not a Disrupted Day (such Index Business Day being the "**Prior Undisrupted Day**"), the first Index Business Day that is not a Disrupted Day that immediately follows such Prior Undisrupted Day shall be a "**Rebalanced Portfolio Day**". If Index Business Day t is a Rebalanced Portfolio Day, then:

Short Return (t) = (DCRP(2, t) / DCRP(3, t-1)) - 1

Long Return (t) = (DCRP(3, t) + DCRP(4, t) + DCRP(5, t)) / (DCRP(4, t-1) + DCRP(5, t-1) + DCRP(6, t-1)) - 1

Where:

DCRP (i, t) means the Daily Contract Reference Price of the i-th Futures Contract on Index Business Day t.

DCRP (i, t-1) means the Daily Contract Reference Price of the i-th Futures Contract on Index Business Day t -1.

Daily Contract Reference Price means either: (a) in respect of any Index Business Day that is the effective final settlement date for a Futures Contract, the Final Settlement Value of the Futures Contract; or (b) in respect of any other Index Business Day, the Closing Price of the Futures Contract.

If Index Business Day t is not a Rebalanced Portfolio Day:

Short Return (t) = (CRW(A, t-1) * DCRP(2, t) + CRW(B, t-1) * DCRP(3, t)) / (CRW(A, t-1) * DCRP(2, t-1) + CRW(B, t-1) * DCRP(3, t-1)) -1

Long Return (t) = (CRW(A, t-1) * DCRP(3, t) + DCRP(4, t) + DCRP(5, t) + CRW(B, t-1) * DCRP(6, t)) / (CRW(A, t-1) * DCRP(3, t-1) + DCRP(4, t-1) + DCRP(5, t-1) + CRW(B, t-1) * DCRP(6, t-1)) - 1

Where:

CRW(A, p) = dr / dp,

CRW(B, p) = (dp - dr) / dp

The reference in the calculation of the Short Return above to CRW "A" or "B" is to the weight to be applied to Futures Contract i=2 or i=3, respectively.

The reference in the calculation of the Long Return above to CRW "A" or "B" is to the weight to be applied to Futures Contract i=3 or i=6 respectively.

The reference above to "**p**" is to the relevant Index Business Day, in other words to Index Business Day "**t**" or "**t-1**" (as the case may be).

dp is the total number of Index Business Days in the period from, and including, one Rebalancing Settlement Date to, and including, the Rebalancing Date immediately preceding the next following Rebalancing Settlement Date in which the Index Business Day (p) falls (irrespective of whether any such day(s) are or become a Disrupted Day).

dr is the total number of Index Business Days from, but excluding, the Index Business Day (p) to, but excluding, the next Rebalancing Settlement Date (irrespective of whether any such day(s) are or become a Disrupted Day).

Short I(t-1) is the signal used to determine the exposure (if any) of the Index to the Short Return by reference to Index Business Day t-1 and is calculated as follows:

(i) if in respect of all Index Business Days t-j (where j = 2, 3 and 4) the Base Index Level in respect of each Index Business Day (t-j) is greater than or equal to an amount calculated as follows:

CRW(A, t-j) * DCRP (2, t-j) + CRW(B, t-j) * DCRP(3,t-j)

then, Short I(t-1) = MIN[MAX[0, Short I(t-2) - 25%],100%],

(ii) if in respect of all Index Business Days t-j (where j = 2, 3 and 4) the Base Index Level in respect of each Index Business Day (t-j) is less than an amount calculated as follows:

CRW(A, t-j) * DCRP (2, t-j) + CRW(B, t-j) * DCRP(3,t-j)

then,

a) if ABW (t-1) is greater than Short I(t-2),

Short I(t-1) = MIN[MAX[0,MIN[ABW (t-1), Short I(t-2) + 25%]],100%]

b) if ABW (t-1) is less than Short I(t-2),

Short I(t-1) = MIN[MAX[0,MAX[ABW (t-1), Short I(t-2) - 25%]],100%]

c) if ABW (t-1) is equal to Short I(t-2),

Short I(t-1) = Short I(t-2)

Where:

ABW (t) is the Average Beta Weight on Index Business Day t determined as follows, rounded to the first decimal point:

$$ABW(t) = \frac{\sum_{i=t-9}^{t} \frac{1}{Beta(i)}}{10}$$

with

$$Beta(t) = \frac{10 \times \left(\sum_{k=t-10}^{k=t-1} SR(k) \times LR(k) \right) - \left(\sum_{k=t-10}^{k=t-1} SR(k) \right) \times \left(\sum_{k=t-10}^{k=t-1} LR(k) \right)}{10 \times \left(\sum_{k=t-10}^{k=t-1} LR(k)^2 \right) - \left(\sum_{k=t-10}^{k=t-1} LR(k) \right)^2}$$

SR(t) = Short Return (t) as determined pursuant to this Section 4.

LR(t) = Long Return (t) as determined pursuant to this Section 4.

The references above to "i" in the formula for ABW(t) are to the relevant Index Business Day ranging from t to t-9.

The references above to "k" in the formula for Beta(t) are to the relevant Index Business Day ranging from t-1 to t-10.

(iii) if in respect of any Index Business Day t-1 the conditions in (i) and (ii) have not been satisfied:

then, Short I(t-1) = Short I(t-2).

Base Index Level means, in respect of an Index Business Day, the official closing level of the Base Index published by the sponsor of the Base Index in respect of the relevant Index Business Day.

R means, in respect of an Index Business Day, the Rebalancing Adjustment Factor as specified in the Applicable Module, determined by reference to the Base Index Level on Index Business Day (t-1).

A means the notional Adjustment Factor as specified in the Applicable Module for the Index.

n(t-1, t) is the number of calendar days from, and including, Index Business Day t-1 to, but excluding, Index Business Day t.

Rebal Fut (t) refers to the proportion of the relevant Futures Contracts notionally rebalanced between Index Business Day t-1 and Index Business Day t and is calculated as follows:

If Index Business Day t is not a Rebalanced Portfolio Day:

Rebal Fut (t) = |F2(t) – F2(t-1)| + |F3(t) – F3(t-1)| + |F4(t) – F4(t-1)| + |F5(t) – F5(t-1)| + |F6(t) – F6(t-1)|

Of course, |F4(t) – F4(t-1)| and |F5(t) – F5(t-1)| will both be equal to zero.

If Index Business Day t is a Rebalanced Portfolio Day:

Rebal Fut (t) = |F2(t) – F3(t-1)| + |F3(t) - F4(t-1)| + |F4(t) – F5(t-1)| + |F5(t) – F6(t-1)| + |F6(t)|

Of course, |F4(t) – F5(t-1)| and |F5(t) – F6(t-1)| will both be equal to zero.

Where:

F2(t) = CRW(A,t) * (-1) * Short I(t)

F3(t) = CRW(B,t) * (-1) * Short I(t) + 1/3 * CRW(A,t)

F4(t) = 1/3

F5(t) = 1/3

F6(t) = 1/3 * CRW(B,t)

F2(t-1) = CRW(A,t-1) * (-1) * Short I(t-1)

F3(t-1) = CRW(B,t-1) * (-1) * Short I(t-1) + 1/3 * CRW(A,t-1)

F4(t-1) = 1/3

F5(t-1) = 1/3

F6(t-1) = 1/3 * CRW(B,t-1)

ASRR Deduction (t) is the "Additional Short Related Rebalancing Deduction" and is applied when there is a change in the size of the exposure of the Index to the Short Return between Index Business Day (t) and Index Business Day (t-1) and is determined as follows:

ASRR Deduction (t) = |Short I(t) – Short I(t-1)| * R

For the purposes of calculating the Index Level, references to Index Business Days preceding an Index Business Day t shall be deemed to be references to Index Business Days preceding that Index Business Day t that are not Disrupted Days.

5. Market Disruption Events

Determination of Index Level

Notwithstanding the remainder of this section, if any Index Business Day is a Disrupted Day then the Index Calculation Agent will suspend the calculation and publication of the Index Level until the first succeeding Index Business Day that is not a Disrupted Day.

Rebalancing Dates

If any Rebalancing Date is a Disrupted Day, then the relevant Rebalancing Date shall be deemed to be the first following Rebalancing Date that is not a Disrupted Day.

On the first Rebalancing Date following one or more consecutive Disrupted Days (the first such day being the "**First Disrupted Day**" and the last such day being the "**Final Disrupted Day**"), the Index Calculation Agent will

determine the Index Level in accordance with the methodology set out in Section 4 of this Part B provided that references to Index Business Day (t-1, t-2, t-3 and t-4) shall be deemed to be references to the Index Business Days that are themselves not Disrupted Days occurring on or prior to the First Disrupted Day.

If the first Rebalancing Date following the Final Disrupted Day falls on or after a Rebalancing Settlement Date and the relevant First Disrupted Day falls before such Rebalancing Settlement Date, then for the purposes of calculating the Index Level references to:

DCRP (i,t) shall be deemed to be a reference to DCRP(i-1,t) for all i > 1; and

DCRP(1,t) shall be deemed to be a reference to the Final Settlement Value of the relevant Futures Contract scheduled to expire on that Rebalancing Settlement Date (as published by the Relevant Exchange).

If the period from and including the First Disrupted Day to and including the Final Disrupted Day includes more than one Rebalancing Settlement Date, the Index Calculation Agent shall make such adjustments to these Index Rules, as it determines in good faith are appropriate, to account for such fact.

Module B1.0: J.P. Morgan Strategic Volatility Dynamic Index (Series 1) (USD)

This Module B1.0 sets out the specific information pertaining to the J.P. Morgan Strategic Volatility Dynamic Index (Series 1) (USD).

<table>
<tr><td>Name of the Index</td><td colspan="2">J.P. Morgan Strategic Volatility Dynamic Index (Series 1) (USD)</td></tr>
<tr><td>Bloomberg Code of the Index</td><td colspan="2">JPUSSTVD Index</td></tr>
<tr><td>Currency of the Index</td><td colspan="2">US Dollar</td></tr>
<tr><td>Base Index</td><td colspan="2">The CBOE Volatility Index (Bloomberg Code: VIX Index)</td></tr>
<tr><td>Index Business Days</td><td colspan="2">Each day (other than a Saturday or Sunday) on which the Relevant Exchange(s) in respect of each Futures Contract and the Base Index are all open for trading during its or their regular trading sessions</td></tr>
<tr><td>Relevant Exchange</td><td colspan="2">Means, as of the Base Date, the Chicago Board Options Exchange or any successor thereof or otherwise any exchange on which any Successor Futures Contract is traded or the Base Index or any Successor Base Index is listed (as the case may be) from time to time</td></tr>
<tr><td>Rebalancing Settlement Dates</td><td colspan="2">Means, in respect of a Futures Contract, the originally scheduled final settlement date (or howsoever it is called) as published by the Relevant Exchange (whether or not the effective final settlement date is the date that was originally scheduled to be the final settlement date)</td></tr>
<tr><td>Rebalancing Date</td><td colspan="2">Means each Index Business Day</td></tr>
<tr><td>Adjustment Factor</td><td colspan="2">0.75%</td></tr>
<tr><td rowspan="5">Rebalancing Adjustment Factor (“R”) utilized for Index Business Day (t).

The Rebalancing Adjustment Factor is referenced in the definition of “Return (t)” and “ASRR Deduction (t)”.
The Rebalancing Adjustment Factor is not a per annum amount and is applied to (i) “Rebal Fut (t)” (being the proportion of Futures Contracts notionally rebalanced between Index Business Day (t) and Index Business Day (t-1)) and (ii) the difference between Short I(t) and Short I(t-1).</td><td>Base Index Level on Index Business Day (t-1)</td><td>Rebalancing Adjustment Factor</td></tr>
<tr><td>=< 35</td><td>0.20%</td></tr>
<tr><td>=< 50 and > 35</td><td>0.30%</td></tr>
<tr><td>=< 70 and > 50</td><td>0.40%</td></tr>
<tr><td>> 70</td><td>0.50%</td></tr>
<tr><td>Base Date</td><td colspan="2">June 20, 2008</td></tr>
<tr><td>Base Level</td><td colspan="2">100.00</td></tr>
</table>

Disclaimers

The CBOE Volatility Index (the VIX Index)

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