

# JPMORGAN CHASE & CO.

## Return Enhanced Notes Linked to an Equity Index with Strategic Volatility Overlay

### General

- JPMorgan Chase & Co. may from time to time offer and sell return enhanced notes linked to an Equity Index with a strategic volatility overlay. This product supplement no. 214-A-I describes terms that will apply generally to the notes, and supplements the terms described in the accompanying 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. A separate index supplement or the relevant terms supplement will describe any Equity Index not described in this product supplement to which the notes are linked. If the terms described in the relevant terms supplement are inconsistent with those described herein or in any related index supplement or in the accompanying prospectus supplement or prospectus, the terms described in the relevant terms supplement will control.
- The notes are senior unsecured obligations of JPMorgan Chase & Co. Any payment on the notes is subject to the credit risk of JPMorgan Chase & Co.
- The payment at maturity on the notes will be determined in part by the performance of an Equity Index and in part by the performance of the J.P. Morgan Strategic Volatility Index (the "Volatility Index"), as described below. In the determination of the payment at maturity, the performance of the Equity Index may be subject to upside leverage, downside leverage, a buffer, a maximum return and/or any other modification, as specified in the relevant terms supplement. The return on the notes may be greater than or less than the return that would be achieved on an instrument linked solely to the performance of the Equity Index because the payment at maturity will also depend in part on the performance of the Volatility Index. We refer to the effect on the payment at maturity of the performance of the Volatility Index as the strategic volatility overlay.
- The level of the Volatility Index incorporates the daily deduction of (a) an adjustment factor of 0.75% per annum (the "volatility 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 Volatility 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 volatility index fee, the rebalancing adjustment factor is not a per annum fee.
- **The level of the Volatility 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 volatility index fee and the daily rebalancing adjustment amount.** See "Risk Factors — Risks Relating to the Volatility Index — The daily rebalancing adjustment amount is likely to have a substantial adverse effect on the level of the Volatility Index over time" in this product supplement. For more information about the daily rebalancing adjustment amount, see "The J.P. Morgan Strategic Volatility Index — II. Calculation and Publication of Volatility Index Levels — B. Calculation of Volatility Index Levels — iii. The Rebalancing Adjustment Factor" in this product supplement.
- For important information about tax consequences, see "Certain U.S. Federal Income Tax Consequences" beginning on page PS-70 of this product supplement.
- Minimum denominations of \$1,000 and integral multiples thereof, unless otherwise specified in the relevant terms supplement.
- Investing in the notes is not equivalent to investing directly in the Equity Index or any of its component securities, nor is it equivalent to taking a long or short position (or both positions) in the Volatility Index or any of its component VIX futures contracts.
- **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 that is available to securities that have one or more payments indexed to the value, level or rate of one or more commodities, which is 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.
- The notes will not be listed on any securities exchange, unless otherwise specified in the relevant terms supplement.

### Key Terms

Equity Index: The relevant terms supplement will specify the equity index (the "Equity Index").

*(continued on next page)*

Investing in the Return Enhanced Notes with Strategic Volatility Overlay involves a number of risks. See "Risk Factors" beginning on page PS-8.

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 product supplement no. 214-A-I, the accompanying prospectus supplement and prospectus, or any related index supplement or terms supplement. Any representation to the contrary is a criminal offense.

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

J.P.Morgan

October 3, 2011

**Key Terms (continued)**

**Volatility Index:**

J.P. Morgan Strategic Volatility Index (the "Volatility Index" and, together with the Equity Index, the "Indices" and each, an "Index"). The Volatility Index is published by Bloomberg L.P. under the ticker symbol "JPUSSTVL."

The Volatility Index is a synthetic, dynamic strategy that aims to replicate the returns from combining a long position and a contingent 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 synthetic long position rolls throughout each month from the second-month VIX futures contract into the third-month VIX futures contract. When activated, the synthetic short position rolls throughout each month from the first-month VIX futures contract into the second-month VIX futures contract. For more information about the Volatility Index, please see "The J.P. Morgan Strategic Volatility Index" in this product supplement.

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

**Payment at Maturity:**

The amount you will receive at maturity is based in part on the return of the Equity Index, as reflected in the calculation of the Modified Equity Index Return, and in part on the return of the Volatility Index, as reflected in the calculation of the Strategic Volatility Overlay Amount. Unless otherwise specified in the relevant terms supplement, your payment at maturity per \$1,000 principal amount note will be an amount in cash calculated as follows:

$$\$1,000 + (\$1,000 \times \text{Modified Equity Index Return}) + \text{Strategic Volatility Overlay Amount}$$

*The Modified Equity Index Return and the Strategic Volatility Overlay Amount may each be positive or negative. As a result, the payment at maturity on the notes may be greater than or less than the \$1,000 principal amount. The payment at maturity on the notes may be as low as \$0 but will not be less than \$0.*

**Modified Equity Index Return:**

***Unless otherwise specified in the relevant terms supplement, if the relevant terms supplement does not specify that a buffer amount applies to the Equity Index, the Modified Equity Index Return (which we will refer to in the relevant terms supplement as the "Enhanced Equity Index Return") will be calculated as follows:***

**Ending Index Level of the Equity Index**

is *greater* than the Initial Index Level (or Strike Level, if applicable) of the Equity Index .....

is *less than or equal to* the Initial Index Level (or Strike Level, if applicable) of the Equity Index .....

**Modified Equity Index Return**

Index Return of the Equity Index × upside leverage factor, subject, if applicable, to the Maximum Equity Index Return

Index Return of the Equity Index

*If the relevant terms supplement does not specify that a buffer amount applies to the Equity Index, the Modified Equity Index Return will be negative if the Ending Index Level is less than the Initial Index Level (or Strike Level, as applicable).*

***Unless otherwise specified in the relevant terms supplement, if the relevant terms supplement specifies that a buffer amount applies to the Equity Index, the Modified Equity Index Return (which we will refer to in the relevant terms supplement as the "Buffered Enhanced Equity Index Return") will be calculated as follows:***

**Ending Index Level of the Equity Index**

is *greater* than the Initial Index Level (or Strike Level, if applicable) of the Equity Index .....

is *less than or equal to* the Initial Index Level (or Strike Level, if applicable) of the Equity Index but the decline is *less than or equal to* the buffer amount .....

is *less than* the Initial Index Level (or Strike Level, if applicable) of the Equity Index and the decline is *greater than* the buffer amount .....

**Modified Equity Index Return**

Index Return of the Equity Index × upside leverage factor, if applicable, subject, if applicable, to the Maximum Equity Index Return

0%

(Index Return of the Equity Index + buffer amount) × downside leverage factor, if applicable

*If the relevant terms supplement specifies that a buffer amount applies to the Equity Index, the Modified Equity Index Return will be negative if the Ending Index Level is less than the Initial Index Level (or Strike Level, as applicable) by more than the buffer amount.*

If applicable, the "buffer amount" is a percentage that will be set forth in the relevant terms supplement.

If applicable, the "upside leverage factor" and the "downside leverage factor" will be numbers set forth in the relevant terms supplement.

If applicable, the "Maximum Equity Index Return" is a percentage that will be set forth in the relevant terms supplement. Accordingly, if the relevant terms supplement specifies a Maximum Equity Index Return, the Modified Equity Index Return will be limited to the Maximum Equity Index Return even if the Index Return of the Equity Index multiplied by the upside leverage factor is greater than the Maximum Equity Index Return.

*(continued on next page)*

**Key Terms (continued)**

Strategic Volatility Overlay Amount:	An amount calculated as follows: $(\$1,000 \times \text{Volatility Overlay Factor} \times \text{Index Return of the Volatility Index})$ <p><i>The Index Return of the Volatility Index will reflect the deduction of the volatility index fee and the daily rebalancing adjustment amount from the level of the Volatility Index. Because the closing level of the Volatility Index reflects the daily deduction of the volatility index fee and the daily rebalancing adjustment amount, the level of the Volatility Index will decrease if the performance of the VIX futures contracts included in the Volatility Index, based on their official settlement prices, is not sufficient to offset the deduction of the volatility index fee and the daily rebalancing adjustment amount.</i></p>
Volatility Overlay Factor:	A percentage that will be set forth in the relevant terms supplement.
Index Return:	Unless otherwise specified in the relevant terms supplement, for the Equity Index or the Volatility Index, as applicable: $\frac{\text{Ending Index Level} - \text{Initial Index Level (or Strike Level, if applicable)}}{\text{Initial Index Level (or Strike Level, if applicable)}}$
Initial Index Level:	Unless otherwise specified in the relevant terms supplement, the closing level of the Equity Index or the Volatility Index, as applicable, on the pricing date or such other date as specified in the relevant terms supplement, or the arithmetic average of the closing levels of such Index on each of the Initial Averaging Dates, if so specified in the relevant terms supplement.
Ending Index Level:	Unless otherwise specified in the relevant terms supplement, the closing level of the Equity Index or the Volatility Index, as applicable, on the Observation Date or such other date as specified in the relevant terms supplement, or, if the relevant terms supplement specifies Ending Averaging Dates, the arithmetic average of the closing levels of such Index on each of the Ending Averaging Dates.
Strike Level:	The relevant terms supplement may specify a closing level other than the Initial Index Level to be used for calculating the Index Return of the Equity Index and/or the Volatility Index, which we refer to as the "Strike Level." The Strike Level may be based on and/or expressed as a percentage of the closing level of such Index as of a specified date, or may be determined without regard to such closing level as of a particular date. For example, the relevant terms supplement may specify that a Strike Level for an Index, equal to 95% of the Initial Index Level of such Index, will be used to calculate the Index Return of such Index.
Index Valuation Date(s):	The Ending Index Level of each of the Equity Index and the Volatility Index will be calculated on a single date, which we refer to as the Observation Date, or on several dates, each of which we refer to as an Ending Averaging Date, as specified in the relevant terms supplement. We refer to such dates generally as Index Valuation Dates in this product supplement. Any Index Valuation Date is subject to postponement in the event of certain market disruption events and as described under "Description of Notes — Postponement of a Determination Date."
Initial Averaging Dates:	As specified, if applicable, in the relevant terms supplement. Any Initial Averaging Date is subject to postponement in the event of certain market disruption events and as described under "Description of Notes — Postponement of a Determination Date."
Maturity Date:	As specified in the relevant terms supplement. The maturity date of the notes is subject to postponement in the event of certain market disruption events and as described under "Description of Notes — Payment at Maturity."

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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 related index supplement, this product supplement no. 214-A-I and the accompanying prospectus supplement and prospectus with respect to the notes offered by the relevant terms supplement, any related index supplement and this product supplement no. 214-A-I 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 product supplement no. 214-A-I, together with the relevant terms supplement, any related index supplement and the accompanying prospectus supplement and prospectus, 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 related index supplement, this product supplement no. 214-A-I and the accompanying 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 and this product supplement no. 214-A-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, 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, any related index supplement, this product supplement no. 214-A-I and the accompanying 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.

In this product supplement no. 214-A-I, the relevant terms supplement, any related index supplement and the accompanying prospectus supplement and prospectus, "we," "us" and "our" refer to JPMorgan Chase & Co., unless the context requires otherwise.

## DESCRIPTION OF NOTES

*The following description of the terms of the notes supplements the description of the general terms of the debt securities set forth 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. A separate index supplement or the relevant terms supplement will describe any index not described in this product supplement to which the notes are linked. Capitalized terms used but not defined in this product supplement no. 214-A-I have the meanings assigned in the accompanying prospectus supplement, prospectus, the relevant terms supplement and any related index supplement. The term "note" refers to each \$1,000 principal amount of our Return Enhanced Notes Linked to an Equity Index with Strategic Volatility Overlay.*

### General

The Return Enhanced Notes Linked to an Equity Index with Strategic Volatility Overlay are senior unsecured obligations of JPMorgan Chase & Co. that are linked to an equity index specified in the relevant terms supplement (the "**Equity Index**") and to the J.P. Morgan Strategic Volatility Index (the "**Volatility Index**" and, together with the Equity Index, the "**Indices**" and each, an "**Index**"). The notes are a series of debt securities referred to in the accompanying prospectus supplement and prospectus and the relevant terms supplement, as well as any related index supplement. The notes will be issued by JPMorgan Chase & Co. under an indenture dated May 25, 2001, as may be amended or supplemented from time to time, between us and Deutsche Bank Trust Company Americas (formerly Bankers Trust Company), as trustee.

The notes do not pay interest and do not guarantee any return of principal at, or prior to, maturity; **therefore, you must be aware of the risk that you may lose some or all of the principal amount of your notes at maturity.** At maturity you will receive a payment in cash, the amount of which will vary depending on the performance of the Equity Index, subject to any upside leverage, downside leverage, buffer amount, maximum return and/or any other modification that may be specified in the relevant terms supplement, the performance of the Volatility Index and the Volatility Overlay Factor. **Any payment on the notes is subject to the credit risk of JPMorgan Chase & Co.**

The Volatility Index is a synthetic, dynamic strategy that aims to replicate the returns from combining a long position and a contingent short position in futures contracts (each, a "**VIX futures contract**" and together, "**VIX futures contracts**") on the CBOE Volatility Index<sup>®</sup> (the "**VIX Index**"), where the synthetic long position and, when activated, the synthetic short position are rolled throughout each month. The level of the Volatility Index incorporates the daily deduction of (a) an adjustment factor of 0.75% per annum (the "**volatility 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 Volatility 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 volatility index fee, the rebalancing adjustment factor is not a per annum fee.

The level of the Volatility 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 volatility index fee and the daily rebalancing adjustment amount. See “Risk Factors — Risks Relating to the Volatility Index — The daily rebalancing adjustment amount is likely to have a substantial adverse effect on the level of the Volatility Index over time” in this product supplement. For more information about the daily rebalancing adjustment amount, see “The J.P. Morgan Strategic Volatility Index — II. Calculation and Publication of Volatility Index Levels — B. Calculation of Volatility Index Levels — iii. The Rebalancing Adjustment Factor” in this product supplement.

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

The notes are our unsecured and unsubordinated obligations and will rank *pari passu* with all of our other unsecured and unsubordinated obligations.

The notes will be issued in denominations of \$1,000 and integral multiples thereof, unless otherwise specified in the relevant terms supplement. The principal amount and issue price of each note is \$1,000, unless otherwise specified in the relevant terms supplement. The notes will be represented by one or more permanent global notes registered in the name of The Depository Trust Company, or DTC, or its nominee, as described under “Description of Notes — Forms of Notes” in the accompanying prospectus supplement and “Forms of Securities — Global Securities” in the accompanying prospectus.

The terms of specific issuances of the notes will be described in the relevant terms supplement accompanying this product supplement no. 214-A-I and any related index supplement. The terms described in the relevant terms supplement will supplement those described herein and in any related index supplement, the accompanying prospectus and prospectus supplement. If the terms described in the relevant terms supplement are inconsistent with those described herein or in any related index supplement, the accompanying prospectus or prospectus supplement, the terms described in the relevant terms supplement will control.

### **Payment at Maturity**

The maturity date for the notes will be set forth in the relevant terms supplement and is subject to adjustment if such day is not a business day or if the final Index Valuation Date is postponed as described below. We will also specify in the relevant terms supplement the Volatility Overlay Factor and, if applicable, the upside leverage factor, downside leverage factor, Maximum Equity Index Return and/or buffer amount to be applicable to the calculation of the Modified Equity Index Return.

The amount you will receive at maturity is based in part on the return of the Equity Index, as reflected in the calculation of the Modified Equity Index Return, and in part on the return of the Volatility Index, as reflected in the calculation of the Strategic Volatility Overlay Amount. Unless otherwise specified in the relevant terms supplement, your payment at maturity per \$1,000 principal amount note will be an amount in cash calculated as follows:

$$\$1,000 + (\$1,000 \times \text{Modified Equity Index Return}) + \text{Strategic Volatility Overlay Amount}$$

The Modified Equity Index Return and the Strategic Volatility Overlay Amount may each be positive or negative. As a result, the payment at maturity on the notes may be greater than or less than the \$1,000 principal amount. The payment at maturity on the notes may be as low as \$0 but will not be less than \$0.

*Unless otherwise specified in the relevant terms supplement, if the relevant terms supplement does not specify that a buffer amount applies to the Equity Index, the Modified Equity Index Return (which we will refer to in the relevant terms supplement as the "Enhanced Equity Index Return") will be calculated as follows:*

<u>Ending Index Level of the Equity Index</u>	<u>Modified Equity Index Return</u>
is <i>greater</i> than the Initial Index Level (or Strike Level, if applicable) of the Equity Index.....	Index Return of the Equity Index × upside leverage factor, subject, if applicable, to the Maximum Equity Index Return
is <i>less than or equal to</i> the Initial Index Level (or Strike Level, if applicable) of the Equity Index.....	Index Return of the Equity Index

*If the relevant terms supplement does not specify that a buffer amount applies to the Equity Index, the Modified Equity Index Return will be negative if the Ending Index Level is less than the Initial Index Level (or Strike Level, as applicable).*

*Unless otherwise specified in the relevant terms supplement, if the relevant terms supplement specifies that a buffer amount applies to the Equity Index, the Modified Equity Index Return (which we will refer to in the relevant terms supplement as the "Buffered Enhanced Equity Index Return") will be calculated as follows:*

<u>Ending Index Level of the Equity Index</u>	<u>Modified Equity Index Return</u>
is <i>greater</i> than the Initial Index Level (or Strike Level, if applicable) of the Equity Index.....	Index Return of the Equity Index × upside leverage factor, if applicable, subject, if applicable, to the Maximum Equity Index Return
is <i>less than or equal to</i> the Initial Index Level (or Strike Level, if applicable) of the Equity Index but the decline is <i>less than or equal to</i> the buffer amount .....	0%
is <i>less than</i> the Initial Index Level (or Strike Level, if applicable) of the Equity Index and the decline is <i>greater than</i> the buffer amount.....	(Index Return of the Equity Index + buffer amount) × downside leverage factor, if applicable

*If the relevant terms supplement specifies that a buffer amount applies to the Equity Index, the Modified Equity Index Return will be negative if the Ending Index Level is less than the Initial Index Level (or Strike Level, as applicable) by more than the buffer amount.*

If applicable, the "**buffer amount**" is a percentage that will be set forth in the relevant terms supplement.

If applicable, the "**upside leverage factor**" and the "**downside leverage factor**" will be numbers set forth in the relevant terms supplement.

If applicable, the "**Maximum Equity Index Return**" is a percentage that will be set forth in the relevant terms supplement. Accordingly, if the relevant terms supplement specifies a Maximum Equity Index Return, the Modified Equity Index Return will be limited to the Maximum Equity Index Return even if the Index Return of the Equity Index multiplied by the upside leverage factor, if applicable, is greater than the Maximum Equity Index Return.

The “**Strategic Volatility Overlay Amount**” is an amount that will be calculated as follows:

$$(\$1,000 \times \text{Volatility Overlay Factor} \times \text{Index Return of the Volatility Index})$$

*The Index Return of the Volatility Index will reflect the deduction of the volatility index fee and the daily rebalancing adjustment amount from the level of the Volatility Index. Because the closing level of the Volatility Index reflects the daily deduction of the volatility index fee and the daily rebalancing adjustment amount, the level of the Volatility Index will decrease if the performance of the VIX futures contracts included in the Volatility Index, based on their official settlement prices, is not sufficient to offset the deduction of the volatility index fee and the daily rebalancing adjustment amount.*

The “**Volatility Overlay Factor**” is a percentage that will be set forth in the relevant terms supplement.

Unless otherwise specified in the relevant terms supplement, the “**Index Return**” of the Equity Index or the Volatility Index, as applicable, as calculated by the Note Calculation Agent, is the percentage change in the closing level of such Index calculated by comparing the Ending Index Level of such Index to the Initial Index Level or Strike Level, as applicable, of such Index. The Index Return of the Equity Index or the Volatility Index, as applicable, unless otherwise specified in the relevant terms supplement, is calculated as follows:

$$\text{Index Return} = \frac{\text{Ending Index Level} - \text{Initial Index Level (or Strike Level, if applicable)}}{\text{Initial Index Level (or Strike Level, if applicable)}}$$

Unless otherwise specified in the relevant terms supplement, the “**Initial Index Level**” of the Equity Index or the Volatility Index, as applicable, means the closing level of such Index on the pricing date or such other date as specified in the relevant terms supplement, or the arithmetic average of the closing levels of such Index on each of the Initial Averaging Dates, if so specified in the relevant terms supplement.

Unless otherwise specified in the relevant terms supplement, the “**Ending Index Level**” of the Equity Index or the Volatility Index, as applicable, means the closing level of such Index on the Observation Date or such other date as specified in the relevant terms supplement, or, if the relevant terms supplement specifies Ending Averaging Dates, the arithmetic average of the closing levels of such Index on each of the Ending Averaging Dates.

The relevant terms supplement may specify a level other than the Initial Index Level, which we refer to as the “**Strike Level**,” to be used for calculating the Index Return of the Equity Index and/or the Volatility Index and the amount payable at maturity, if any. The Strike Level may be based on and/or expressed as a percentage of the closing level of the applicable Index as of a specified date, or may be determined without regard to the closing level as of a particular date. For example, the relevant terms supplement may specify that a Strike Level for an Index, equal to 95% of the Initial Index Level of such Index, will be used to calculate the Index Return of such Index.

Unless otherwise specified in the relevant terms supplement, the “**closing level**” of the Equity Index or the Volatility Index, as applicable, on any trading day will equal the official closing level of such Index or any successor index thereto (as described under any related index supplement or under “General Terms of Notes — Discontinuation of an Index; Alteration of Method of Calculation” in this product supplement no. 214-A-I) published with respect to that trading day. In certain circumstances, the “closing level” of an Index will be based on the alternative calculation of such Index described under any related index supplement or under “— Postponement of a Determination Date” or “General Terms of Notes — Discontinuation of an Index; Alteration of Method of Calculation” in this product supplement no. 214-A-I.



Unless otherwise specified in the relevant terms supplement, a **“trading day,”** as determined by the Note Calculation Agent, is (a) with respect to the Equity Index, a day on which trading is generally conducted on (i) the relevant exchanges (as defined below) for securities underlying the Equity Index or the relevant successor index, if applicable, and (ii) the exchanges on which futures or options contracts related to the Equity Index or the relevant successor index, if applicable, are traded, other than a day on which trading on such relevant exchange or exchange on which such futures or options contracts are traded is scheduled to close prior to its regular weekday closing time and (b) with respect to the Volatility Index, a day on which trading is generally conducted on the relevant exchange for the VIX futures contracts underlying the Volatility Index or the relevant successor index, if applicable.

**“Relevant exchange”** means (a) with respect to the Equity Index or any relevant successor index, the primary exchange or market of trading for any security (or any combination thereof) then included in the Equity Index or such successor index, as applicable, and (b) with respect to the Volatility Index or any relevant successor index, the primary exchange or market of trading for any VIX futures contract then included in the Volatility Index or such successor index, as applicable.

The **“Initial Averaging Dates,”** if applicable, will be specified in the relevant terms supplement and any such date is subject to adjustment as described under **“— Postponement of a Determination Date”** below. The **“Index Valuation Date(s),”** which will be either a single date, which we refer to as the **“Observation Date,”** or several dates, each of which we refer to as an **“Ending Averaging Date,”** will be specified in the relevant terms supplement and any such date is subject to adjustment as described under **“— Postponement of a Determination Date”** below.

The **“maturity date”** will be specified in the relevant terms supplement and is subject to adjustment as described below. If the scheduled maturity date (as specified in the relevant terms supplement) is not a business day, then the maturity date will be the next succeeding business day following such scheduled maturity date. If, due to a market disruption event or otherwise, the final Index Valuation Date is postponed so that it falls less than three business days prior to the scheduled maturity date, the maturity date will be the third business day following the final Index Valuation Date, as postponed, unless otherwise specified in the relevant terms supplement. We describe market disruption events under **“General Terms of Notes — Market Disruption Events.”**

We will irrevocably deposit with DTC no later than the opening of business on the applicable date or dates funds sufficient to make payments of the amount payable, if any, with respect to the notes on such date or dates. We will give DTC irrevocable instructions and authority to pay such amount to the holders of the notes entitled thereto.

A **“business day”** is, unless otherwise specified in the relevant terms supplement, any day other than a day on which banking institutions in The City of New York are authorized or required by law, regulation or executive order to close or a day on which transactions in U.S. dollars are not conducted.

The **“Note Calculation Agent”** is the agent appointed by us to make certain calculations for the notes, which initially will be J.P. Morgan Securities LLC (**“JPMS”**). See **“General Terms of Notes — Note Calculation Agent”** below. JPMS is our affiliate and may have interests adverse to you. Please see **“Risk Factors — 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, JPMSL, is the Volatility Index Calculation Agent and sponsor of the Volatility Index and our affiliate, JPMS, is the Note Calculation Agent and an Agent of the offering of the notes”** and **“Risk Factors — We or our affiliates may have economic interests that are adverse to those of the holders of the notes due to J.P. Morgan Securities LLC’s role as Note Calculation Agent.”**

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

Subject to the foregoing and to applicable law (including, without limitation, U.S. federal laws), we or our affiliates may, at any time and from time to time, purchase outstanding notes by tender, in the open market or by private agreement.

### **Postponement of a Determination Date**

In this product supplement, we refer to the Initial Averaging Dates and the Index Valuation Dates as “**Determination Dates**.”

If a Determination Date is not a trading day with respect to an Index or there is a market disruption event with respect to an Index on such Determination Date (any such day, a “**Disrupted Day**” and any such Index affected by a non-trading day or a market disruption event, a “**Disrupted Index**”), the applicable Determination Date will be postponed to the immediately succeeding business day that is not a Disrupted Day for any such Disrupted Index; *provided* that the closing level on such Determination Date, as postponed, will be:

- (a) for any Index that is not a Disrupted Index (an “**Unaffected Index**”), the closing level on the originally scheduled Determination Date; and
- (b) for any such Disrupted Index, the closing level on the immediately succeeding business day for such Disrupted Index that is not a Disrupted Day for such Disrupted Index.

For the avoidance of doubt, if a Determination Date is to be postponed as described above, and both Indices are Disrupted Indices and the first business day that is not a Disrupted Day for the first Disrupted Index is different from such business day for the other Disrupted Index, such Determination Date will be postponed to the later of such business days. Under these circumstances, and in any circumstance where one Index is a Disrupted Index and one Index is an Unaffected Index, the Note Calculation Agent will calculate the Ending Index Level for such Determination Date for each Index using the closing levels of the Indices on different business days.

For example, if October 8, 2013 is a Determination Date and is a Disrupted Day with respect to the Equity Index but not with respect to the Volatility Index, the Ending Index Level of the Equity Index will be calculated on October 9, 2013 and the Ending Index Level of the Volatility Index will be calculated on October 8, 2013 (assuming October 9, 2013 is not a Disrupted Day with respect to the Equity Index).

In no event, however, will any Determination Date be postponed to a date that is after the third business day after such Determination Date, as originally scheduled (the “**Final Disrupted Determination Date**”). If a Determination Date is or has been postponed to the Final Disrupted Determination Date and on such day the closing level for any Disrupted Index has not been determined in accordance with the second paragraph above under “— Postponement of a Determination Date” (a “**Final Disrupted Index**”), the closing level on the Final Disrupted Valuation Date will be:

- (a) for each Unaffected Index, the closing level on the originally scheduled Determination Date;
- (b) for each Disrupted Index (other than a Final Disrupted Index), the Index closing level determined in the manner described in the second paragraph above under “— Postponement of a Determination Date”; or

- (c) for each Final Disrupted Index, the closing level of such Index determined by the Note Calculation Agent in accordance with the formula for and method of calculating such Final Disrupted Index last in effect prior to the commencement of the market disruption event (or prior to the non-trading day), using:
  - (i) if such Final Disrupted Index is the Equity Index, the closing price (or, if trading in the relevant securities has been materially suspended or materially limited, the Note Calculation Agent's good faith estimate of the closing price that would have prevailed but for such suspension or limitation or non-trading day) on the Final Disrupted Determination Date of each security most recently constituting the Equity Index; and
  - (ii) if such Final Disrupted Index is the Volatility Index, the official settlement price (or, if trading in the relevant VIX futures contracts has been materially suspended or materially limited, the Note Calculation Agent's good faith estimate of the official settlement price that would have prevailed but for such suspension or limitation or non-trading day) on the Final Disrupted Determination Date of each VIX futures contract most recently constituting the Volatility Index.

## RISK FACTORS

*Your investment in the notes will involve certain risks. The notes do not pay interest or guarantee any return of principal at, or prior to, maturity. Investing in the notes is not equivalent to investing directly in the Indices or any of the securities or VIX futures contracts included in the Indices. In addition, your investment in the notes entails other risks not associated with an investment in conventional debt securities. You should consider carefully the following discussion of risks before you decide that an investment in the notes is suitable for you.*

### **Risks Relating to the Notes Generally**

**The notes do not pay interest or guarantee the return of your investment.**

The notes do not pay interest and may not return any of your investment. The amount payable at maturity, if any, will be determined in part by the performance of the Equity Index and in part by the performance of the Volatility Index pursuant to the terms described in this product supplement no. 214-A-I and the relevant terms supplement. The relevant terms supplement will specify whether an upside leverage factor, downside leverage factor, Maximum Equity Index Return and/or buffer amount will be applicable to the determination of the Modified Equity Index Return. The performance of the Volatility Index will reflect the daily deduction of the volatility index fee and the daily rebalancing adjustment amount from the level of the Volatility Index. Please see “—You may receive less than your initial investment due to the volatility index fee and the daily rebalancing adjustment amount” below for more information. You may lose some or all of your initial investment at maturity.

**The notes are subject to the credit risk of JPMorgan Chase & Co.**

The notes are subject to the credit risk of JPMorgan Chase & Co. and our credit ratings and credit spreads may adversely affect the market value of the notes. Investors are dependent on JPMorgan Chase & Co.’s ability to pay all amounts due on the notes at maturity, and therefore investors are subject to our credit risk and to changes in the market’s view of our creditworthiness. Any decline in our credit ratings or increase in the credit spreads charged by the market for taking our credit risk is likely to affect adversely the value of the notes.

**You may receive less than your initial investment due to the volatility index fee and the daily rebalancing adjustment amount.**

The performance of the Volatility Index is subject to the deduction of the volatility index fee and the daily rebalancing adjustment amount. The volatility index fee is a daily deduction of 0.75% per annum. The daily rebalancing adjustment amount is a daily deduction 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 level of the Volatility Index will decrease if the performance of the VIX futures contracts included in the Volatility Index, based on their official settlement prices, is not sufficient to offset the deduction of the volatility index fee and the daily rebalancing adjustment amount. Please see “— Risks Relating to the Volatility Index — The daily rebalancing adjustment amount is likely to have a substantial adverse effect on the level of the Volatility Index over time” below for more information. Any decrease in the level of the Volatility Index (due to the volatility index fee, daily rebalancing adjustment amount or otherwise) will have a negative effect, which may be significant, on the payment at maturity on the notes.

**The Modified Equity Index Return will be limited to the Maximum Equity Index Return, if applicable.**

If the Modified Equity Index Return is subject to a Maximum Equity Index Return, the Modified Equity Index Return will be limited to the Maximum Equity Index Return. Any applicable Maximum Equity Index Return will be a percentage that we will determine on the pricing date and that will be set forth in the relevant terms supplement. Accordingly, if the relevant terms supplement specifies a Maximum Equity Index Return, the Modified Equity Index Return will be limited to that Maximum Equity Index Return even if the Index Return of the Equity Index multiplied by, if applicable, the upside leverage factor is greater than that Maximum Equity Index Return. If the relevant terms supplement specifies a Maximum Equity Index Return, the potential contribution of the Equity Index to the return on the notes will effectively be capped, and that cap will limit the appreciation potential of the notes.

**The Equity Index and the Volatility Index will not contribute equally to the return on the notes.**

The payment at maturity on the notes will be determined in part by the performance of the Equity Index and in part by the performance of the Volatility Index. The contribution of the Equity Index to the payment at maturity on the notes will be determined through the calculation of the Modified Equity Index Return, which will take into account any applicable upside leverage, downside leverage, Maximum Equity Index Return and/or buffer amount. For any given level of performance of the Volatility Index, each 1% change in the Index Return of the Equity Index will result in a 1% change (or a greater than 1% change if upside and/or downside leverage is applicable) in the payment at maturity on the notes, leaving aside the effects of any applicable Maximum Equity Index Return and/or buffer amount. By contrast, for any given level of performance of the Equity Index, each 1% change in the Index Return of the Volatility Index will result in less than a 1% change in the payment at maturity on the notes, because the Volatility Overlay Factor will be less than 100%. For example, if the Volatility Overlay Factor is 25%, then, for any given level of performance of the Equity Index, each 1% change in the Index Return of the Volatility Index will result in a 0.25% change in the payment at maturity on the notes. Consequently, leaving aside the effects of any applicable Maximum Equity Index Return and/or buffer amount, the return on the notes will be more sensitive to the performance of the Equity Index than to the performance of the Volatility Index. For example, if the Index Return of the Equity Index is -20% and the Index Return of the Volatility Index is 20%, and there is a 10% buffer and no downside leverage, you would lose 5% of your principal amount at maturity, even taking into account the effect of the buffer and the absence of downside leverage and even though the Index Return of the Volatility Index is positive to the same extent that the Index Return of the Equity Index is negative. However, if the Index Return of the Volatility Index is significantly greater, on an absolute value basis, than the Index Return of the Equity Index, or if a Maximum Equity Index Return or buffer amount is applicable to the Equity Index that affects the Modified Equity Index Return, the payment at maturity may nevertheless be attributable more to the Volatility Index than to the Equity Index, and this may be disadvantageous to holders of the notes.

**The returns of the Equity Index and the Volatility Index may offset each other.**

The payment at maturity on the notes will be determined in part by the performance of the Equity Index and in part by the performance of the Volatility Index. The returns of the Equity Index and the Volatility Index may not correlate with each other. At a time when the level of one Index increases, the level of the other Index may decline. Therefore, in determining the payment at maturity on the notes, an increase in the level of one Index may be offset, in whole or in part, or more than offset, by a decline in the level of the other Index. For example, if the Index Return of the Equity Index is 5% and the Index Return of the Volatility Index is -40%, and there is an upside leverage factor of 1.2 and a Volatility Overlay Factor of 25%, you would lose 4% of your principal amount at maturity, notwithstanding the leveraged appreciation in the Equity Index. Similarly, if the Index Return of the Volatility Index is 20% and the Index Return of the Equity Index is -20%, and there is a 10% buffer and no downside leverage, you would lose 5% of your principal amount at maturity, notwithstanding the appreciation in the Volatility Index.

**If both Indices decline, the effect of the negative performance of one Index will be additive to the effect of the negative performance of the other Index.**

It is possible that the returns of the Equity Index and the Volatility Index may both be negative, in which case the negative performance of one Index will magnify the negative performance of the other Index. For example, if the Index Return of each Index is -20% and there is a 25% Volatility Overlay Factor with no buffer, the Equity Index will contribute -20% to the return on the notes and the Volatility Index will contribute -5% to the return on the notes (-20% multiplied by the Volatility Overlay Factor of 25%). In this case, the contributions of each Index to the return on the notes will be added together, so that the overall return on the notes will be -25%, a result that is worse than if the notes were linked to one or the other but not both Indices. High correlation of movements in the Indices during periods of negative returns for both Indices could have an adverse effect on the payment at maturity on the notes.

**The buffer amount and/or upside leverage factor, if applicable, will apply only to the return of the Equity Index and not to the return of the Volatility Index or the total return on the notes.**

Even though a buffer amount may apply in determining the Modified Equity Index Return, there is no minimum payment at maturity on the notes. Any applicable buffer amount will provide limited protection against the effect of a decline in the Equity Index on the payment at maturity, but that buffer amount will provide no protection against the effect of a decline in the Volatility Index. Accordingly, any benefit provided by that buffer amount may be offset or more than offset by a decline in the Volatility Index. For example, if an instrument were linked solely to the Equity Index and there was a 10% buffer, there would be a minimum return of 10% of principal at maturity. However, in the case of the notes, assuming a 10% buffer and a Volatility Overlay Factor of 25%, if the Equity Index declined to zero and the Index Return of the Volatility Index declined by 40% or more, you would lose all of your principal at maturity. In addition, any upside leverage factor will enhance only the returns of the Equity Index. In determining the payment at maturity, the Index Return of the Volatility Index will be multiplied instead by the Volatility Overlay Factor, which will be a percentage less than 100%. Accordingly, you will participate in only a portion of the return of the Volatility Index.

**The return on the notes may be less than it would be if the notes were linked solely to the Equity Index.**

If the Index Return of the Volatility Index is negative, the return on the notes will be less than it would be if the notes were linked solely to the Equity Index. If the Index Return of the Volatility Index is negative, you may receive less than the principal amount of your notes at maturity even if the Index Return of the Equity Index is positive.

**Our offering of the notes does not constitute an expression of our view about, or a recommendation of, the Indices or the equity securities or futures contracts included in the Indices.**

You should not take our offering of the notes as an expression of our views about how the Equity Index, the equity securities included in the Equity Index, the Volatility Index, the VIX futures contracts included in the Volatility Index, the VIX Index or options on the S&P 500® Index will perform in the future or as a recommendation to invest (directly or indirectly, by taking a long, short or long-short position) in any of the foregoing, including through an investment in the notes. As a global financial institution, we and our affiliates may, and often do, have positions (long, short or both) in the foregoing that conflict with an investment in the notes. See “— We or our affiliates may have economic interests that are adverse to those of the holders of the notes as a result of our hedging and other trading activities” below and “Use of Proceeds and Hedging” in this product supplement for some examples of potential conflicting positions we may have. You should undertake an independent determination of whether an investment in the notes is suitable for you in light of your specific investment objectives, risk tolerance and financial resources.

**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, JPMSL, is the Volatility Index Calculation Agent and sponsor of the Volatility Index and our affiliate, JPMS, is the Note Calculation Agent and an Agent of the offering of the notes.**

We, JPMorgan Chase & Co., are the issuer of the notes, JPMSL, one of our affiliates, is the Volatility Index Calculation Agent and sponsor of the Volatility Index and JPMS, another affiliate of ours, is the Notes Calculation Agent and an Agent of the offering of the notes. JPMSL, as Volatility Index Calculation Agent, will determine whether there has been a market disruption event with respect to the Volatility 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 your payment at maturity. In the event of any such market disruption event, JPMSL may use an alternate method to calculate the Volatility Index, and JPMS may postpone any Determination Date or use an alternate method to calculate the closing level of the Volatility Index or the Equity Index on such Determination Date. JPMS, as an Agent of the offering of the notes, will receive the aggregate profits generated from the deduction of the volatility index fee of 0.75% per annum 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 Volatility Index, there can be no assurance that any determinations made by JPMorgan Chase & Co., JPMS or JPMSL in these various capacities will not affect the value of the notes or the level of the Volatility Index. Because determinations made by JPMSL as the Volatility Index Calculation Agent and sponsor of the Volatility Index and JPMS as the Note Calculation Agent may affect the amount you receive at maturity, potential conflicts of interest may exist between JPMorgan Chase & Co., JPMSL and JPMS, on the one hand, and you, as a holder of the notes, on the other.

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

JPMSL, one of our affiliates, acts as the Volatility Index Calculation Agent and sponsor of the Volatility Index and is responsible for calculating and publishing the official closing levels of the Volatility Index, maintaining the Volatility Index and developing the guidelines and policies governing its composition and calculation. The rules governing the Volatility Index may be amended at any time by JPMSL, in its sole discretion, and the rules also permit the use of discretion by JPMSL in relation to the Volatility 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 Volatility Index and the interpretation of rules governing the Volatility Index. In addition, the Volatility 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 Volatility Index is not governed by an independent committee. Although judgments, policies and determinations concerning the Volatility Index are made by JPMSL, JPMorgan Chase & Co., as the parent company of JPMSL, ultimately controls JPMSL.

Although the Volatility Index Calculation Agent will make all determinations and take all action in relation to the Volatility Index acting in good faith, it should be noted that such discretion could have an impact, positive or negative, on the closing levels of the Volatility Index. The Volatility 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 Volatility Index is not an investment recommendation by us or JPMSL of the VIX futures contracts or the VIX Index.

**We or our affiliates may have economic interests that are adverse to those of the holders of the notes as a result of our hedging and other trading activities.**

In anticipation of the sale of the notes, we expect to hedge our obligations under the notes through certain affiliates or unaffiliated counterparties by taking positions in the equity securities included in the Equity Index or the VIX futures contracts that compose the Volatility Index or in instruments the value of which is derived from the Equity Index, the equity securities included in the Equity Index, the Volatility Index, the VIX futures contracts that compose the Volatility Index, the VIX Index or options on the VIX Index or the S&P 500® Index. We may also adjust our hedge by, among other things, purchasing or selling any of the foregoing at any time and from time to time, and close out or unwind our hedge by selling any of the foregoing on or before any Index Valuation Date. We cannot give you any assurances that our hedging will not negatively affect the level of either Index or the performance of the notes. See "Use of Proceeds and Hedging" below for additional information about our hedging activities.

This hedging activity may present a conflict of interest between your interest as a holder of the notes and the interests our affiliates have in executing, maintaining and adjusting hedge transactions. These hedging activities could also affect the price at which JPMS is willing to purchase your notes in the secondary market.

Our hedging counterparties expect to make a profit. Because hedging our obligations entails risk and may be influenced by market forces beyond our control, such hedging may result in a profit that is more or less than expected, or it may result in a loss.

JPMS and other affiliates of ours also trade the equity securities included in the Equity Index and the VIX futures contracts included in the Volatility Index and other financial instruments related to the Equity Index, the equity securities included in the Equity Index, the Volatility Index, the VIX futures contracts that compose the Volatility Index, the VIX Index and options on the VIX Index or the S&P 500® Index on a regular basis (taking long or short positions or both), for their accounts, for other accounts under their management and to facilitate transactions, including block transactions, on behalf of customers. While we cannot predict an outcome, any of these hedging activities or other trading activities of ours could potentially increase the closing level of one or both Indices on the pricing date or any Initial Averaging Dates, as applicable, and/or decrease the closing level of one or both Indices on any Index Valuation Date, which could adversely affect your payment at maturity.

It is possible that such hedging or trading activities could result in substantial returns for us or our affiliates while the value of the notes declines.

**We or our affiliates may have economic interests that are adverse to those of the holders of the notes as a result of our business activities.**

We or our affiliates may currently or from time to time engage in business with companies the equity securities of which are included in the Equity Index (the "underlying companies"), including extending loans to, making equity investments in or providing advisory services to the underlying companies, including merger and acquisition advisory services. In the course of this business, we or our affiliates may acquire nonpublic information about the underlying companies, and we will not disclose any such information to you. Moreover, in the course of our or our affiliates' trading activities, we or



our affiliates may acquire material nonpublic information with respect to the VIX Index, VIX futures contracts or options on the S&P 500® Index and we will not disclose any such information to you. In addition, we or one or more of our affiliates may publish research reports or otherwise express views about the underlying companies or with respect to expected movements in the level of the Equity Index, the Volatility Index, the VIX Index or in the price of VIX futures contracts or options on the S&P 500® Index. Any prospective purchaser of notes should undertake an independent investigation of each of the underlying companies and of matters relating to the Volatility Index, the VIX Index and the VIX futures contracts as in its judgment is appropriate to make an informed decision with respect to an investment in the notes. We do not make any representation or warranty to any purchaser of notes with respect to any matters whatsoever relating to our business with the underlying companies or with respect to any matters relating to such future movements.

Additionally, we or one of our affiliates may serve as issuer, agent or underwriter for issuances of other securities or financial instruments with returns linked or related to changes in the level of an Index, the equity securities included in the Equity Index, the VIX futures contracts that compose the Volatility Index, the VIX Index or options on the S&P 500® Index. To the extent that we or one of our affiliates serves as issuer, agent or underwriter for such securities or financial instruments, our or their interests with respect to such products may be adverse to those of the holders of the notes. By introducing competing products into the marketplace in this manner, we or one or more of our affiliates could adversely affect the value of the notes.

We or one of our affiliates may currently or from time to time engage in trading activities related to the currencies in which the equity securities included in a foreign Equity Index are denominated. These trading activities could potentially affect the exchange rates with respect to such currencies and, if currency exchange rate calculations are involved in the calculation of the closing levels of that foreign Equity Index, could affect the closing levels of that foreign Equity Index and, accordingly, if the notes are linked to that foreign Equity Index, the value of the notes. A “foreign Equity Index” is one that is composed primarily of equity securities issued by non-U.S. companies.

In the course of our or our affiliates’ currency trading activities, we or our affiliates may acquire material nonpublic information with respect to currency exchange rates, and we will not disclose any such information to you. In addition, one or more of our affiliates may produce and/or publish research reports, or otherwise express views, with respect to expected movements in currency exchange rates. We do not make any representation or warranty to any purchaser of notes with respect to any matters whatsoever relating to future currency exchange rate movements and, if the notes are linked to a foreign Equity Index, any prospective purchaser of the notes should undertake an independent investigation of the currencies in which equity securities included in that foreign Equity Index are denominated and their related exchange rates as, in its judgment, is appropriate to make an informed decision with respect to an investment in the notes.

**We or our affiliates may have economic interests that are adverse to those of the holders of the notes due to J.P. Morgan Securities LLC’s role as Note Calculation Agent.**

JPMS, one of our affiliates, will act as the Note Calculation Agent. The Note Calculation Agent will determine, among other things, any Initial Index Level (or Index Strike Level, if applicable), the Ending Index Level, the Index Return, the amount we will pay you at maturity and the closing levels of the Indices on each Determination Date. In addition, the Note Calculation Agent will determine whether there has been a market disruption event or a discontinuation of an Index and whether there has been a material change in the method of calculation of an Index. In performing these duties, JPMS may have interests adverse to the interests of the holders of the notes, which may affect your return on the notes, particularly where JPMS, as the Note Calculation Agent, is entitled to exercise discretion.

**The Initial Index Level may be determined after the issue date of the notes.**

If so specified in the relevant terms supplement, the Initial Index Level of one or both Indices will be determined based on the arithmetic average of the closing levels of the applicable Index on the Initial Averaging Dates specified in that relevant terms supplement. One or more of the Initial Averaging Dates specified may occur on or following the issue date of the notes; as a result, the Initial Index Level of one or both Indices may not be determined, and you may therefore not know the value of such Initial Index Level, until after the issue date. Similarly, the global note certificate representing the notes, which will be deposited with DTC on the issue date as described under “General Terms of Notes — Book-Entry Only Issuance — The Depository Trust Company,” will not set forth the value of the Initial Index Level for the applicable Index. If there are any increases in the closing levels of the applicable Index on the Initial Averaging Dates that occur after the issue date and such increases result in such Initial Index Level being greater than the closing level of the applicable Index on the issue date, this may establish higher levels that the applicable Index must achieve for you to obtain a positive return on your investment or avoid a loss of principal at maturity.

**The Ending Index Level of either Index may be less than the closing level of such Index at the maturity date of the notes or at other times during the term of the notes.**

Because the Ending Index Level of each Index is calculated based on the closing level on one or more Index Valuation Dates during the term of the notes, the level of an Index at the maturity date or at other times during the term of the notes, including dates near the Index Valuation Date(s), could be higher than the Ending Index Level of such Index. This difference could be particularly large if there is a significant increase in the level of such Index after the final Index Valuation Date, or if there is a significant decrease in the level of such Index around the time of the Index Valuation Date(s), or if there is significant volatility in such Index closing levels during the term of the notes (especially on dates near the Index Valuation Date(s)). For example, when the Index Valuation Date(s) are near the end of the term of the notes, then if the closing levels of such Index increase or remain relatively constant during the initial term of the notes and then decrease below the Initial Index Level (or Strike Level, if applicable) of such Index, the Ending Index Level of such Index may be significantly less than if it were calculated on a date earlier than the Index Valuation Date(s). Under these circumstances, you may receive a lower payment at maturity than you would have received if you had invested in such Index, the equity securities or futures contracts underlying such Index or contracts relating to such Index for which there is an active secondary market.

**The notes are designed to be held to maturity.**

The notes are not designed to be short-term trading instruments. The price at which you will be able to sell your notes to us or our affiliates prior to maturity, if at all, may be at a substantial discount from the principal amount of the notes, even in cases where one or both Indices have appreciated since the pricing date. The potential returns described in the relevant terms supplement assume that your notes are held to maturity.

**Secondary trading may be limited.**

Unless otherwise specified in the relevant terms supplement, the notes will not be listed on a securities exchange. There may be little or no secondary market for the notes. Even if there is a secondary market, it may not provide enough liquidity to allow you to trade or sell the notes easily.

J.P. Morgan Securities LLC, or JPMS, may act as a market maker for the notes, but is not required to do so. Because we do not expect that other market makers will participate significantly in the secondary market for the notes, the price at which you may be able to trade your notes is likely to depend on the price, if any, at which JPMS is willing to buy the notes. If at any time JPMS or another agent does not act as a market maker, it is likely that there would be little or no secondary market for the notes.

**Prior to maturity, the value of the notes will be influenced by many unpredictable factors.**

Many economic and market factors will influence the value of the notes. We expect that, generally, the levels of the Equity Index and the Volatility Index on any day will affect the value of the notes more than any other single factor. However, you should not expect the value of the notes in the secondary market to vary in proportion to changes in the levels of the Equity Index or the Volatility Index. The value of the notes will be affected by a number of other factors that may either offset or magnify each other, including:

- prevailing market prices and forward volatility levels of the U.S. stock markets and the equity securities included in the S&P 500® Index and the Equity Index (if other than the S&P 500® Index);
- prevailing market prices, volatility and liquidity of any option or futures contracts relating to the Volatility Index, the VIX Index, the S&P 500® Index, the Equity Index (if other than the S&P 500® Index), the equity securities included in the S&P 500® Index and the Equity Index (if other than the S&P 500® Index) or VIX futures contracts;
- the actual and expected frequency and magnitude of changes (*i.e.*, volatility) in the Volatility Index, the Equity Index and in the prices of the securities included in the Equity Index and the VIX futures contracts included in the Volatility Index;
- the time to maturity of the notes;
- the dividend rate on the equity securities included in the Equity Index (while not paid to holders of the notes, dividend payments on any equity securities included in the Equity Index may influence the level of the Equity Index and the market value of options on the Equity Index and therefore affect the market value of the notes);
- interest and yield rates in the market generally as well as in the markets of the equity securities included in the Equity Index;
- economic, financial, political, regulatory or judicial events that affect the equity securities included in the Equity Index, stock markets generally, the VIX Index, the market for VIX futures contracts or futures contracts generally;
- supply and demand in the listed and over-the-counter equity derivative markets;
- for notes linked to a foreign Equity Index, the exchange rates and the volatility of the exchange rates between the U.S. dollar and the currencies in which the equity securities composing the Equity Index are traded, and, if the Equity Index is calculated in one currency and the equity securities composing the Equity Index are traded in one or more other currencies, the correlation between those rates and the value of the Equity Index; and
- our creditworthiness, including actual or anticipated downgrades in our credit ratings.

Some or all of these factors will influence the price you will receive if you choose to sell your notes prior to maturity. The impact of any of the factors set forth above may enhance or offset some or all of any change resulting from another factor or factors. You may have to sell your notes at a substantial discount from the principal amount if the Ending Index Level of either Index is at, below or not sufficiently above the Initial Index Level of such Index.

You cannot predict the future performance of either Index based on its historical performance. The value of either or both Indices may decrease such that you may not receive any return of your investment. Because the closing level of the Volatility Index reflects the deduction of the volatility index fee and the daily rebalancing adjustment amount, the level of the Volatility Index will decrease if the performance of the VIX futures contracts included in the Volatility Index, based on their official settlement prices, is not sufficient to offset the deduction of the volatility index fee and the daily rebalancing adjustment amount. There can be no assurance that the level of either or both Indices will not decrease so that, at maturity, you will not lose some or all of your investment.

**The inclusion in the original issue price of each Agent's commission and the estimated cost of hedging our obligations under the notes is likely to affect adversely the value of the notes prior to maturity.**

While the payment at maturity, if any, will be based on the full principal amount of your notes as described in the relevant terms supplement, the original issue price of the notes includes each Agent's commission and the estimated cost of hedging our obligations under the notes. Such estimated cost includes the profit our affiliates expect to realize in consideration for assuming the risks inherent in providing and managing such hedge and for maintaining the Volatility Index during the term of the notes through, among other things, the daily rebalancing adjustment amount. As a result, assuming no change in market conditions or any other relevant factors, the price, if any, at which JPMS will be willing to purchase notes from you in secondary market transactions, if at all, will likely be lower than the original issue price. In addition, any such prices may differ from values determined by pricing models used by JPMS, as a result of such compensation or other transaction costs.

**The notes are not regulated by the Commodity Futures Trading Commission.**

The net proceeds to be received by us from the sale of the notes will not be used to purchase or sell any VIX futures contracts or options on futures contracts for your benefit. An investment in the notes thus does not constitute either an investment in futures contracts or options on futures contracts or an investment in a collective investment vehicle that trades in these futures contracts (*i.e.*, the notes will not constitute a direct or indirect investment by you in the futures contracts), and you will not benefit from the regulatory protections of the CFTC. Among other things, this means that we are not registered with the CFTC as a futures commission merchant and you will not benefit from the CFTC's or any other non-U.S. regulatory authority's regulatory protections afforded to persons who trade in futures contracts on a regulated futures exchange through a registered futures commission merchant. For example, the price you pay to purchase notes will be used by us for our own purposes and will not be subject to customer funds segregation requirements provided to customers that trade futures on an exchange regulated by the CFTC.

Unlike an investment in the notes, an investment in a collective investment vehicle that invests in futures contracts on behalf of its participants may be subject to regulation as a commodity pool and its operator may be required to register with and be regulated by the CFTC as a commodity pool operator, or qualify for an exemption from the registration requirement. Because the notes will not be interests in a commodity pool, the notes will not be regulated by the CFTC as a commodity pool, we will not be registered with the CFTC as a commodity pool operator, and you will not benefit from the CFTC's or any non-U.S. regulatory authority's regulatory protections afforded to persons who invest in regulated commodity pools.

**Notes that provide exposure to equity volatility are not suitable for all investors. You should actively manage your investment in the notes.**

Notes that provide exposure to equity volatility are not suitable for all investors. The notes reflect, in part, the performance of the Volatility Index, which is dependent on the price of the VIX futures contracts included in the Volatility Index. VIX futures contracts allow investors the ability to invest in forward equity volatility based on their view of the future direction of movement of the VIX Index, which is a benchmark index designed to measure the market price of volatility in large cap U.S. stocks, and is calculated based on the prices of certain put and call options on the S&P 500<sup>®</sup> Index.

As a consequence, investors in the notes should understand that their investment is exposed to the performance of the VIX futures contracts, which can be volatile and move dramatically over short periods of time. Because of the large and sudden price movements associated with VIX futures contracts, notes that provide exposure to equity volatility should be purchased only by sophisticated investors who understand risks associated with investments linked to equity volatility and who intend to monitor and manage their investments actively. You should consider your investment horizon and objectives, financial resources and risk tolerance, as well as any potential trading costs, when evaluating an investment in the notes. Investors should regularly monitoring their investment in the notes to ensure that it remains consistent with their investment objectives.

**Owning the notes is not the same as owning the VIX futures contracts included in the Volatility Index, the options used to calculate the level of the Volatility Index or the equity securities included in the S&P 500® Index.**

The return on your notes will not reflect the return you would realize if you actually held the VIX futures contracts included in the Volatility Index, the options used to calculate the level of the Volatility Index or the equity securities included in the S&P 500® Index. The Volatility Index is a hypothetical construct that does not hold any underlying assets of any kind. As a result, a holder of the notes will not have any direct or indirect rights that investors in the VIX futures contracts included in the Volatility Index, the options used to calculate the level of the Volatility Index or the equity securities included in the S&P 500® Index would have. Your notes will be paid in cash, and you will have no right to receive delivery of, or payment with respect to, the VIX futures contracts included in the Volatility Index, the options used to calculate the level of the VIX Index or any equity securities included in the S&P 500® Index (including any dividends or distributions relating to such securities).

**Market disruptions may adversely affect your return.**

The Note Calculation Agent may, in its sole discretion, determine that the markets have been affected in a manner that prevents it from properly determining the closing level of either Index on any Initial Averaging Date, if applicable, or any Index Valuation Date, or the Index Return and calculating the amount that we are required to pay you, if any, at maturity. These events may include disruptions or suspensions of trading in the markets as a whole. If the Note Calculation Agent, in its sole discretion, determines that any of these events prevents us or any of our affiliates from properly hedging our obligations under the notes, it is possible that one or more of the Initial Averaging Dates, if applicable, or the Index Valuation Dates and the maturity date will be postponed and your return will be adversely affected. See “General Terms of Notes — Market Disruption Events.”

**The tax consequences of an investment in the notes are unclear.**

There is no direct legal authority as to the proper U.S. federal income tax characterization of the notes, and we do not intend to request a ruling from the Internal Revenue Service (the “IRS”) regarding the notes. The IRS might not accept, and a court might not uphold, the characterization and tax treatment of the notes described in “Certain U.S. Federal Income Tax Consequences.” If the IRS were successful in asserting an alternative characterization or treatment for the notes, the timing and character of income on the notes could differ materially and adversely from our description herein. In addition, in 2007 Treasury and the IRS released a notice requesting comments on the U.S. federal income tax treatment of “prepaid forward contracts” and similar instruments, which might include the notes. The notice focuses in particular on whether to require holders of these instruments to accrue income over the term of their investment. It also asks for comments on a number of related topics, including the character of income or loss with respect to these instruments; the relevance of factors such as the nature of the underlying property to which the instruments are linked; the degree, if any, to which income (including any mandated accruals) realized by Non-U.S. Holders should be subject to withholding tax; and whether these instruments are or should be subject to the “constructive ownership” regime, which very generally can operate to recharacterize certain long-term capital gain as ordinary income and impose an interest charge. While the notice requests comments on appropriate transition rules and effective dates, any Treasury regulations or other guidance promulgated after consideration of these issues could materially and adversely affect the tax consequences of an investment in the notes, possibly with retroactive effect. Both U.S. and Non-U.S. Holders should review carefully the section entitled “Certain U.S. Federal Income Tax Consequences” in this product supplement no. 214-A-I and consult their tax advisers regarding the U.S. federal income tax consequences of an investment in the notes, including possible alternative treatments and the issues presented by this notice. Non-U.S. Holders should also note that they may be withheld upon unless they have submitted a properly completed IRS Form W-8BEN or otherwise satisfied the applicable documentation requirements.

**Historical performance of an Index should not be taken as an indication of the future performance of that Index during the terms of the notes.**

The actual performance of an Index over the term of the notes, as well as the amount payable at maturity, may bear little relation to the historical performance of that Index or, in the case of the Volatility Index, its hypothetical, back-tested historical performance. The trading prices of the equity securities in the Equity Index will determine the level of the Index, and the settlement prices of the relevant VIX futures contracts included in the Volatility Index and the level of the VIX Index will determine the level of the Volatility Index. As a result, it is impossible to predict whether the level of either Index will rise or fall.

**JPMorgan Chase & Co. employees holding the notes must comply with policies that limit their ability to trade the notes and may affect the value of their notes.**

If you are an employee of JPMorgan Chase & Co. or one of its affiliates, you may only acquire the notes for investment purposes and you must comply with all of our internal policies and procedures. Because these policies and procedures limit the dates and times that you may transact in the notes, you may not be able to purchase any notes described in the relevant terms supplement from us and your ability to trade or sell any such notes in the secondary market may be limited.

#### **Risks Relating to the Equity Index**

**The sponsor of the Equity Index (an "Index Sponsor") may adjust the Equity Index in a way that affects its level, and such Index Sponsor has no obligation to consider your interests.**

The Index Sponsor of the Equity Index is responsible for calculating and maintaining the Equity Index. Such Index Sponsor can add, delete or substitute the equity securities underlying the Equity Index or make other methodological changes that could change the level of the Equity Index. You should realize that the changing of equity securities included in the Equity Index may affect the Equity Index, as a newly added equity security may perform significantly better or worse than the equity security or securities it replaces. Additionally, such Index Sponsor may alter, discontinue or suspend calculation or dissemination of the Equity Index. Any of these actions could adversely affect the value of the notes. The Index Sponsor has no obligation to consider your interests in calculating or revising the Equity Index. See "The S&P 500® Index" below or any related index supplement or the relevant terms supplement for additional information.

**We are currently one of the companies that make up the S&P 500® Index, but, unless otherwise specified in the relevant terms supplement or any related index supplement, to our knowledge, we are not currently affiliated with any other company the equity securities of which are included in the Equity Index.**

We are currently one of the companies that make up the S&P 500® Index, but, unless otherwise specified in the relevant terms supplement or index supplement, to our knowledge, we are not currently affiliated with any other issuers the equity securities of which are included in the Equity Index. As a result, we will have no ability to control the actions of the other issuers of such equity securities, including actions that could affect the value of the equity securities underlying the Equity Index or your notes. None of the money you pay us will go to an Index Sponsor or any of the other issuers of equity securities included in the Equity Index, and none of those issuers will be involved in the offering of the notes in any way. Neither those issuers nor we will have any obligation to consider your interests as a holder of the notes in taking any corporate actions that might affect the value of your notes. See any related index supplement or the relevant terms supplement for additional information about whether we are one of the companies included in the Equity Index.

In the event we become affiliated with any issuers the equity securities of which are included in the Equity Index, we will have no obligation to consider your interests as a holder of the notes in taking any action with respect to such issuer that might affect the value of your notes.

**If the Equity Index is not a total return index, the Index Return of the Equity Index will not reflect dividends on the equity securities included in the Equity Index.**

If the Equity Index is not a total return index, the Index Return of the Equity Index will not reflect the return that would result from actual ownership of the equity securities included in the Equity Index or the receipt of the dividends paid on those equity securities. This is because the Note Calculation Agent will calculate the amount payable to you at maturity of the notes by reference, in part, to the Ending Index Level of the Equity Index. The Ending Index Level of the Equity Index reflects the prices of the equity securities as calculated in the Equity Index without taking into consideration the value of dividends paid on those equity securities.

**You will have no shareholder rights in issuers of equity securities that compose the Equity Index.**

As a holder of the notes, you will not have voting rights or rights to receive dividends or other distributions or other rights that holders of the equity securities composing the Equity Index would have.

**For notes linked to a foreign Equity Index, if the prices of its component securities are not converted into U.S. dollars for purposes of calculating the value of the Equity Index, the amount payable on the notes at maturity will not be adjusted for changes in exchange rates that might affect the Equity Index.**

Because the prices of the equity securities composing the Equity Index are not converted into U.S. dollars for purposes of calculating the value of the Equity Index and although the equity securities composing the Equity Index are traded in currencies other than U.S. dollars, and the notes, which are linked to the Equity Index, are denominated in U.S. dollars, the amount payable on the notes at maturity, if any, will not be adjusted for changes in the exchange rate between the U.S. dollar and each of the currencies in which the equity securities composing the Equity Index are denominated. Changes in exchange rates, however, may reflect changes in various non-U.S. economies that in turn may affect the payment on the notes. The amount we pay in respect of the notes on the maturity date, if any, will be determined solely in accordance with the procedures described in "Description of Notes — Payment at Maturity."

**For notes linked to a foreign Equity Index, if the prices of its component securities are converted into U.S. dollars for purposes of calculating the value of the Equity Index, the notes will be subject to currency exchange risk.**

Because the prices of the equity securities composing the Equity Index are converted into U.S. dollars for the purposes of calculating the value of the Equity Index, the holders of the notes will be exposed to currency exchange rate risk with respect to each of the currencies in which the equity securities composing the Equity Index trade. An investor's net exposure will depend on the extent to which such currencies strengthen or weaken against the U.S. dollar and the relative weight of the equity securities composing the Equity Index denominated in each such currency. If, taking into account such weighting, the U.S. dollar strengthens against such currencies, the value of the Equity Index will be adversely affected and the payment at maturity of the notes may be reduced.

Of particular importance to potential currency exchange risk are:

- existing and expected rates of inflation;
- existing and expected interest rate levels;
- the balance of payments; and
- the extent of governmental surpluses or deficits in the component countries and the United States.

All of these factors are in turn sensitive to the monetary, fiscal and trade policies pursued by the governments of various component countries, the United States and other countries important to international trade and finance.

**For notes linked to a foreign Equity Index, if the prices of its component securities are converted into U.S. dollars for purposes of calculating the value of the Equity Index, changes in the volatility of exchange rates and the correlation between those rates and the values of the Equity Index are likely to affect the market value of the notes.**

The exchange rate between the U.S. dollar and each of the currencies in which the equity securities composing the Equity Index are denominated refers to a foreign exchange spot rate that measures the relative values of two currencies — the particular currency in which an equity security composing the Equity Index and the U.S. dollar. This exchange rate reflects the amount of the particular currency in which an equity security composing the Equity Index is denominated that can be purchased for one U.S. dollar and thus increases when the U.S. dollar appreciates relative to the particular currency in which that equity security is denominated. The volatility of the exchange rate between the U.S. dollar and each of the currencies in which the equity securities composing the Equity Index are denominated refers to the size and frequency of changes in that exchange rate.

Because the Equity Index is calculated, in part, by converting the closing prices of the equity securities composing the Equity Index into U.S. dollars, the volatility of the exchange rate between the U.S. dollar and each of the currencies in which those equity securities are denominated could affect the market value of the notes.

The correlation of the exchange rate between the U.S. dollar and each of the currencies in which the equity securities composing the Equity Index are denominated and the value of the Equity Index refers to the relationship between the percentage changes in that exchange rate and the percentage changes in the value of the Equity Index. The direction of the correlation (whether positive or negative) and the extent of the correlation between the percentage changes in the exchange rate between the U.S. dollar and each of the currencies in which the equity securities composing the Equity Index are denominated and the percentage changes in the value of the Equity Index could affect the value of the notes.

**For notes linked to a foreign Equity Index, an investment in the notes is subject to risks associated with non-U.S. securities markets.**

The equity securities that compose a foreign Equity Index have been issued by non-U.S. companies. Investments in securities linked to the value of such non-U.S. equity securities involve risks associated with the securities markets in those countries, including risks of volatility in those markets, governmental intervention in those markets and cross shareholdings in companies in certain countries. Also, there is generally less publicly available information about companies in some of these jurisdictions than about U.S. companies that are subject to the reporting requirements of the Securities and Exchange Commission, and generally non-U.S. companies are subject to accounting, auditing and financial reporting standards and requirements and securities trading rules different from those applicable to U.S. reporting companies.

The prices of securities in non-U.S. markets may be affected by political, economic, financial and social factors in such markets, including changes in a country's government, economic and fiscal policies, currency exchange laws or other laws or restrictions. Moreover, the economies in such countries may differ favorably or unfavorably from the economy of the United States in such respects as growth of gross national product, rate of inflation, capital reinvestment, resources and self sufficiency. Such countries may be subjected to different and, in some cases, more adverse economic environments.



The economies of emerging market countries in particular face several concerns, including relatively unstable governments that may present the risks of nationalization of businesses, restrictions on foreign ownership and prohibitions on the repatriation of assets, and which may have less protection of property rights than more developed countries. These economies may also be based on only a few industries, be highly vulnerable to changes in local and global trade conditions and may suffer from extreme and volatile debt burdens or inflation rates. In addition, local securities markets may trade a small number of securities and may be unable to respond effectively to increases in trading volume, potentially making prompt liquidation of holdings difficult or impossible at times. The risks of the economies of emerging market countries are relevant for notes linked to a foreign Equity Index composed of securities traded in one or more emerging market countries.

Some or all of these factors may influence the Equity Index closing level. The impact of any of the factors set forth above may enhance or offset some or all of any change resulting from another factor or factors. You cannot predict the future performance of the Equity Index based on its historical performance. The value of the Equity Index may decrease such that you may not receive any return of your investment. There can be no assurance that the Equity Index closing level will not decrease so that at maturity you will not lose some or all of your investment.

If the notes are linked to an index not described in this product supplement, a separate index supplement or the relevant terms supplement may provide additional risk factors relating to such index.

### **Risks Relating to the Volatility Index**

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

One way in which the Volatility 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 volatility 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 Volatility 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 volatility index fee.

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

Unlike the volatility 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 Volatility 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 Volatility 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 Volatility Index.

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 Volatility 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 volatility index fee but without accounting for a deduction of a daily rebalancing adjustment amount. In order for the Index Return of the Volatility Index to be positive, the performance of the rolling VIX futures contracts included in the Volatility Index, based on their official settlement prices, must be sufficient to offset the negative effect of the daily rebalancing adjustment amount (and the negative effect of the volatility index fee).

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 Volatility 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 Volatility 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 volatility 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 20% 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 Volatility Index over time. For more information about the daily rebalancing adjustment amount, see "The J.P. Morgan Strategic Volatility Index — II. Calculation and Publication of Volatility Index Levels — B. Calculation of Volatility Index Levels — iii. The Rebalancing Adjustment Factor" in this product supplement.

**When the synthetic short position is activated, the Index Return of the Volatility Index is dependent on the net performance, not the absolute performance, of the synthetic positions.**

When the synthetic short position is activated, the Index Return of the Volatility Index 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). Under these circumstances, the absolute performance of the synthetic long position and the synthetic short position is not relevant to the Index Return of the Volatility Index. The level of the Volatility Index 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 Volatility Index.**

The Volatility Index employs a technique generally known as a “long-short” strategy when the synthetic short position is activated. This means the Volatility 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 of 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 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 Volatility 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 Volatility Index.**

The Volatility 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 Index” are appropriate in light of your individual circumstances and investment objectives. No assurance can be given that the investment strategy on which the Volatility Index is based will be successful or that the Volatility Index will outperform any alternative strategy that might be employed in respect of the VIX futures contracts underlying the Volatility Index.

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

The performance of the Volatility Index is dependent on the performance of the VIX futures contracts included in the Volatility Index. As a consequence, investors in investment products linked to the Volatility Index should understand that their investment is exposed to the performance of the VIX futures contracts. The levels of the futures contracts underlying the Volatility 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 Volatility Index may therefore be reduced or eliminated entirely due to movements in any of these market parameters.

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

## **Changing prices of the VIX futures contracts included in the Volatility Index may result in a reduced Index Return of the Volatility Index.**

The Volatility 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 Volatility 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 third-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 second-month VIX futures contract, thereby creating a negative “roll yield.” Contango in VIX futures contracts is typical in a low-volatility market environment.

To address this potential weakness, the Volatility 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 second-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 first-month VIX futures contract, thereby creating a positive “roll yield,” which is intended to offset or possibly exceed 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 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 Volatility Index seeks to progressively deactivate the synthetic short position.

While the Volatility Index strategy is intended to cause the synthetic short position to be fully activated during periods when the market for VIX futures contracts is in contango so that positive roll yields from the synthetic short exposure will offset or possibly exceed negative roll yields from the synthetic long position, no assurance can be given that the investment strategy on which the Volatility Index is based will be successful. In addition, while the Volatility Index strategy is intended to cause the short position to be fully deactivated during periods when the market for the relevant VIX futures contracts are 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 Volatility 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 Volatility Index is based to be successful” below for more information.

## **The level of the Volatility Index 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 Volatility Index, is affected by the price return of the futures contracts underlying the Volatility Index and the roll return from rolling such futures contracts over time. See “— The Volatility Index is an excess return index, and not a total

return index.” In addition, the performance of a long-short index, such as the Volatility 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, the Index Return of the Volatility Index is dependent on the net performance, not the absolute performance, of the synthetic positions.” Furthermore, the Volatility Index rolls its futures contracts throughout each monthly rebalancing period in order to keep the weighted average maturity of the relevant futures contracts underlying the synthetic positions to a specified level (approximately two months for the synthetic long position and approximately one month for the synthetic short position). Under this rolling process, with respect to the synthetic long position, after initially establishing a synthetic long position in the second-month VIX futures contract (*i.e.*, synthetically buying the second-month VIX futures contract) at the beginning of a monthly rebalancing period, the Volatility Index will synthetically sell a portion of the second-month VIX futures contract and buy a portion of the third-month VIX futures contract on each rebalancing day during the monthly rebalancing period. Similarly, with respect to the synthetic short position, when activated, after initially establishing a synthetic short position in the first-month VIX futures contract (*i.e.*, synthetically selling short the first-month VIX futures contract) at the beginning of a monthly rebalancing period, the Volatility Index will synthetically buy a portion of the first-month VIX futures contract and sell a portion of the second-month VIX futures contract on each rebalancing day during the monthly rebalancing period. Finally, when activating the synthetic short position, the Volatility Index does so progressively in 20% increments on each rebalancing day (so long as the conditions for activating the synthetic short position continue to hold true on such day) until it is fully activated; 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, 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 Volatility Index would be synthetically selling a portion of the second-month VIX futures contract at a price that is lower than the price it pays to synthetically buy a portion of the third-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 Volatility Index 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 Volatility 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 Volatility Index would be synthetically selling a portion of the second-month VIX futures contract at a price that is higher than the price it pays to synthetically buy a portion of the first-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 Volatility Index 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, 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 Volatility Index would be synthetically selling a portion of the second-month VIX futures contract at a price that is higher than the price it pays to synthetically buy a portion of the third-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 Volatility Index 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 Volatility Index would be synthetically selling a portion of the second-month VIX futures contract at a price that is lower than the price it pays to synthetically buy a portion of the first-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 Volatility Index 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 Volatility 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. For example, if on a Volatility Index Business Day the second-month VIX futures contract underlying the synthetic long position has a weight of 25% and its price increases by 2% and the third-month VIX futures contract underlying the synthetic long position has a weight of 75% and its price decreases by 1%, the synthetic long position would generate a negative return of -0.25% ( $25\% \times 2\% + 75\% \times -1\%$ ) on that Volatility Index Business Day.

#### *Effect of the Performance of the Synthetic Positions on the Level of the Volatility Index*

Generally, we expect the level of the Volatility Index 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 volatility 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 (after taking into account the exposure to the synthetic short position) that is greater than the negative return generated by the synthetic long position (which is typical in markets exhibiting contango); 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 Volatility Index to decrease in any one of the following four 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 volatility 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 Volatility Index. You should understand that the notes involve a strategy that seeks to profit from the potential divergence of the performances of the synthetic positions, as described in the first bullet point above. However, under the circumstances described in the third through sixth bullet points above, the level of the Volatility Index will decline.

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

Exposure to the synthetic short position will vary between 0% and 100%. The exposure to the synthetic short position will be increased by 20% on any Volatility Index Business Day (as defined in "The J.P. Morgan Strategic Volatility Index" in this product supplement) if the level of the VIX Index for each of the three immediately preceding Volatility Index Business Days was less than the rolling, weighted average price of the first-month and second-month VIX futures contracts included (or that would have been included) in the synthetic short position, as long as the exposure to the synthetic short position is less than 100%. Conversely, the exposure to the synthetic short position will be decreased by 20% on any Volatility Index Business Day if the level of the VIX Index for each of the three immediately preceding Volatility Index Business Days was greater than or equal to the rolling, weighted average price of the first-month and second-month VIX futures contracts included in the synthetic short position, as long as the exposure to the synthetic short position is greater than 0%. On any Volatility Index Business Day for which neither condition is met, the synthetic short position will not be increased or decreased.

Because exposure to the synthetic short position is adjusted only if the applicable conditions are satisfied for three consecutive Volatility Index Business Days, the exposure to the synthetic short position may not be adjusted during non-trending, or "choppy," market conditions. 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 first-month and second-month VIX futures contracts included in the synthetic short position for one or two Volatility Index Business Days, after which the level of the VIX Index is less than the rolling, weighted average price of the first-month and second-month VIX futures contracts included in the synthetic short position for one or two Volatility 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 non-trending market conditions persist. As a result, the Volatility Index may incur negative roll yields for an activated (or partially activated) synthetic short position or may fail to capture positive roll yields from a deactivated (or partially deactivated) synthetic short position. See the immediately following risk factor for additional information.

**Due to the time lag inherent in the Volatility 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 Volatility 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 Volatility Index Business Days, after which the exposure to the synthetic short position will change in increments of 20% per Volatility Index Business Day. Accordingly, at a minimum, eight Volatility Index Business Days will elapse from the change in the futures market before the synthetic short position can be fully activated or deactivated, 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 Volatility Index is based to be successful.

The Volatility 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 Volatility Index Business Days could be significant. Accordingly, the Volatility Index may not benefit from an activation of the synthetic short position in short periods of contango and the Volatility Index may be adversely affected if the synthetic short position is not deactivated during a short period of backwardation. In addition, because it takes at least eight Volatility 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 Volatility Index.

See “— Changing prices of the VIX futures contracts included in the Volatility Index may result in a reduced Index Return of the Volatility Index” above for more information about the effect of contango and backwardation on the level of the Volatility Index.

#### **The Volatility Index comprises synthetic assets.**

The exposure to VIX futures contracts provided by the Volatility 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 Volatility Index.

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

The Volatility 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 Volatility Index is an excess return index, the Index Return of the Volatility Index will not be the same 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 Volatility Index has a limited operating history and may perform in unanticipated ways.**

The Volatility Index was established on July 30, 2010 and therefore has a limited operating history. Any back-testing or similar analysis performed by any person in respect of the Volatility Index must be considered illustrative only and may be based on estimates or assumptions not used by the Volatility Index Calculation Agent when determining the level of the Volatility Index. Past performance should not be considered indicative of future performance.



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

The Volatility 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 Volatility 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 such 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 such facilities, and the inclusion of such contracts in the Volatility 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.

**The VIX Index is a theoretical calculation and is not a tradable index.**

The VIX Index is a theoretical calculation and cannot be traded on a spot price basis. The settlement price at maturity of the VIX futures contracts contained in the Volatility Index is based on this theoretically derived calculation. As a result, the behavior of the VIX futures contracts that are included in the Volatility Index may be different from futures contracts whose settlement prices are based on tradable assets.

**Concentration risks associated with the Volatility Index may adversely affect the Index Return of the Volatility Index.**

The Volatility Index includes VIX futures contracts with a maturity of three months or less 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 Volatility 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 Volatility Index may affect trading in the relevant VIX futures contracts.**

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

**Historical levels of comparable indices should not be taken as an indication of the future performance of the Volatility Index during the term of the notes.**

It is impossible to predict whether the Volatility Index will rise or fall. The actual performance of the Volatility Index over the term of the notes, as well as the amount payable at maturity, may bear little relation to the historical levels of comparable indices, which in most cases have been highly volatile.

**The VIX futures contracts composing the Volatility 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 Index — IV. Extraordinary Events with Respect to a VIX Futures Contract” and “The J.P. Morgan Strategic Volatility Index — V. 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 Volatility 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 settlement price of VIX futures contracts may not be readily available.**

The official settlement prices of VIX futures contracts are calculated and published by the CBOE and are used to calculate the level of the Volatility Index. Any disruption or discontinuation in CBOE trading of the relevant VIX futures contracts could affect the availability of the official settlement prices. This may delay or prevent the calculation of the Volatility Index.

**An increase in the margin requirements for VIX futures contracts included in the Volatility Index may adversely affect the value of the notes.**

Futures exchanges require market participants to post collateral in order to open and to keep open positions in futures contracts. If an exchange increases the amount of collateral required to be posted to hold positions in VIX futures contracts underlying the Volatility Index, market participants who are unwilling or unable to post additional collateral may liquidate their positions, which may cause the price of the relevant VIX futures contracts to decline significantly. As a result, the level of the Volatility Index and the value of the notes may be adversely affected.

**VIX futures contracts have limited historical information.**

VIX futures contracts have only traded freely since March 26, 2004, and not all futures contracts of all relevant maturities have traded at all times since that date. Because the VIX futures contracts that underlie the Volatility Index are of recent origin and limited historical performance data exists with respect to them, your investment in the notes may involve a greater risk than investing in alternate securities linked solely to one or more financial measures with an established record of performance. The liquidity of trading in VIX futures contracts could decline in the future, which could affect adversely the Index Return of the Volatility Index.

**The notes are not linked to the VIX Index and the value of the notes may be less than it would have been had the notes been linked to the VIX Index.**

The value of the notes will be linked, in part, to the value of the Volatility Index, and your ability to benefit from any rise or fall in the level of the VIX Index is limited. The Volatility Index is based upon holding a rolling synthetic long position and a contingent rolling synthetic short position in VIX futures contracts. The VIX futures contracts will not necessarily track the performance of the VIX Index or a long-short position in the VIX Index. The notes may not benefit from increases or decreases in the level of the VIX Index because such increases or decreases will not necessarily cause the price of the relevant VIX futures contracts to rise or fall. Accordingly, a hypothetical investment that was linked directly, in whole or in part, to the performance of the VIX Index (long or short) could generate a higher return than the notes.

**The notes are not linked to the options used to calculate the VIX Index, to the actual volatility of the S&P 500® Index or to the equity securities included in the S&P 500® Index.**

The VIX Index measures the 30-day forward volatility of the S&P 500® Index as calculated based on the prices of certain put and call options on the S&P 500® Index. The actual volatility of the S&P 500® Index may differ, perhaps significantly, from the level predicted by the VIX Index or from the prices of the put and call options included in the calculation of the VIX Index. The value of the notes is based in part on the value of the relevant VIX futures contracts included in the Volatility Index. The notes are not linked to the realized or implied volatility over a specific period of time and will not reflect the return you would realize if you owned, or held a short position in, the equity securities underlying the S&P 500® Index or traded put and call options used to calculate the level of the VIX Index or other instruments intended to provide a return equal to that of 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 volatility index fee and daily rebalancing adjustment amount, the level of the Volatility Index and the value of your notes will be adversely affected.

**The Chicago Board Options Exchange, Incorporated (the "CBOE"), the sponsor of the VIX Index, and Standard & Poor's Financial Services LLC ("S&P"), the sponsor of the S&P 500® Index, may adjust the VIX Index and the S&P 500® Index, respectively, in a way that affects their levels, and CBOE and S&P have no obligation to consider your interests.**

The CBOE is responsible for calculating and maintaining the VIX Index, and S&P is responsible for calculating and maintaining the S&P 500® Index. The CBOE can make methodological changes to the calculation of the VIX Index that could affect the value of VIX futures contracts and, consequently, the value of the Volatility Index and the notes. Additionally, the CBOE may alter, discontinue or suspend calculation or dissemination of the VIX Index and/or the exercise settlement value. S&P can add, delete or substitute the equity securities underlying the S&P 500® Index, respectively, or make other methodological changes that could change the level of the S&P 500® Index. The changing of equity securities included in the S&P 500® Index may affect the S&P 500® Index, as a newly added equity security may perform significantly better or worse than the equity security or securities it replaces. Such a change may also affect the value of the put and call options used to calculate the level of the VIX Index. Additionally, the CBOE or S&P may alter, discontinue or suspend calculation or dissemination of the VIX Index and the S&P 500® Index, respectively.

Any of these actions by the CBOE or S&P could adversely affect the value of the Volatility Index and the notes. The CBOE and S&P have no obligation to consider your interests in calculating or revising the VIX Index and the S&P 500® Index, respectively. See "Background on the CBOE Volatility Index®" and "The S&P 500® Index" below for additional information.

## USE OF PROCEEDS AND HEDGING

Unless otherwise specified in the relevant terms supplement, the net proceeds we receive from the sale of the notes will be used for general corporate purposes and, in part, by us or by one or more of our affiliates in connection with hedging our obligations under the notes. The original issue price of the notes includes each agent's commissions (as shown on the cover page of the relevant terms supplement) paid with respect to the notes and the estimated cost of hedging our obligations under the notes. We may have hedged our obligations under the notes through certain affiliates or unaffiliated counterparties.

Unless otherwise specified in the relevant terms supplement, each agent's commission will include the projected profit that our affiliates expect to realize in consideration for assuming the risks inherent in hedging our obligations in respect of the Equity Index. The estimated cost of hedging also includes the profit our affiliates expect to realize in consideration for assuming the risks inherent in providing and managing such hedge and for maintaining the Volatility Index during the term of the notes through, among other things, the daily rebalancing adjustment amount. Because hedging our obligations entails risk and may be influenced by market forces beyond our control, such hedging may result in a profit that is more or less than expected, or could result in a loss. See also "Use of Proceeds" in the accompanying prospectus.

On or prior to the date of the relevant terms supplement, we, through our affiliates or others, expect to hedge some or all of our anticipated exposure in connection with the notes. In addition, from time to time after we issue the notes, we, through our affiliates or others, may enter into additional hedging transactions and close out or unwind those we have entered into, in connection with the notes and possibly in connection with our or our affiliates' exposure to one or both Indices or the equity securities or futures contracts included in the Indices. To accomplish this, we, through our affiliates or others, may take positions in one or both Indices or the equity securities or futures contracts included in the Indices or instruments the value of which is derived from the Indices or the equity securities or futures contracts included in the Indices. From time to time, prior to maturity of the notes, we may pursue a dynamic hedging strategy that may involve taking long or short positions in the instruments described above.

While we cannot predict an outcome, any of these hedging activities or other trading activities of ours could potentially increase the level of an Index on the pricing date or any Initial Averaging Dates, as applicable, and/or decrease the closing level of an Index on any Index Valuation Date, which could adversely affect your payment at maturity. It is possible that such hedging or trading activities could result in substantial returns for us or our affiliates while the value of the notes declines. For example, in connection with the maintenance of the Volatility Index, JPMS may receive a portion of the aggregate profits, if any, that may be generated from time to time related to some portion of the deduction of the daily rebalancing adjustment amount from the level of the Volatility Index. See "Risk Factors — We or our affiliates may have economic interests that are adverse to those of the holders of the notes as a result of our hedging and other trading activities" above.

We have no obligation to engage in any manner of hedging activity and will do so solely at our discretion and for our own account. We may hedge our exposure on the notes directly or we may aggregate this exposure with other positions taken by us and our affiliates with respect to our exposure to one or both Indices or their underlying equity securities or futures contracts. No note holder will have any rights or interest in our hedging activity or any positions that we or any unaffiliated counterparties may take in connection with our hedging activity.

## THE S&P 500® INDEX

We have derived all information contained in this product supplement regarding the S&P 500® Index, including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information. Such information reflects the policies of, and is subject to change by, Standard & Poor's, a division of The McGraw-Hill Companies, Inc. ("S&P"). We make no representation or warranty as to the accuracy or completeness of such information. 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.

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 (discussed below in further detail) is based on the relative value of the aggregate Market Value (as defined below) of the common stocks of 500 companies (the "S&P Component Stocks") 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. Historically, the "Market Value" of any S&P Component Stock was calculated as the product of the market price per share and the number of the then-outstanding shares of such S&P Component Stock. As discussed below, on March 21, 2005, S&P began to use a new methodology to calculate the Market Value of the S&P Component Stocks and on September 16, 2005, S&P completed its transition to the new calculation methodology. The 500 companies are not the 500 largest companies listed on the New York Stock Exchange (the "NYSE") 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.

On March 21, 2005, S&P began to calculate the S&P 500® Index based on a half float-adjusted formula, and on September 16, 2005, the S&P 500® Index became fully float-adjusted. S&P's criteria for selecting stocks for the S&P 500® Index was not changed by the shift to float adjustment. However, the adjustment affects each company's weight in the S&P 500® Index (*i.e.*, its Market Value).

Under float adjustment, the share counts used in calculating the S&P 500® Index reflect only those shares that are available to investors, not all of a company's outstanding shares. S&P defines three groups of shareholders whose holdings are subject to float adjustment:

- holdings by other publicly traded corporations, venture capital firms, private equity firms, strategic partners, or leveraged buyout groups;
- holdings by government entities, including all levels of government in the United States or foreign countries; and
- holdings by current or former officers and directors of the company, founders of the company or family trusts of officers, directors or founders, as well as holdings of trusts, foundations, pension funds, employee stock ownership plans, or other investment vehicles associated with and controlled by the company.

However, treasury stock, stock options, equity participation units, warrants, preferred stock, convertible stock and rights are not part of the float. In cases where holdings in a group exceed 10% of the outstanding shares of a company, the holdings of that group will be excluded from the float-adjusted count of shares to be used in the S&P 500® Index calculation. Mutual funds, investment advisory firms, pension funds or foundations not associated with the company and investment funds in

insurance companies, shares that trust beneficiaries may buy or sell without difficulty or significant additional expense beyond typical brokerage fees, and, if a company has multiple classes of stock outstanding, shares in an unlisted or non-traded class if such shares are convertible by shareholders without undue delay and cost, are also part of the float. Shares held in a trust to allow investors in countries outside the country of domicile (*e.g.*, ADRs, CDIs and Canadian exchangeable shares) are normally part of the float.

For each stock, an investable weight factor (“IWF”) is calculated by dividing the available float shares, defined as the total shares outstanding less shares held in one or more of the three groups listed above where the group holdings exceed 10% of the outstanding shares, by the total shares outstanding. (On March 21, 2005, the S&P 500® Index moved halfway to float adjustment, meaning that if a stock has an IWF of 0.80, the IWF used to calculate the S&P 500® Index between March 21, 2005 and September 16, 2005 was 0.90. On September 16, 2005, S&P began to calculate the S&P 500® Index on a fully float-adjusted basis, meaning that if a stock has an IWF of 0.80, the IWF used to calculate the S&P 500® Index on and after September 16, 2005 is 0.80.) The float-adjusted Index is calculated by dividing the sum of the IWF multiplied by both the price and the total shares outstanding for each stock by the Index Divisor. For companies with multiple classes of stock, S&P calculates the weighted average IWF for each stock using the proportion of the total company market capitalization of each share class as weights.

As of the date of this product supplement, the S&P 500® Index is calculated using a base-weighted aggregate methodology: the level of the S&P 500® Index reflects the total Market Value of all 500 S&P Component Stocks relative to the S&P 500® Index’s base period of 1941–43 (the “Base Period”).

An indexed number is used to represent the results of this calculation in order to make the value easier to work with and track over time.

The actual total Market Value of the S&P Component Stocks during the Base Period has been set equal to an indexed value of 10. This is often indicated by the notation 1941–43=10. In practice, the daily calculation of the S&P 500® Index is computed by dividing the total Market Value of the S&P Component Stocks by a number called the Index Divisor. By itself, the Index Divisor is an arbitrary number. However, in the context of the calculation of the S&P 500® Index, it is the only link to the original Base Period level of the S&P 500® Index. The Index Divisor keeps the S&P 500® Index comparable over time and is the manipulation point for all adjustments to the S&P 500® Index (“Index Maintenance”).

Index Maintenance includes monitoring and completing the adjustments for company additions and deletions, share changes, stock splits, stock dividends and stock price adjustments due to company restructurings or spin-offs.

To prevent the level of the S&P 500® Index from changing due to corporate actions, all corporate actions which affect the total Market Value of the S&P 500® Index require an Index Divisor adjustment. By adjusting the Index Divisor for the change in total Market Value, the level of the S&P 500® Index remains constant. This helps maintain the level of the S&P 500® Index as an accurate barometer of stock market performance and ensures that the movement of the S&P 500® Index does not reflect the corporate actions of individual companies in the S&P 500® Index. All Index Divisor adjustments are made after the close of trading and after the calculation of the closing level of the S&P 500® Index. Some corporate actions, such as stock splits and stock dividends, require simple changes in the common shares outstanding and the stock prices of the companies in the S&P 500® Index and do not require Index Divisor adjustments.

The table below summarizes the types of Index Maintenance adjustments and indicates whether or not an Index Divisor adjustment is required.

Type of Corporate Action	Comments	Divisor Adjustment
Company added/ deleted	Net change in market value determines divisor adjustment.	Yes
Change in shares outstanding	Any combination of secondary issuance, share repurchase or buy back – share counts revised to reflect change.	Yes
Stock split	Share count revised to reflect new count. Divisor adjustment is not required since the share count and price changes are offsetting.	No
Spin-off	If the spun-off company is not being added to the index, the divisor adjustment reflects the decline in index market value ( <i>i.e.</i> , the value of the spun-off unit).	Yes
Spin-off	Spun-off company added to the index, another company removed to keep number of names fixed. Divisor adjustment reflects deletion.	Yes
Change in IWF due to a corporate action or a purchase or sale by an inside holder	Increasing (decreasing) the IWF increases (decreases) the total market value of the index. The divisor change reflects the change in market value caused by the change to an IWF.	Yes
Special dividend	When a company pays a special dividend the share price is assumed to drop by the amount of the dividend; the divisor adjustment reflects this drop in index market value.	Yes
Rights offering	Each shareholder receives the right to buy a proportional number of additional shares at a set (often discounted) price. The calculation assumes that the offering is fully subscribed. Divisor adjustment reflects increase in market cap measured as the shares issued multiplied by the price paid.	Yes

Stock splits and stock dividends do not affect the Index Divisor, because following a split or dividend, both the stock price and number of shares outstanding are adjusted by S&P so that there is no change in the Market Value of the S&P Component Stock. All stock split and dividend adjustments are made after the close of trading on the day before the ex-date.

Each of the corporate events exemplified in the table requiring an adjustment to the Index Divisor has the effect of altering the Market Value of the S&P Component Stock and consequently of altering the aggregate Market Value of the S&P Component Stocks (the "Post-Event Aggregate Market Value"). In order that the level of the S&P 500® Index (the "Pre-Event Index Value") not be affected by the altered Market Value (whether increase or decrease) of the affected Component Stock, a new Index Divisor ("New Divisor") is derived as follows:

$$\frac{\text{Post-Event Aggregate Market Value}}{\text{New Divisor}} = \text{Pre-Event Index Value}$$

$$\text{New Divisor} = \frac{\text{Post-Event Aggregate Market Value}}{\text{Pre-Event Index Value}}$$

A large part of the Index Maintenance process involves tracking the changes in the number of shares outstanding of each of the S&P 500<sup>®</sup> Index companies. Four times a year, on a Friday close to the end of each calendar quarter, the share totals of companies in the S&P 500<sup>®</sup> Index are updated as required by any changes in the number of shares outstanding. After the totals are updated, the Index Divisor is adjusted to compensate for the net change in the total Market Value of the S&P 500<sup>®</sup> Index. In addition, any changes over 5% in the current common shares outstanding for the S&P 500<sup>®</sup> Index companies are carefully reviewed on a weekly basis, and when appropriate, an immediate adjustment is made to the Index Divisor.

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## THE J.P. MORGAN STRATEGIC VOLATILITY INDEX

The J.P. Morgan Strategic Volatility Index (the “**Volatility Index**”) was developed and is maintained and calculated by J.P. Morgan Securities Ltd. (“**JPMSL**”). The description of the strategy and methodology underlying the Volatility Index included in this product supplement is based on rules formulated by JPMSL (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 Volatility Index and other decisions and actions related to its maintenance. The Rules in effect as of the date of this product supplement are attached as Annex A to this product supplement. The Volatility Index is the intellectual property of JPMSL, and JPMSL reserves all rights with respect to its ownership of the Volatility Index.

The Volatility Index is published by Bloomberg L.P. under the ticker symbol “JPUSSTVL.”

The Volatility Index is a synthetic, dynamic strategy that aims to replicate the returns from combining a long position and a contingent 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, after being established initially in the second-month VIX futures contract or the first-month VIX futures contract, respectively, are rolled throughout each month as described below. The VIX Index is a benchmark index designed to measure the market price of volatility in large cap U.S. stocks over 30 days in the future. 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 future direction of movement of the VIX Index.

The Volatility 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 described in more detail below, the synthetic long position is maintained by synthetically selling VIX futures contracts on a daily basis that specify cash settlement on a nearby date and synthetically buying futures contracts on the VIX Index on a daily basis that specify cash settlement on a later date. On the other hand, the synthetic short position, when activated, is maintained by synthetically buying VIX futures contracts on a daily basis that specify cash settlement on a nearby date and synthetically selling VIX futures contracts on a daily basis that specify cash settlement on a later date. This process is known as “rolling” a futures position.

The synthetic long position rolls throughout each month from the second-month VIX futures contract into the third-month VIX futures contract. When activated, the synthetic short position rolls throughout each month from the first-month VIX futures contract into the second-month VIX futures contract. 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 two months on any day and for the VIX futures contracts underlying the synthetic short position is approximately one month on any day.

Exposure to the synthetic short position will vary between 0% and 100%. The exposure to the synthetic short position will be increased by 20% on any Volatility Index Business Day (as defined below) if the level of the VIX Index for each of the three immediately preceding Volatility Index Business Days was less than the rolling, weighted average of the first-month and second-month VIX futures contracts included (or that would have been included) in the synthetic short position, as long as the exposure to the synthetic short position is less than 100%. Conversely, the exposure to the synthetic short position will be decreased by 20% on any Volatility Index Business Day if the level of the VIX Index for each of the three immediately preceding Volatility Index Business Days was greater than or equal to the rolling, weighted average of the first-month and second-month VIX futures contracts included in the synthetic short position, as long as the exposure to the synthetic short position is greater than 0%. On any Volatility Index Business Day for which these conditions are not met, the synthetic short position will not be increased or decreased.

Because, at a minimum, eight Volatility Index Business Days will elapse from a change in the relative level of the VIX Index and the weighted average price of the relevant VIX futures contracts before the synthetic short position can be fully activated or deactivated, the Volatility Index is subject to a time lag. See “Risk Factors — Due to the time lag inherent in the Volatility 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 Volatility Index is based to be successful” in this product supplement.

The Volatility Index aims to provide a synthetic long exposure to VIX futures contracts with a weighted average maturity of approximately two months. 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 third-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 second-month VIX futures contract would take place, thereby creating a negative “roll yield.”

To address the potential for a negative roll yield when VIX futures contracts are in contango, the Volatility Index seeks to progressively activate a synthetic short position in VIX futures contracts with a weighted average maturity of approximately one month 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 second-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 first-month VIX futures contract would take place, thereby creating a positive “roll yield,” which is intended to offset 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 would create a negative roll yield.

No assurance can be given that the Volatility Index’s strategy will be successful or that the Volatility Index will generate positive returns. See “Risk Factors — Risks Relating to the Volatility Index” in this product supplement.

On each Volatility Index Business Day, the calculation of the Volatility 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 Volatility 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 Volatility Index was established on July 30, 2010.

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 product supplement.

The Volatility 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.

## I. Contract Rolling and Rebalancing

The synthetic long position maintains a weighted average maturity of approximately two months by synthetically selling second-month VIX futures contracts and synthetically buying third-month VIX futures contracts on each Volatility Index Business Day during a Rebalancing Period (each, a “**Rebalancing Date**”). When activated, the synthetic short position maintains a weighted average maturity of approximately one month by synthetically buying first-month VIX futures contracts and synthetically selling second-month VIX futures contracts each Rebalancing Date during a Rebalancing Period. This process is known as “rolling” a futures position.

Each “**Rebalancing Period**” starts on the monthly final settlement date of the VIX futures contracts as published by the Exchange (the “**Rebalancing Settlement Date**”) (currently, the Wednesday falling 30 calendar days before the S&P 500 option expiration for the following month), and runs to but excluding the next month’s Rebalancing Settlement Date, which is the first day of the following Rebalancing Period.

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 is listed (as the case may be) from time to time.

On the first day of each Rebalancing Period, all of the weight of the synthetic long position will be allocated to a long position in second-month VIX futures contracts. On each subsequent Volatility Index Business Day during the Rebalancing Period, a fraction of the notional amount of second-month VIX futures contracts is sold, and an equivalent notional amount of third-month VIX futures contracts is purchased. The fraction, or quantity, purchased is proportional to the total number of scheduled Volatility Index Business Days that have elapsed since the last Volatility Index Business Day over the total number of scheduled Volatility Index Business Days in the current Rebalancing Period. In this way, the initial long position in second-month VIX futures contracts is progressively moved to third-month VIX futures contracts over the course of the month, until the following Rebalancing Period starts and the old third-month VIX futures contract becomes the new second-month VIX futures contract.

If the synthetic short position is activated, on the first day of each Rebalancing Period, all of the weight of the synthetic short position will be allocated to a short position in first-month VIX futures contracts. On each subsequent Volatility Index Business Day during the Rebalancing Period, a fraction of the notional amount of first-month VIX futures contracts is purchased, and an equivalent notional amount of second-month VIX futures contracts is sold. The fraction, or quantity, sold is proportional to the total number of scheduled Volatility Index Business Days that have elapsed since the last Volatility Index Business Day over the total number of scheduled Volatility Index Business Days in the current Rebalancing Period. In this way, the initial short position in first-month VIX futures contracts is progressively moved to the second-month VIX futures contracts over the course of the month, until the following Rebalancing Period starts and the old second-month VIX futures contract becomes the new first-month VIX futures contract.

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

$$\text{ContractWeight}(1, t) = dr / dt,$$

$$\text{ContractWeight}(2, t) = (dt-dr) / dt$$

where:

**ContractWeight(1, t)** means, (a) with respect to the synthetic long position, the weight of the second-month VIX futures contract with respect to the current Volatility Index Business Day and (b) with respect to the synthetic short position, the weight of the first-month VIX futures contract with respect to the current Volatility Index Business Day;

**ContractWeight(2, t)** means, (a) with respect to the synthetic long position, the weight of the third-month VIX futures contract with respect to the current Volatility 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 current Volatility Index Business Day;

**dt** means the total number of Volatility Index Business Days in the Rebalancing Period in which the current Volatility Index Business Day falls (irrespective of whether any such day(s) are or become subject to a Volatility Index Disruption Event);

**dr** means the total number of Volatility Index Business Days from, and including, the current Volatility Index Business Day to, but excluding, the next Rebalancing Settlement Date (irrespective of whether any such day(s) are or become subject to a Volatility Index Disruption Event).

## II. Calculation and Publication of Volatility Index Levels

### *A. Publication of Volatility Index Levels*

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

The calculation agent for the Volatility Index is JPMSL or any affiliate, subsidiary or third party designated by JPMSL (the “**Volatility Index Calculation Agent**”).

An “**Volatility 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 open for trading during its or their regular trading sessions.

### *B. Calculation of Volatility Index Levels*

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

- (a) the return of the gross index (*i.e.*, the return of the Volatility Index determined by reference to the performance of the synthetic long position and any synthetic short position, without deducting any fees or costs) since the immediately preceding Volatility Index Business Day;
- (b) the deduction of an adjustment factor of 0.75% per annum (the “**Adjustment Factor**”); and
- (c) 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 Volatility Index Business Day) (the “**Rebalancing Adjustment Factor**”), applied to (1) the aggregate notional amount of each of the VIX futures contracts hypothetically traded that Volatility 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 Volatility Index Level has a base level of 100.00 as of September 19, 2006 (the “**Base Date**”).

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

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

where:

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

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

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

$$\text{Return}(t) = \text{GrossIndReturn}(t) - \text{AdjAmount}(t) - \text{RepAdjAmount}(t)$$

where:

**GrossIndReturn(t)** means the gross index return with respect to the current Volatility Index Business Day, as described under “i. The Gross Index Return” below;

**AdjAmount(t)** means the amount deducted due to the Adjustment Factor with respect to the current Volatility Index Business Day, as described under “ii. The Adjustment Factor” below; and

**RepAdjAmount(t)** means the percentage reduction in the Volatility Index Level due to the Rebalancing Adjustment Factor with respect to the current Volatility Index Business Day, as described under “iii. The Rebalancing Adjustment Factor” below.

*i. The Gross Index Return*

The gross index return is equal to the percentage increase or percentage decrease in the gross index level from the immediately preceding Volatility Index Business Day to the current Volatility Index Business Day and is calculated as follows:

$$\text{GrossIndexReturn}(t) = (\text{GrossIndex}(t) / \text{GrossIndex}(t-1)) - 1$$

The gross index level is the level of the Volatility Index determined by reference to the performance of the synthetic long position and any synthetic short position, without taking into account the effect of the adjustment factor or the rebalancing adjustment factor. The gross index level is calculated with respect to each Volatility Index Business Day by adjusting the gross index level as of the immediately preceding Volatility Index Business Day to reflect the return of the synthetic long position and the return of any synthetic short position since the immediately preceding Volatility Index Business Day.

Subject to the occurrence of a Volatility Index Disruption Event, the gross index level on each Volatility Index Business Day is calculated as follows:

$$\text{GrossIndex}(t) = \text{GrossIndex}(t-1) \times (1 + \text{Long Return}(t) - I(t-1) \times \text{Short Return}(t))$$

where:

- GrossIndex(t)** means the gross index level with respect to the current Volatility Index Business Day;
- GrossIndex(t-1)** means the gross index level with respect to the immediately preceding Volatility Index Business Day that is not a Disrupted Day;
- Long Return(t)** means the return of the synthetic long position from the immediately preceding Volatility Index Business Day that is not a Disrupted Day to the current Volatility Index Business Day, as described under "1. The Long Return and the Short Return" below;
- Short Return(t)** means the return of any synthetic short position from the immediately preceding Volatility Index Business Day that is not a Disrupted Day to the current Volatility Index Business Day, as described under "1. The Long Return and the Short Return" below; and
- I(t-1)** means the amount of exposure to the synthetic short position, which will be between 0% and 100%, as of the immediately preceding Volatility Index Business Day, as described under "2. The Short Position Exposure" below.

#### 1. The Long Return and the Short Return

When the market for VIX futures contracts is in backwardation, 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 Volatility Index Business Day, the return with respect to a synthetic long position will be positive, which will increase the gross index level, but because the synthetic short position represents short exposure to the underlying VIX futures contracts, a return with respect to the synthetic short position, if activated, will be negative, which will *decrease* the gross index level.

On the other hand, when the market for VIX futures contracts is in contango, 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 Volatility Index Business Day, the return with respect to a synthetic long position will be negative, which will decrease the gross index level, but because the synthetic short position represents short exposure to the underlying VIX futures contracts, a return with respect to the synthetic short position, if activated, will be negative, which will *increase* the gross 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. On any Volatility Index Business Day other than the Volatility Index Business Day immediately following a Rebalancing Settlement Date, the Long Return and the Short Return are calculated as follows:

$$\text{Short Return}(t) = [\text{ContractWeight}(1, t-1) \times \text{ContractPrice}(1, t) / \text{ContractPrice}(1, t-1)] + [\text{ContractWeight}(2, t-1) \times \text{ContractPrice}(2, t) / \text{ContractPrice}(2, t-1)] - 1$$

$$\text{Long Return}(t) = [\text{ContractWeight}(1, t-1) \times \text{ContractPrice}(2, t) / \text{ContractPrice}(2, t-1)] + [\text{ContractWeight}(2, t-1) \times \text{ContractPrice}(3, t) / \text{ContractPrice}(3, t-1)] - 1$$

where:

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

**ContractWeight(2, 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 Volatility 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 Volatility Index Business Day, calculated as set forth under "Contract Rolling and Rebalancing" above;

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

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

The "Daily Contract Reference Price" means, with respect to a VIX futures contract, (a) in respect of any Volatility Index Business Day that is a Rebalancing Settlement Date, the Final Settlement Value of such VIX futures contract; or (b) in respect of any other Volatility Index Business Day, the Closing Price of such 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 such VIX futures contract as published by the Exchange.

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

On the Volatility Index Business Day immediately following a Rebalancing Settlement Date, the formulas for the Long Return and the Short Return are expressed differently to reflect that, following the Rebalancing Settlement Date, the second-month VIX futures contract has become the first-month VIX futures contract and the third-month VIX futures contract has become the second-month futures contract. In addition, the contract weights drop away because the synthetic long position and the synthetic short position are each concentrated in a single contract on a Rebalancing Settlement Date.

Accordingly, the Long Return and the Short Return on the Volatility Index Business Day immediately following a Rebalancing Settlement Date are calculated as follows:

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

$$\text{Long Return (t)} = \text{ContractPrice}(2, t) / \text{ContractPrice}(3, t-1) - 1$$

## 2. The Short Position Exposure

Exposure to the synthetic short position will vary between 0% and 100%. The exposure to the synthetic short position will be increased by 20% on any Volatility Index Business Day if the level of the VIX Index for each of the three immediately preceding Volatility Index Business Days was less than the weighted average of the Daily Contract Reference Prices of the first-month and second-month VIX futures contracts included (or that would have been included) in the synthetic short position (the “**Weighted Average Contract Price**”), as long as the exposure to the synthetic short position is less than 100%. Conversely, the exposure to the synthetic short position will be decreased by 20% on any Volatility Index Business Day if the level of the VIX Index for each of the three immediately preceding Volatility Index Business Days was greater than or equal to the Weighted Average Contract Price, as long as the exposure to the synthetic short position is greater than 0%. On any Volatility Index Business Day for which these conditions are not met, the synthetic short position will not be increased or decreased.

On any Volatility Index Business Day, the Weighted Average Contract Price is equal to:

$$\text{ContractWeight}(1, t) \times \text{ContractPrice}(1, t) + \text{ContractWeight}(2, t) \times \text{ContractPrice}(2, t)$$

On any Volatility 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 Volatility Index Business Day.

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 Volatility Index Business Days, after which the exposure to the synthetic short position will change in increments of 20% per Volatility Index Business Day. Accordingly, at a minimum, eight Volatility Index Business Days will elapse from the change in the futures market before the synthetic short position can be fully activated or deactivated, 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 Volatility Index is based to be successful. See “Risk Factors — Due to the time lag inherent in the Volatility 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 Volatility Index is based to be successful” in this product supplement.

The following table shows the exposure to the synthetic short position on twenty Volatility Index Business Days based on hypothetical levels of the VIX Index and hypothetical Weighted Average Contract Prices, assuming an initial exposure of 60%.

Volatility Index Business Day	VIX Index level	Weighted Average Contract Price	VIX Index level is less than Weighted Average Contract Price	Exposure to the Synthetic Short Position Effective on the Volatility Index Business Day
-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	60%



2	26.00	25.50	No	80%
3	25.75	27.75	Yes	80%
4	26.50	27.00	Yes	80%
5	27.75	29.75	Yes	80%
6	31.00	28.00	No	100%
7	33.75	31.75	No	100%
8	36.00	34.00	No	100%
9	37.75	35.75	No	80%
10	39.00	37.00	No	60%
11	39.75	39.00	No	40%
12	40.00	40.25	Yes	20%
13	39.75	37.75	No	20%
14	39.00	37.00	No	20%
15	37.75	35.75	No	20%
16	36.00	34.00	No	0%
17	33.75	35.75	Yes	0%
18	31.00	33.00	Yes	0%
19	27.75	29.75	Yes	0%
20	24.00	26.00	Yes	20%

The numbers appearing in the table above are purely hypothetical, and actual VIX Levels and Weighted Average Contract Prices and the actual 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 exposure to the synthetic short position and are intended merely to illustrate how the exposure to the synthetic short position may change in response to changes in VIX Levels and Weighted Average Contract Prices in hypothetical scenarios.

*ii. The Adjustment Factor*

On each Volatility Index Business Day, the Volatility 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 Volatility Index Business Day, calculated as follows:

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

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 Volatility Index Business Day that is not a Disrupted Day to, but excluding, the current Volatility Index Business Day.

*iii. The Rebalancing Adjustment Factor*

On each Volatility Index Business Day, the Volatility 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 Volatility Index Business Day), calculated as follows:

$$\text{RepAdjAmount}(t) = \text{DailyRebalPercentage}(t) \times R$$

where:

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

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

Level of the VIX Index on the immediately preceding Volatility 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 the Daily Rebalancing Percentage as of the current Volatility Index Business Day and the Rebalancing Adjustment Factor is intended to approximate the slippage costs (expressed as a percentage of the Volatility Index Level as of the immediately preceding Volatility Index Business Day) that would be experienced by a professional investor seeking to replicate the hypothetical portfolio contemplated by the Volatility 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 Volatility Index Business Day, the Daily Rebalancing Percentage is composed of the following:

- (a) changes in the notional amount (expressed as a percentage of the Volatility Index Level as of the immediately preceding Volatility Index Business Day) allocated to the first-month VIX futures contract from the immediately preceding Volatility Index Business Day to the current Volatility Index Business Day due to the net effect of:
  - (1) if the exposure to the synthetic short position is greater than 0% on the immediately preceding Volatility Index Business Day, the decrease in the synthetic short exposure to the first-month VIX futures contract from the immediately preceding Volatility Index Business Day to the current Volatility 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
  - (2) the change, if any, in the exposure to the first-month VIX futures contract arising from the change, if any, in the exposure to the synthetic short position (if the relevant criteria set forth above are satisfied so that the exposure to the synthetic short position is increasing or decreasing, this amount will be equal to 20%; otherwise, it will be equal to 0%) from the immediately preceding Volatility Index Business Day to the current Volatility Index Business Day;
- (b) changes in the notional amount (expressed as a percentage of the Volatility Index Level as of the immediately preceding Volatility Index Business Day) allocated to the second-month VIX futures contract from the immediately preceding Volatility Index Business Day to the current Volatility Index Business Day due to the net effect of:
  - (1) (x) the decrease in the synthetic long position in the second-month VIX futures contract from the immediately preceding Volatility Index Business Day to the current Volatility 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 Volatility Index Business Day, the

increase in the synthetic short exposure to the second-month VIX futures contract from the immediately preceding Volatility Index Business Day to the current Volatility 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 second-month VIX futures contract); and

- (2) 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 (if the relevant criteria set forth above are satisfied so that the exposure to the synthetic short position is increasing or decreasing, this amount will be equal to 20%; otherwise, it will be equal to 0%) from the immediately preceding Volatility Index Business Day to the current Volatility Index Business Day;
- (c) changes in the notional amount (expressed as a percentage of the Volatility Index Level as of the immediately preceding Volatility Index Business Day) allocated to the third-month VIX futures contract from the immediately preceding Volatility Index Business Day to the current Volatility Index Business Day due to the increase in the synthetic long exposure to the third-month VIX futures contract from the immediately preceding Volatility Index Business Day to the current Volatility 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
- (d) the amount of the change in the level of the exposure to the synthetic short position (if the relevant criteria set forth above are satisfied so that the exposure to the synthetic short position is increasing or decreasing, this amount will be equal to 20%; otherwise, it will be equal to 0%) from the immediately preceding Volatility Index Business Day to the current Volatility Index Business Day. While the change in the exposure to the synthetic short position will be reflected in (a) and (b) above, the amount of the change in the level of the exposure to the synthetic short position is included as a separate component of the Daily Rebalancing Percentage 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 a 20% increase or decrease in the exposure to the synthetic short 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 Volatility Index Business Day and notional exposure based on the weight of that VIX futures contract on the immediately preceding Volatility Index Business Day, adjusted to reflect the change in the Daily Reference Contract Price from the immediately preceding Volatility Index Business Day. In addition, the weights of the VIX contracts futures contracts included in the synthetic short position are adjusted to reflect the exposure to the synthetic short position on the relevant Volatility Index Business Day.

For example, assuming that (a) the Daily Reference Contract Price of each VIX futures contract remains unchanged from the immediately preceding Volatility Index Business Day to the current Volatility Index Business Day, (b) the Rebalancing Period consists of 20 Volatility Index Business Days (so that the roll of the relevant VIX futures contracts occurs at a pace of 5% on each Volatility Index Business Day over the one-month Rebalancing Period), (c) the immediately preceding Volatility Index Business Day was the first Volatility Index Business Day in the Rebalancing Period and (d) the exposure to the synthetic short position is 100% on the immediately preceding Volatility Index Business Day and the current Volatility Index Business Day, the Daily Rebalancing Percentage would be calculated as follows:

$$\underbrace{|(-100\%) - (-95)\%|}_{A} + \underbrace{|0\% - (-5)\%|}_{B(1)} + \underbrace{|100\% - 95\%|}_{B(2)} + \underbrace{|0\% - 5\%|}_{C} + \underbrace{|100\% - 100\%|}_{D} =$$

$$5\% + 5\% + 5\% + 5\% + 0\% = 20\%$$

As shown above,

- the roll of the synthetic short position requires a reduction in the synthetic short exposure to the first-month VIX futures contract from -100% to -95% (this is captured in "A" in the equation above) and an increase in the synthetic short exposure to the second-month VIX futures contract (that is included the synthetic short position) from 0% to -5% (this is captured in "B(1)" in the equation above);
- the roll of the synthetic long position requires a reduction in the synthetic long exposure to the second-month VIX futures contract from 100% to 95% (this is captured in "B(2)" in the equation above) and an increase in the synthetic long exposure to the third-month VIX futures contract from 0% to 5% (this is captured in "C" in the equation above); and
- the exposure to the synthetic short position remains unchanged at 100% (this is captured in "D" in the equation above).

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

$$20\% \times 0.20\% = 0.040\%$$

Given the assumptions stated above, the percentage reduction in the Volatility Index Level due to the Rebalancing Adjustment Factor over the course of a one-month roll period would be equal to 0.80% (or 9.60% 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 Volatility Index Business Day would be equal to 0.50%, and the percentage reduction in the Volatility Index Level due to the Rebalancing Adjustment Factor with respect to the current Volatility Index Business Day would be calculated as follows:

$$20\% \times 0.50\% = 0.100\%$$

The Daily Rebalancing Percentage is significantly greater on Volatility Index Business Days on which the exposure to the synthetic short position changes than on Volatility Index Business Days on which no such change occurs. If, on the Volatility Index Business Day described above, the exposure to the synthetic short position had decreased by 20% instead of remaining unchanged, the Daily Rebalancing Percentage would be calculated as follows:

$$|(-100\% \times 100\%) - (-95\% \times 80\%)| + |[0\% \times 100\%] - (-5\% \times 80\%)| + |100\% - 95\%| + |0\% - 5\%| + |100\% - 80\%| =$$

A	B(1)	B(2)	C	D
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$$24\% + 9\% + 5\% + 20\% = 58\%$$

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 from 100% to 80%, the synthetic short exposure to the first-month VIX futures contract needs to be reduced from -100% to -95% × 80% (this is

captured in “A” in the equation above) and the synthetic short exposure to the second-month VIX futures contract (that is included the synthetic short position) needs to be increased from 0% to -5% × 80% (this is captured in “B(1)” in the equation above);

- the roll of the synthetic long position requires a reduction in the synthetic long exposure to the second-month VIX futures contract from 100% to 95% (this is captured in “B(2)” in the equation above) and an increase in the synthetic long exposure to the third-month VIX futures contract from 0% to 5% (this is captured in “C” in the equation above); and
- the exposure to the synthetic short position is reduced from 100% to 80% (this is captured in “D” in the equation above).

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

$$58\% \times 0.20\% = \mathbf{0.116\%}$$

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

$$58\% \times 0.50\% = \mathbf{0.290\%}$$

*As shown above, the Daily Rebalancing Percentage is significantly greater on Volatility Index Business Days on which the exposure to the synthetic short position changes than on Volatility 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 Volatility Index Level due to the Rebalancing Adjustment Factor on any Volatility Index Business Day may be different from the percentages shown above. See “Risk Factors — Risks Relating to the Volatility Index — The daily rebalancing adjustment amount is likely to have a substantial adverse effect on the level of the Volatility Index over time” in this product supplement.*

For more information about how the Daily Rebalancing Percentage is calculated for purposes of determining the percentage reduction in the Volatility Index Level due to the Rebalancing Adjustment Factor, please see the Rules attached as Annex A to this product supplement.

### III. Volatility Index Disruption Events

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

If any Rebalancing Date is a Disrupted Day, then the relevant Rebalancing Date will 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 date being the “**Final Disrupted Day**”), the Volatility Index Calculation Agent will determine the Volatility Index Level in accordance with the methodology set out in “Calculation and Publication of Volatility Index Levels” above, *provided* that references to

any Volatility Index Business Day preceding any Rebalancing Date that is a Disrupted Day will be deemed to be references to the applicable Volatility Index Business Day (that is itself not a Disrupted Day) preceding the First Disrupted Day.

If the first Rebalancing Date following the Final Disrupted Day falls after a Rebalancing Settlement Day, then, for the purposes of calculating the Volatility Index Level, references to:

- (a) ContractPrice(3, t) will be deemed to be references to ContractPrice(2, t);
- (b) ContractPrice(2, t) will be deemed to be references to ContractPrice(1, t); and
- (c) ContractPrice(1, t) will be deemed to be the Final Settlement Value of the relevant VIX futures contract expiring on that Rebalancing Settlement Day (as published by the Exchange).

**“Disrupted Day”** means a Volatility Index Business Day on which a Volatility Index Disruption Event occurs or exists with respect to a VIX futures contract and/or the VIX Index.

An **“Volatility Index Disruption Event”** means,

- (a) with respect to a VIX futures contract:
  - (i) a failure by the Exchange to publish the Closing Price for the VIX futures contract on a Volatility Index Business Day or the Final Settlement Value on a Rebalancing Settlement Date (as the case may be); or
  - (ii) any event that, in the determination of the Volatility Index Calculation Agent, disrupts or impairs the ability of market participants generally to effect transactions in or obtain market values for such VIX futures contract on the Volatility Index Business Day. Such events may include, but are not limited to, the occurrence of any of a Trading Disruption, Exchange Disruption or Early Closure; or
- (b) with respect to the VIX Index, a failure by the sponsor for the VIX Index to calculate and publish the level for the VIX Index on a Volatility 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 (including, without limitation, the VIX futures contracts) or options 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 Volatility Index Calculation Agent) the ability of market participants in general to effect transactions in, or obtain market values for, futures (including, without limitation, the VIX futures contracts) or options contracts relating to the VIX Index on any Exchange.

**“Early Closure”** means the closure on any Volatility 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 such Volatility Index Business Day.

#### **IV. Extraordinary Events with Respect to a VIX Futures Contract**

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

### ***A. Successor Futures Contract***

If any VIX futures contract is:

- (a) not calculated and quoted by the Exchange but by a successor exchange acceptable to the Volatility Index Calculation Agent; or
- (b) replaced by a successor futures contract using, in the determination of the Volatility Index Calculation Agent, the same or substantially similar formula and method of calculation as used in the calculation of 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 Volatility Index Calculation Agent, who may make such adjustment to the Rules, as it determines in good faith is appropriate, to account for such change.

### ***B. Material Change to a VIX Futures Contract, Cancellation or Non-Publication***

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

- (a) the Volatility Index Calculation Agent considers it reasonably necessary to exclude or substitute the Affected Contract to reflect the intention of the Volatility 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;
- (b) 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 such level);
- (c) any Exchange:
  - (i) announces that it will make a material change to the definition of any VIX futures contract or in any other way materially modifies such contract (other than a modification prescribed in the definition of such contract); or
  - (ii) permanently cancels any VIX futures contract and no Successor Futures Contract exists or is otherwise unable or unwilling to publish a level of the VIX futures contract; or
- (d) the Volatility Index Calculation Agent determines that a Change in Law has occurred in respect of a VIX futures contract,

then the Volatility Index Calculation Agent may exclude or substitute the Affected Contract from the Volatility 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 futures contract traded on the 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 Volatility Index Calculation Agent or cease publication of the Volatility Index.

“**Change in Law**” means due to the adoption of, or any change in, any applicable law, regulation or rule (including, without limitation, any tax law) or the promulgation of, or any change in, the 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 Volatility Index Calculation Agent determines in good faith that it has become illegal to hold, acquire or dispose of the VIX futures contracts.

## V. Extraordinary Events with Respect to the VIX Index

Certain events, which we refer to as “Extraordinary Events,” will cause the Volatility 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 Volatility Index.

### *A. Successor Base Volatility Index*

If the VIX Index is:

- (a) not calculated and quoted by the applicable sponsor but by a successor sponsor acceptable to the Volatility Index Calculation Agent; or
- (b) replaced by a successor index using, in the determination of the Volatility Index Calculation Agent, the same or 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 Volatility Index**”) will replace the VIX Index with effect from a date determined by the Volatility Index Calculation Agent who may make such adjustment to the Rules, as it determines in good faith is appropriate, to account for such change.

### *B. Material Change to the VIX Index, Cancellation or Non-Publication*

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

- (a) the Volatility Index Calculation Agent considers it reasonably necessary to exclude or substitute the Affected Base Volatility Index to reflect the intention of the Volatility Index, including (without prejudice to the generality of the foregoing) changes announced by the applicable sponsor of the VIX Index relating to the modification, exclusion, inclusion or substitution of the VIX Index;
- (b) 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 such level); or
- (c) the sponsor of the VIX Index:
  - (i) 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 to maintain the VIX Index in the event of changes in constituent stock and capitalization and other routine events); or
  - (ii) permanently cancels the VIX Index and no Successor Base Volatility Index exists or is otherwise unable or unwilling to publish a level of the VIX Index,

then the Volatility Index Calculation Agent may exclude or substitute the Affected Base Volatility Index from the Volatility 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 base index on the Exchange or an equivalent exchange that has similar characteristics to the Affected Base Volatility Index; and (b) the date of such replacement) on such date(s) as selected by the Volatility Index Calculation Agent or cease publication of the Volatility Index.

### *C. Cancellation of License or Permission*

If in respect of the Volatility Index, at any time, any license granted (if required) to the Volatility Index Calculation Agent (or its affiliates) to use the VIX Index or other component (“**Affected Component**”) for the purposes of the Volatility Index terminates, or the Volatility Index Calculation



Agent's rights to use the VIX Index or other underlying component for the purpose of the Volatility Index is otherwise disputed, impaired or ceases (for any reason), the Volatility Index Calculation Agent may remove such Affected Component from the Volatility 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 base index or other underlying component having similar characteristics to the Affected Component; and (b) the date of such replacement) on such dates as selected by the Volatility Index Calculation Agent or cease publication of the Volatility Index.

## **VI. Amendments to the Rules**

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

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

## **VII. Corrections**

If, in respect of the Volatility Index:

- (a) the level or price of any VIX futures contract, the VIX Index, any variable, input or other matter that is used for any calculation relevant to the Volatility Index Level for any Volatility Index Business Day is subsequently corrected and the correction is published by the Exchange or relevant publication source; or
- (b) the Volatility Index Calculation Agent identifies an error or omission in any of its calculations or determinations in respect of the Volatility Index Level for any Volatility Index Business Day,

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

## **VIII. Volatility Index Calculation Agent Determinations**

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

- (a) be under any obligation to revise any determination or calculation made or action taken for any reason in connection with the Rules or the Volatility Index; or
- (b) 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 Volatility Index or with respect to the publication of any Volatility Index Level (or failure to publish such level) or any use to which any person may put the Volatility Index or the Volatility Index Levels.

**"Relevant Person"** means any affiliate or subsidiary of the Volatility 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 Volatility Index maintains a synthetic long position in second-month and third-month VIX futures contracts and, when the synthetic short position is activated, a synthetic short position in first-month and second-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 Volatility 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 product 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. Such information reflects the policies of, and is subject to change by, the Chicago Board Options Exchange, Incorporated (the “CBOE”). We make no representation or warranty as to the accuracy or completeness of such information. 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.”

### VIX Index Overview

The VIX Index is a benchmark index designed to measure the market price of volatility in large cap U.S. stocks over 30 days in the future, 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 product 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 level of the VIX Index (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:

$\sigma$ is	VIX Index Level/100 $\Rightarrow$ VIX Index Level = $\sigma \times 100$
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 $i^{\text{th}}$ 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 $K_i = K_0$
$\Delta K_i$	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:  $\Delta K$  for the lowest strike is simply the difference between the lowest strike and the next higher strike. Likewise,  $\Delta K$  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:

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

where:

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

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

$M_{\text{Other days}}$  = 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,  $K_0$ . 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
<b>920</b>	<b>37.15</b>	<b>36.65</b>	<b>0.50</b>	<b>920</b>	<b>61.55</b>	<b>60.55</b>	<b>1.00</b>
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	Include?
200	0.00	0.05	<i>Not considered following two zero bids</i>
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	
1240	0.05	0.50	
1245	0.05	0.15	<i>Not considered following two zero bids</i>
<b>1250</b>	<b>0.05</b>	<b>0.10</b>	
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
<b>920</b>	<b>Put/Call Average</b>	<b>36.90</b>	<b>920</b>	<b>Put/Call Average</b>	<b>61.05</b>
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:

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

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



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  $\Delta K$  and the price of that option, and inversely proportional to the square of the option's strike price.

Generally,  $\Delta K_i$  is half the distance between the strike prices on either side of  $K_i$ . For example,  $\Delta K$  for the next-term 300 Put is 75:  $\Delta K_{300 \text{ Put}} = (350 - 200)/2$ . At the upper and lower edges of any given strip of options,  $\Delta K_i$  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,  $\Delta K_{400 \text{ Put}} = 25$  (i.e.,  $425 - 400$ ).

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

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

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

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
<b>920</b>	<b>Put/Call Average</b>	<b>36.90</b>	<b>0.0002180</b>	<b>920</b>	<b>Put/Call Average</b>	<b>61.05</b>	<b>0.0003608</b>
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  $\sigma^2_1$  and  $\sigma^2_2$ :

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

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

**Step 3: Calculate the 30-day weighted average of  $\sigma^2_1$  and  $\sigma^2_2$ . 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  $\sigma^2_1$  and  $\sigma^2_2$ ; *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  $\sigma^2_1$  and  $\sigma^2_2$ ; *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...

$N_{T_1}$  = number of minutes to expiration of the near-term options (12,960)

$N_{T_2}$  = number of minutes to expiration of the next-term options (53,280)

$N_{30}$  = number of minutes in 30 days ( $30 \times 1,440 = 43,200$ )

$N_{365}$  = number of minutes in a 365-day year ( $365 \times 1,440 = 525,600$ )

VIX Index Level =

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

$$\text{VIX Index Level} = 100 \times 0.612179986 = 61.22$$

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## **OTHER INDICES**

If the notes are linked to an index not described in this product supplement or to an index described in this product supplement that changed its methodology in any material respect, a separate index supplement or the relevant terms supplement will provide additional information relating to such index.

## GENERAL TERMS OF NOTES

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J.P. Morgan Securities LLC, one of our affiliates, will act as the Note Calculation Agent. The Note Calculation Agent will determine, among other things, the Initial Index Level (or Strike Level, if applicable), the closing level of each Index on each Initial Averaging Date, if applicable, and each Index Valuation Date, the Ending Index Level, the Index Return and the payment at maturity, if any, on the notes. In addition, the Note Calculation Agent will determine whether there has been a market disruption event or a discontinuation of an Index and whether there has been a material change in the method of calculation of an Index. All determinations made by the Note Calculation Agent will be at the sole discretion of the Note Calculation Agent and will, in the absence of manifest error, be conclusive for all purposes and binding on you and on us. We may appoint a different Note Calculation Agent from time to time after the date of the relevant terms supplement without your consent and without notifying you.

The Note Calculation Agent will provide written notice to the trustee at its New York office, on which notice the trustee may conclusively rely, of the amount to be paid at maturity on or prior to 11:00 a.m., New York City time, on the business day preceding the maturity date.

All calculations with respect to the Initial Index Level (or Strike Level, if applicable), the Ending Index Level, the Index Return or the closing level of each Index will be rounded to the nearest one hundred-thousandth, with five one-millionths rounded upward (*e.g.*, .876545 would be rounded to .87655); all dollar amounts related to determination of the payment per \$1,000 principal amount note at maturity, if any, will be rounded to the nearest ten-thousandth, with five one hundred-thousandths rounded upward (*e.g.*, .76545 would be rounded up to .7655); and all dollar amounts paid, if any, on the aggregate principal amount of notes per holder will be rounded to the nearest cent, with one-half cent rounded upward.

### Market Disruption Events

Certain events may prevent the Note Calculation Agent from calculating the closing level of an Index on any Determination Date and, consequently, the Index Return of such Index and the amount that we are required to pay you, if any, at maturity. These events may include disruptions or suspensions of trading on the markets as a whole. We refer to each of these events individually as a market disruption event.

With respect to the Equity Index and any relevant successor index, a “**market disruption event**,” unless otherwise specified in the relevant terms supplement, means:

- the occurrence or existence of a suspension, absence or material limitation of trading of equity securities then constituting 20% or more of the level of the Equity Index (or the relevant successor index) on the relevant exchanges for such securities for more than two hours of trading during, or during the one hour period preceding the close of, the principal trading session on such relevant exchange;
- a breakdown or failure in the price and trade reporting systems of any relevant exchange as a result of which the reported trading prices for equity securities then constituting 20% or more of the level of the Equity Index (or the relevant successor index) during the one hour preceding the close of the principal trading session on such relevant exchange are materially inaccurate;
- the occurrence or existence of a suspension, absence or material limitation of trading on the primary exchange or market for trading in futures or options contracts related to the Equity Index (or the relevant successor index) for more than two hours of trading during, or during the one hour period preceding the close of, the principal trading session on such exchange or market; or

- a decision to permanently discontinue trading in the relevant futures or options contracts;

in each case as determined by the Note Calculation Agent in its sole discretion; and

- a determination by the Note Calculation Agent in its sole discretion that the applicable event described above materially interfered with our ability or the ability of any of our affiliates to adjust or unwind all or a material portion of any hedge with respect to the notes.

For purposes of determining whether a market disruption event with respect to the Equity Index (or the relevant successor index) exists at any time, if trading in a security included in the Equity Index (or the relevant successor index) is materially suspended or materially limited at that time, then the relevant percentage contribution of that security to the level of the Equity Index (or the relevant successor index) will be based on a comparison of:

- the portion of the level of the Equity Index (or the relevant successor index) attributable to that security relative to
- the overall level of the Equity Index (or the relevant successor index),

in each case immediately before that suspension or limitation.

For purposes of determining whether a market disruption event with respect to the Equity Index (or the relevant successor index) has occurred, unless otherwise specified in the relevant terms supplement:

- a limitation on the hours or number of days of trading will not constitute a market disruption event if it results from an announced change in the regular business hours of the relevant exchange, or the primary exchange or market for trading in futures or options contracts related to the Equity Index (or the relevant successor index);
- limitations pursuant to the rules of any relevant exchange similar to NYSE Rule 80B (or any applicable rule or regulation enacted or promulgated by any other self-regulatory organization or any government agency of scope similar to NYSE Rule 80B as determined by the Note Calculation Agent) on trading during significant market fluctuations will constitute a suspension, absence or material limitation of trading;
- a suspension of trading in futures or options contracts on the Equity Index (or the relevant successor index) by the primary exchange or market for trading in such contracts by reason of:
  - a price change exceeding limits set by such exchange or market,
  - an imbalance of orders relating to such contracts or
  - a disparity in bid and ask quotes relating to such contracts

will, in each such case, constitute a suspension, absence or material limitation of trading in futures or options contracts related to the Equity Index (or the relevant successor index); and

- a “suspension, absence or material limitation of trading” on any relevant exchange or on the primary exchange or market on which futures or options contracts related to the Equity Index (or the relevant successor index) are traded will not include any time when such exchange or market is itself closed for trading under ordinary circumstances.

With respect to the Volatility Index or any relevant successor index, a “**market disruption event**,” unless otherwise specified in the relevant terms supplement, means:

- the termination or suspension of, or material limitation or disruption in the trading of any relevant VIX futures contract on the relevant exchange, which will not include any time when such exchange is itself closed for trading under ordinary circumstances;
- the price at any time of any relevant VIX futures contract has increased or decreased by an amount equal to the maximum permitted price change set by the relevant exchange;
- a failure by the relevant exchange to calculate and publish the official settlement price or final settlement value, as applicable, of any relevant VIX futures contract on any day upon which the official settlement price or final settlement value, as applicable, of such futures contract is scheduled to be calculated and published by the relevant exchange;
- any event that disrupts or impairs the ability of market participants generally to effect transactions in or obtain market values for any relevant VIX futures contract;
- the closure by the relevant exchange on any day on which such relevant exchange is open for trading during its regular trading session prior to its scheduled closing time, unless such earlier closing time is announced by such relevant exchange at least one hour prior to the actual closing time for the regular trading session on such relevant exchange;
- the occurrence of a material change in the formula for or the method of calculating the official settlement price of any relevant VIX futures contract;
- the occurrence of a material change in the content, composition or constitution of any relevant VIX futures contract; or
- the failure of the Volatility Index Calculation Agent to calculate and publish the official closing level of the Volatility Index,

in each case as determined by the Note Calculation Agent in its sole discretion; and

- a determination by the Note Calculation Agent in its sole discretion that the applicable event described above materially interfered with our ability or the ability of any of our affiliates to adjust or unwind all or a material portion of any hedge with respect to the notes.

For purposes of determining whether a market disruption event with respect to the Volatility Index (or the relevant successor index) has occurred, unless otherwise specified in the relevant terms supplement, a limitation on the hours or number of days of trading will not constitute a market disruption event if it results from an announced change in the regular business hours of the relevant exchange.

#### **Discontinuation of an Index; Alteration of Method of Calculation**

If the sponsor of an Index (the “Index Sponsor”) discontinues publication of such Index and such Index Sponsor or another entity publishes a successor or substitute index that the Note Calculation Agent determines, in its sole discretion, to be comparable to the discontinued Index (such index being referred to herein as a “**successor index**”), then the closing level of such Index on any Index Valuation Date or any other relevant date on which the closing level of such Index is to be determined will be determined by reference to the level of such successor index at the close of trading on the relevant exchange for such successor index on such day.

Upon any selection by the Note Calculation Agent of a successor index, the Note Calculation Agent will cause written notice thereof to be promptly furnished to the trustee, to us and to the holders of the notes.

If the Index Sponsor discontinues publication of the Index prior to, and such discontinuation is continuing on, an Index Valuation Date or any other relevant date on which the closing level of the applicable Index is to be determined, and the Note Calculation Agent determines, in its sole discretion, that no successor index for such Index is available at such time, or the Note Calculation Agent has previously selected a successor index and publication of such successor index is discontinued prior to, and such discontinuation is continuing on, such Index Valuation Date or such other relevant date, then the Note Calculation Agent will determine the closing level of such Index for such date. The closing level of such Index will be computed by the Note Calculation Agent in accordance with the formula for and method of calculating such Index or successor index, as applicable, last in effect prior to such discontinuation, using (a) if such Index is the Equity Index, the closing price (or, if trading in the relevant securities has been materially suspended or materially limited, the Note Calculation Agent's good faith estimate of the closing price that would have prevailed but for such suspension or limitation) at the close of the principal trading session on such date of each security most recently composing the Equity Index or successor index, as applicable and (b) if such Index is the Volatility Index, the official settlement price (or, if trading in the relevant VIX futures contracts has been materially suspended or materially limited, the Note Calculation Agent's good faith estimate of the official settlement price that would have prevailed but for such suspension or limitation) at the close of the principal trading session on such date of each VIX futures contract most recently composing the Volatility Index or successor index, as applicable. Notwithstanding these alternative arrangements, discontinuation of the publication of an Index or its successor index, as applicable, may adversely affect the value of the notes.

If at any time the method of calculating an Index or a successor index, or the level thereof, is changed in a material respect, or if an Index or a successor index is in any other way modified (including, but not limited to, a change in the futures contracts that compose the Volatility Index or a successor index) so that such Index or such successor index does not, in the opinion of the Note Calculation Agent, fairly represent the level of such Index or such successor index had such changes or modifications not been made, then the Note Calculation Agent will, at the close of business in New York City on each date on which the closing level of such Index is to be determined, make such calculations and adjustments as, in the good faith judgment of the Note Calculation Agent, may be necessary in order to arrive at a level of an index comparable to such Index or such successor index, as the case may be, as if such changes or modifications had not been made, and the Note Calculation Agent will calculate the closing level of such Index with reference to such Index or such successor index, as adjusted. Accordingly, if the method of calculating such Index or such successor index is modified so that the level of such Index or such successor index is a fraction of what it would have been if there had been no such modification (*e.g.*, due to a split in such Index), then the Note Calculation Agent will adjust its calculation of such Index or such successor index in order to arrive at a level of such Index or such successor index as if there had been no such modification (*e.g.*, as if such split had not occurred).

### **Events of Default**

Under the heading "Description of Debt Securities — Events of Default and Waivers" in the accompanying prospectus is a description of events of default relating to debt securities including the notes.

### **Payment upon an Event of Default**

Unless otherwise specified in the relevant terms supplement, in case an event of default with respect to the notes shall have occurred and be continuing, the amount declared due and payable per \$1,000 principal amount note upon any acceleration of the notes will be determined by the Note Calculation Agent and will be an amount in cash equal to the amount payable at maturity per \$1,000



principal amount note as described under the caption “Description of Notes — Payment at Maturity,” calculated as if the date of acceleration were the final Index Valuation Date, unless otherwise specified in the relevant terms supplement. If the notes have more than one Index Valuation Date, then, for each Index Valuation Date scheduled to occur after the date of acceleration, the trading days immediately preceding the date of acceleration (in such number equal to the number of Index Valuation Dates in excess of one) will be the corresponding Index Valuation Dates, unless otherwise specified in the relevant terms supplement.

If the maturity of the notes is accelerated because of an event of default as described above, we will, or will cause the Note Calculation Agent to, provide written notice to the trustee at its New York office, on which notice the trustee may conclusively rely, and to DTC of the cash amount due with respect to the notes as promptly as possible and in no event later than two business days after the date of acceleration.

### **Modification**

Under the heading “Description of Debt Securities — Modification of the Indenture” in the accompanying prospectus is a description of when the consent of each affected holder of debt securities is required to modify the indenture.

### **Defeasance**

The provisions described in the accompanying prospectus under the heading “Description of Debt Securities — Discharge, Defeasance and Covenant Defeasance” are not applicable to the notes, unless otherwise specified in the relevant terms supplement.

### **Listing**

The notes will not be listed on any securities exchange, unless otherwise specified in the relevant terms supplement.

### **Book-Entry Only Issuance — The Depository Trust Company**

DTC will act as securities depository for the notes. The notes will be issued only as fully-registered securities registered in the name of Cede & Co. (DTC’s nominee). One or more fully-registered global notes certificates, representing the total aggregate principal amount of the notes, will be issued and will be deposited with DTC. See the descriptions contained in the accompanying prospectus supplement under the headings “Description of Notes — Forms of Notes” and “The Depository.”

### **Registrar, Transfer Agent and Paying Agent**

Payment of amounts due at maturity on the notes will be payable and the transfer of the notes will be registrable at the principal corporate trust office of The Bank of New York Mellon in The City of New York.

The Bank of New York Mellon or one of its affiliates will act as registrar and transfer agent for the notes. The Bank of New York Mellon will also act as paying agent and may designate additional paying agents.

Registration of transfers of the notes will be effected without charge by or on behalf of The Bank of New York Mellon, but upon payment (with the giving of such indemnity as The Bank of New York Mellon may require) in respect of any tax or other governmental charges that may be imposed in relation to it.

### **Governing Law**

The notes will be governed by and interpreted in accordance with the laws of the State of New York.

## CERTAIN U.S. FEDERAL INCOME TAX CONSEQUENCES

The following is a summary of the material U.S. federal income tax consequences of the ownership and disposition of the notes. This summary applies to you if you are an initial holder of a note purchasing the note at its issue price for cash and if you hold the note as a capital asset within the meaning of Section 1221 of the Internal Revenue Code of 1986, as amended (the "Code").

This summary does not address all aspects of U.S. federal income and estate taxation that may be relevant to you in light of your particular circumstances or if you are a holder of a note who is subject to special treatment under the U.S. federal income tax laws, such as:

- a financial institution;
- a "regulated investment company" as defined in Code Section 851;
- a "real estate investment trust" as defined in Code Section 856;
- a tax-exempt entity, including an "individual retirement account" or "Roth IRA" as defined in Code Section 408 or 408A, respectively;
- a dealer in securities;
- a person holding a note as part of a hedging transaction, "straddle," conversion transaction or integrated transaction, or who has entered into a "constructive sale" with respect to a note;
- a U.S. Holder (as defined below) whose functional currency is not the U.S. dollar;
- a trader in securities who elects to apply a mark-to-market method of tax accounting; or
- a partnership or other entity classified as a partnership for U.S. federal income tax purposes.

This summary is based on the Code, administrative pronouncements, judicial decisions and final, temporary and proposed Treasury regulations as of the date of this product supplement, changes to any of which, subsequent to the date of this product supplement, may affect the tax consequences described herein. As the law applicable to the U.S. federal income taxation of instruments such as the notes is technical and complex, the discussion below necessarily represents only a general summary. Moreover, the effects of any applicable state, local or foreign tax laws are not discussed. **You should consult your tax adviser concerning the application of U.S. federal income and estate tax laws to your particular situation (including the possibility of alternative characterizations of the notes), as well as any tax consequences arising under the laws of any state, local or foreign jurisdictions.**

### Tax Treatment of the Notes

The tax consequences of an investment in the notes are unclear. There is no direct legal authority as to the proper U.S. federal income tax characterization of the notes, and we do not intend to request a ruling from the IRS regarding the notes. We intend to seek an opinion from Davis Polk & Wardwell LLP, our special tax counsel, which will be based upon the terms of the notes at the time of the relevant offering and certain factual representations to be received from us, regarding the treatment of the notes as "open transactions" for U.S. federal income tax purposes. Whether our special tax counsel expresses an opinion regarding the characterization of the notes will be indicated in the relevant terms supplement. In either case, we and you will agree to treat the notes for U.S. federal income tax purposes as "open transactions." While other characterizations of the notes could be asserted by the IRS, as discussed below, the following discussion assumes that the notes are treated for U.S. federal income tax purposes as "open transactions" and not as debt instruments, unless otherwise indicated.

In general, we will not attempt to ascertain whether any of the issuers of the component stocks of the Equity Index would be treated as a "passive foreign investment company" ("PFIC") within the meaning of Section 1297 of the Code or as a "United States real property holding corporation" ("USRPHC") within the meaning of Section 897 of the Code. If any of the issuers of the component stocks were so treated, certain adverse U.S. federal income tax consequences might apply, to a U.S. Holder in the case of a PFIC and to a Non-U.S. Holder in the case of a USRPHC, upon the sale or exchange of a note (including redemption of a note at maturity). You should refer to information filed with the relevant governmental authority by the issuers of the component stocks and consult your tax adviser regarding the possible consequences to you if any of the issuers of the component stocks is or becomes a PFIC or USRPHC, as applicable. Depending on the nature of the component stocks in a particular offering, the relevant terms supplement may include further disclosure regarding these issues. In addition, it is possible, due to the nature of the component stocks of the Equity Index, that a particular offering of notes could under current law constitute "constructive ownership transactions" within the meaning of Section 1260 of the Code. Section 1260 very generally operates to recharacterize certain long-term capital gain as ordinary income and impose an interest charge. In this event, the relevant terms supplement will include disclosure regarding that issue. The remainder of this discussion assumes that the notes are not subject to the constructive ownership rules.

### **Tax Consequences to U.S. Holders**

You are a "U.S. Holder" if for U.S. federal income tax purposes you are a beneficial owner of a note that is:

- a citizen or resident of the United States;
- a corporation created or organized in or under the laws of the United States, any state or the District of Columbia; or
- an estate or trust the income of which is subject to U.S. federal income taxation regardless of its source.

### ***Tax Treatment of the Notes***

*Tax Treatment Prior to Maturity.* You should not recognize taxable income or loss over the term of the notes prior to maturity, other than pursuant to a sale, exchange or "deemed exchange" as described below.

*Sale, Exchange or Redemption of a Note.* Upon a sale or exchange of a note (including redemption at maturity), you should recognize capital gain or loss equal to the difference between the amount realized on the sale or exchange and your tax basis in the note, which should equal the amount you paid to acquire the note. This gain or loss should be long-term capital gain or loss if you have held the note for more than one year at that time. The deductibility of capital losses, however, is subject to limitations.

Because the notes are linked to the Volatility Index, the IRS could assert that a "deemed" taxable exchange has occurred on one or more rebalancing days under certain unexpected circumstances. If the IRS were successful in asserting that a taxable exchange has occurred, you could be required to recognize gain (but probably not loss), which would equal the amount by which the fair market value of the note exceeds your tax basis therein on the relevant rebalancing day. Any deemed exchange gain should be capital gain. You should consult your tax adviser regarding the possible U.S. federal income tax consequences of rebalancings.

### ***Possible Alternative Tax Treatments of an Investment in the Notes***

Due to the absence of authorities that directly address the proper characterization of the notes and because we are not requesting a ruling from the IRS with respect to the notes, no assurance can be given that the IRS will accept, or that a court will uphold, the characterization and tax treatment of the notes described above. If the IRS were successful in asserting an alternative characterization or treatment of the notes, the timing and character of income on the notes could differ materially and adversely from our description herein. For example, the IRS might treat the notes as debt instruments issued by us, in which event the taxation of the notes would be governed by certain Treasury regulations relating to the taxation of "contingent payment debt instruments" if the term of the notes from issue to maturity (including the last possible date that the notes could be outstanding) is more than one year. In this event, regardless of whether you are an accrual-method or cash-method taxpayer, you would be required to accrue into income original issue discount on your notes at our "comparable yield" for similar noncontingent debt, determined at the time of the issuance of the notes, in each year that you hold your notes (even though you will not receive any cash with respect to the notes prior to maturity) and any income recognized upon a sale or exchange of your notes (including redemption at maturity) would generally be treated as interest income. Additionally, if you were to recognize a loss above certain thresholds, you could be required to file a disclosure statement with the IRS.

Other alternative U.S. federal income tax characterizations of the notes might also require you to include amounts in income during the term of your notes and/or might treat all or a portion of the gain or loss on the sale or exchange of your notes (including redemption at maturity) as ordinary income or loss or as short-term capital gain or loss, without regard to how long you held your notes. In addition, in 2007 Treasury and the IRS released a notice requesting comments on the U.S. federal income tax treatment of "prepaid forward contracts" and similar instruments, which might include the notes. The notice focuses in particular on whether to require holders of these instruments to accrue income over the term of their investment. It also asks for comments on a number of related topics, including the character of income or loss with respect to these instruments; the relevance of factors such as the nature of the underlying property to which the instruments are linked; and whether these instruments are or should be subject to the "constructive ownership" regime described above. While the notice requests comments on appropriate transition rules and effective dates, any Treasury regulations or other guidance promulgated after consideration of these issues could materially and adversely affect the tax consequences of an investment in the notes, possibly with retroactive effect. You should consult your tax adviser regarding the U.S. federal income tax consequences of an investment in the notes, including possible alternative treatments and the issues presented by this notice.

### **Tax Consequences to Non-U.S. Holders**

You are a "Non-U.S. Holder" if for U.S. federal income tax purposes you are a beneficial owner of a note that is:

- a nonresident alien individual;
- a foreign corporation; or
- a foreign estate or trust.

You are not a "Non-U.S. Holder" for purposes of this discussion if you are an individual present in the United States for 183 days or more in the taxable year of disposition. In this case, you should consult your tax adviser regarding the U.S. federal income tax consequences of the sale or exchange of a note (including redemption at maturity).

If you are a Non-U.S. Holder of a note and if the characterization of the notes as “open transactions” is respected, any income or gain from the note should not be subject to U.S. federal income or withholding tax unless it is effectively connected with your conduct of a U.S. trade or business. However, among the issues addressed in the notice described above in “—Tax Consequences to U.S. Holders—Possible Alternative Tax Treatments of an Investment in the Notes” is the degree, if any, to which income with respect to instruments described therein, which might include the notes, should be subject to U.S. withholding tax. It is possible that any Treasury regulations or other guidance promulgated after consideration of these issues could materially and adversely affect the withholding tax consequences of an investment in the notes, possibly with retroactive effect.

If the notes were recharacterized as indebtedness, any income or gain from a note nonetheless would not be subject to U.S. withholding tax, provided generally that the certification requirement described below has been fulfilled. Because the characterization of the notes is unclear, payments made to you with respect to a note may be withheld upon at a rate of 30% unless you have certified on IRS Form W-8BEN, under penalties of perjury, that you are not a United States person and provided your name and address or otherwise satisfied applicable documentation requirements.

If you are engaged in a U.S. trade or business, and if income or gain from a note is effectively connected with your conduct of that trade or business, although exempt from the withholding tax discussed above, you will generally be taxed in the same manner as a U.S. Holder, except that in lieu of the certificate described in the preceding paragraph, you will be required to provide a properly executed IRS Form W-8ECI in order to claim an exemption from withholding. If this paragraph applies to you, you should consult your tax adviser with respect to other U.S. tax consequences of the ownership and disposition of notes, including the possible imposition of a 30% branch profits tax if you are a corporation.

### ***Federal Estate Tax***

Individual Non-U.S. Holders, and entities the property of which is potentially includible in those individuals’ gross estates for U.S. federal estate tax purposes (for example, a trust funded by such an individual and with respect to which the individual has retained certain interests or powers), should note that, absent an applicable treaty benefit, a note is likely to be treated as U.S. situs property, subject to U.S. federal estate tax. These individuals and entities should consult their tax advisers regarding the U.S. federal estate tax consequences of investing in a note.

### **Backup Withholding and Information Reporting**

You may be subject to information reporting, and you may also be subject to backup withholding at the rates specified in the Code on the amounts paid to you unless you provide proof of an applicable exemption or a correct taxpayer identification number and otherwise comply with applicable requirements of the backup withholding rules. If you are a Non-U.S. Holder, you will not be subject to backup withholding if you comply with the certification procedures described in the preceding section. Amounts withheld under the backup withholding rules are not additional taxes and may be refunded or credited against your U.S. federal income tax liability, provided the required information is furnished to the IRS.

**THE TAX CONSEQUENCES TO YOU OF OWNING AND DISPOSING OF NOTES ARE UNCLEAR. YOU SHOULD CONSULT YOUR TAX ADVISER REGARDING THE TAX CONSEQUENCES OF OWNING AND DISPOSING OF NOTES, INCLUDING THE TAX CONSEQUENCES UNDER STATE, LOCAL, FOREIGN AND OTHER TAX LAWS AND THE POSSIBLE EFFECTS OF CHANGES IN U.S. FEDERAL OR OTHER TAX LAWS.**

## PLAN OF DISTRIBUTION (CONFLICTS OF INTEREST)

Under the terms and subject to the conditions contained in the Master Agency Agreement entered into between JPMorgan Chase & Co. and J.P. Morgan Securities LLC, as agent (an "Agent" or "JPMS"), and certain other agents that may be party to the Master Agency Agreement, as amended or supplemented, from time to time (each an "Agent" and collectively with JPMS, the "Agents"), JPMS has agreed and any additional Agents will agree to use reasonable efforts to solicit offers to purchase the principal amount of notes set forth in the cover page of the relevant terms supplement. We will have the sole right to accept offers to purchase the notes and may reject any offer in whole or in part. Each Agent may reject, in whole or in part, any offer it solicited to purchase notes. We will pay an Agent, in connection with sales of these notes resulting from a solicitation that Agent made or an offer to purchase the Agent received, a commission as set forth in the relevant terms supplement. An Agent will allow a concession to other dealers, or we may pay other fees, in the amount set forth on the cover page of the relevant terms supplement.

We may also sell notes to an Agent as principal for its own account at discounts to be agreed upon at the time of sale as disclosed in the relevant terms supplement. That Agent may resell notes to investors and other purchasers at a fixed offering price or at prevailing market prices, or prices related thereto at the time of resale or otherwise, as that Agent determines and as we will specify in the relevant terms supplement. An Agent may offer the notes it has purchased as principal to other dealers. That Agent may sell the notes to any dealer at a discount and, unless otherwise specified in the relevant terms supplement, the discount allowed to any dealer will not be in excess of the discount that Agent will receive from us. After the initial public offering of notes that the Agent is to resell on a fixed public offering price basis, the Agent may change the public offering price, concession and discount.

Unless otherwise specified in the relevant terms supplement, JPMS, as an Agent, will receive the aggregate profits generated from the deduction of the volatility index fee of 0.75% per annum to cover ongoing payments related to the distribution of the notes and as a structuring fee for developing the notes. A portion of such profits may be used to allow selling concessions to other dealers.

Payments constituting underwriting compensation will not exceed a total of 8% of offering proceeds.

We own, directly or indirectly, all of the outstanding equity securities of JPMS. The net proceeds received from the sale of the notes will be used, in part, by JPMS or one of its affiliates in connection with hedging our obligations under the notes. The underwriting arrangements for this offering will comply with the requirements of FINRA Rule 5121 regarding a FINRA member firm's underwriting of securities of an affiliate. In accordance with FINRA Rule 5121, neither JPMS nor any other affiliated Agent of ours may make sales in this offering to any of its discretionary accounts without the prior written approval of the customer.

JPMS or another Agent may act as principal or agent in connection with offers and sales of the notes in the secondary market. Secondary market offers and sales will be made at prices related to market prices at the time of such offer or sale; accordingly, the Agents or a dealer may change the public offering price, concession and discount after the offering has been completed.

In order to facilitate the offering of the notes, JPMS may engage in transactions that stabilize, maintain or otherwise affect the price of the notes. Specifically, JPMS may sell more notes than it is obligated to purchase in connection with the offering, creating a naked short position in the notes for its own account. JPMS must close out any naked short position by purchasing the notes in the open market. A naked short position is more likely to be created if JPMS is concerned that there may be downward pressure on the price of the notes in the open market after pricing that could adversely affect investors who purchase in the offering. As an additional means of facilitating the offering, JPMS may bid for, and purchase, notes in the open market to stabilize the price of the notes. Any of these activities may raise or maintain the market price of the notes above independent market levels or prevent or retard a decline in the market price of the notes. JPMS is not required to engage in these activities, and may end any of these activities at any time.

No action has been or will be taken by us, JPMS or any dealer that would permit a public offering of the notes or possession or distribution of this product supplement no. 214-A-I, any related index supplement or the accompanying prospectus supplement, prospectus or terms supplement, other than in the United States, where action for that purpose is required. No offers, sales or deliveries of the notes, or distribution of this product supplement no. 214-A-I, any related index supplement or the accompanying prospectus supplement, prospectus or terms supplement or any other offering material relating to the notes, may be made in or from any jurisdiction except in circumstances which will result in compliance with any applicable laws and regulations and will not impose any obligations on us, the Agents or any dealer.

Each Agent has represented and agreed, and each dealer through which we may offer the notes has represented and agreed, that it (i) will comply with all applicable laws and regulations in force in each non-U.S. jurisdiction in which it purchases, offers, sells or delivers the notes or possesses or distributes this product supplement no. 214-A-I, any related index supplement and the accompanying prospectus supplement, prospectus and terms supplement and (ii) will obtain any consent, approval or permission required by it for the purchase, offer or sale by it of the notes under the laws and regulations in force in each non-U.S. jurisdiction to which it is subject or in which it makes purchases, offers or sales of the notes. We shall not have responsibility for any Agent's or any dealer's compliance with the applicable laws and regulations or obtaining any required consent, approval or permission. For additional information regarding selling restrictions, please see "Notice to Investors" in this product supplement.

Unless otherwise specified in the relevant terms supplement, the settlement date for the notes will be the third business day following the pricing date (which is referred to as a "T+3" settlement cycle).

## NOTICE TO INVESTORS

We are offering to sell, and are seeking offers to buy, the notes only in jurisdictions where offers and sales are permitted. Neither this product supplement no. 214-A-I nor any related index supplement, the accompanying prospectus supplement, prospectus or terms supplement constitutes an offer to sell, or a solicitation of an offer to buy, any notes by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation. Neither the delivery of this product supplement no. 214-A-I nor any related index supplement, the accompanying prospectus supplement, prospectus or terms supplement nor any sale made hereunder implies that there has been no change in our affairs or that the information in this product supplement no. 214-A-I, any related index supplement and the accompanying prospectus supplement, prospectus and terms supplement is correct as of any date after the date hereof.

You must (i) comply with all applicable laws and regulations in force in any jurisdiction in connection with the possession or distribution of this product supplement no. 214-A-I, any related index supplement and the accompanying prospectus supplement, prospectus and terms supplement and the purchase, offer or sale of the notes and (ii) obtain any consent, approval or permission required to be obtained by you for the purchase, offer or sale by you of the notes under the laws and regulations applicable to you in force in any jurisdiction to which you are subject or in which you make such purchases, offers or sales.

### Argentina

The notes have not been and will not be authorized by the *Comisión Nacional de Valores* (the "CNV") for public offer in Argentina and therefore may not be offered or sold to the public at large or to sectors or specific groups thereof by any means, including but not limited to personal offerings, written materials, advertisements, the internet or the media, in circumstances which constitute a public offering of securities under Argentine Law No. 17,811, as amended (the "Argentine Public Offering Law").

The Argentine Public Offering Law does not expressly recognize the concept of private placement. Notwithstanding the foregoing, pursuant to the general rules on public offering and the few existing judicial and administrative precedents, the following private placement rules have been outlined:

- (i) Target investors should be qualified or sophisticated investors, capable of understanding the risk of the proposed investment.
- (ii) Investors should be contacted on an individual, direct and confidential basis, without using any type of massive means of communication.
- (iii) The number of contacted investors should be relatively small.
- (iv) Investors should receive complete and precise information on the proposed investment.
- (v) Any material, brochures, documents, etc, regarding the investment should be delivered in a personal and confidential manner, identifying the name of the recipient.
- (vi) The documents or information mentioned in item (v) should contain a legend or statement expressly stating that the offer is a private offer not subject to the approval or supervision of the CNV, or any other regulator in Argentina.
- (vii) The aforementioned documents or materials should also contain a statement prohibiting the re-sale or re-placement of the relevant securities within the Argentine territory or their sale through any type of transaction that may constitute a public offering of securities pursuant to Argentine law.



## **The Bahamas**

The notes have not been and shall not be offered or sold in or into The Bahamas except in circumstances that do not constitute a 'public offering' according to the Securities Industry Act, 1999.

The offer of the notes, directly or indirectly, in or from within The Bahamas may only be made by an entity or person who is licensed as a Broker Dealer by the Securities Commission of The Bahamas.

Persons deemed "resident" in The Bahamas pursuant to the Exchange Control Regulations, 1956 must receive the prior approval of the Central Bank of The Bahamas prior to accepting an offer to purchase any notes.

## **Bermuda**

This product supplement no. 214-A-I, any related index supplement and the accompanying prospectus supplement, prospectus and terms supplement have not been registered or filed with any regulatory authority in Bermuda. The offering of the notes pursuant to this product supplement no. 214-A-I, any related index supplement, and the accompanying prospectus supplement, prospectus and any terms supplement to persons resident in Bermuda is not prohibited, *provided* we are not thereby carrying on business in Bermuda.

## **Brazil**

The notes have not been and will not be registered with the "*Comissão de Valores Mobiliários*" – the Brazilian Securities and Exchange Commission ("CVM") and accordingly, the notes may not and will not be sold, promised to be sold, offered, solicited, advertised and/or marketed within the Federal Republic of Brazil, except in circumstances that cannot be construed as a public offering or unauthorized distribution of securities under Brazilian laws and regulations. The notes are not being offered into Brazil. Documents relating to an offering of the notes, as well as the information contained herein and therein, may not be supplied or distributed to the public in Brazil nor be used in connection with any offer for subscription or sale of the notes to the public in Brazil.

## **British Virgin Islands**

The notes may not be offered in the British Virgin Islands unless we or the person offering the notes on our behalf is licensed to carry on business in the British Virgin Islands. We are not licensed to carry on business in the British Virgin Islands. The notes may be offered to British Virgin Islands "business companies" (from outside the British Virgin Islands) without restriction. A British Virgin Islands "business company" is a company formed under or otherwise governed by the BVI Business Companies Act, 2004 (British Virgin Islands).

## **Cayman Islands**

This product supplement no. 214-A-I, any related index supplement and the accompanying prospectus supplement, prospectus and terms supplement, and the notes offered hereby and thereby have not been, and will not be, registered under the laws and regulations of the Cayman Islands, nor has any regulatory authority in the Cayman Islands passed comment upon or approved the accuracy or adequacy of this product supplement no. 214-A-I, any related index supplement and the accompanying prospectus supplement, prospectus and terms supplement. The notes have not been, and will not be, offered or sold, directly or indirectly, in the Cayman Islands.

## **Chile**

None of the Agents, we or the notes have been registered with the *Superintendencia de Valores y Seguros de Chile* (Chilean Securities and Insurance Commission) pursuant to *Ley No. 18,045 de Mercado de Valores* (the "Chilean Securities Act"), as amended, of the Republic of Chile and, accordingly, the notes have not been and will not be offered or sold within Chile or to, or for the account of benefit of persons in Chile except in circumstances which have not resulted and will not result in a public offering and/or securities intermediation in Chile within the meaning of the Chilean Securities Act.

None of the Agents is a bank or a licensed broker in Chile, and therefore each Agent has not and will not conduct transactions or any business operations in any of such qualities, including the marketing, offer and sale of the notes, except in circumstances which have not resulted and will not result in a "public offering" as such term is defined in Article 4 of the Chilean Securities Act, and/or have not resulted and will not result in the intermediation of securities in Chile within the meaning of Article 24 of the Chilean Securities Act and/or the breach of the brokerage restrictions set forth in Article 39 of Decree with Force of Law No. 3 of 1997.

The notes will only be sold to specific buyers, each of which will be deemed upon purchase:

- (i) to be a financial institution and/or an institutional investor or a qualified investor with such knowledge and experience in financial and business matters as to be capable of evaluating the risks and merits of an investment in the notes;
- (ii) to agree that it will only resell the notes in the Republic of Chile in compliance with all applicable laws and regulations; and that it will deliver to each person to whom the notes are transferred a notice substantially to the effect of this selling restriction;
- (iii) to acknowledge receipt of sufficient information required to make an informed decision whether or not to invest in the notes; and
- (iv) to acknowledge that it has not relied upon advice from any Agent and/or us, or its or our respective affiliates, regarding the determination of the convenience or suitability of notes as an investment for the buyer or any other person; and has taken and relied upon independent legal, regulatory, tax and accounting advice.

## **Colombia**

The notes have not been and will not be registered in the National Securities Registry of Colombia (*Registro Nacional de Valores y Emisores*) kept by the Colombian Financial Superintendency (*Superintendencia Financiera de Colombia*) or in the Colombian Stock Exchange (*Bolsa de Valores de Colombia*).

Therefore, the notes shall not be marketed, offered, sold or distributed in Colombia or to Colombian residents in any manner that would be characterized as a public offering, as such is defined in article 1.2.1.1 of Resolution 400, issued on May 22, 1995 by the Securities Superintendency General Commission (*Sala General de la Superintendencia de Valores*), as amended from time to time.

If the notes are to be marketed within Colombian territory or to Colombian residents, regardless of the number of persons to which said marketing is addressed to, any such promotion or advertisement of the notes must be made through a local financial entity, a representative's office, or a local correspondent, in accordance with Decree 2558, issued on June 6, 2007 by the Ministry of Finance and Public Credit of Colombia, as amended from time to time.

Therefore, the notes should not be marketed within Colombian territory or to Colombian residents, by any given means, that may be considered as being addressed to an indeterminate number of persons or to more than ninety-nine (99) persons, including but not limited to: (i) any written material or other means of communication, such as subscription lists, bulletins, pamphlets or advertisements; (ii) any offer or sale of the notes at offices or branches open to the public; (iii) use of any oral or written advertisements, letters, announcements, notices or any other means of communication that may be perceived to be addressed to an indeterminate number of persons for the purpose of marketing and/or offering the notes; or (iv) use (a) non-solicited emails or (b) email distribution lists to market the notes.

## **El Salvador**

The notes may not be offered to the general public in El Salvador, and according to Article 2 of the *Ley de Mercado de Valores* (Securities Market Law) of the Republic of El Salvador, Legislative Decree number 809 dated 16 February 1994, published on the *Diario Oficial* (Official Gazette) number 73-BIS,

Number 323, dated 21 April 1994, and in compliance with the aforementioned regulation, each Agent has represented and agreed that it will not make an invitation for subscription or purchase of the notes to indeterminate individuals, nor will it make known this product supplement no. 214-A-I, any related index supplement and the accompanying prospectus supplement, prospectus and terms supplement in the territory of El Salvador through any mass media communication such as television, radio, press, or any similar medium, other than publications of an international nature that are received in El Salvador, such as internet access or foreign cable advertisements, which are not directed to the Salvadoran public. The offering of the notes has not been registered with an authorized stock exchange in the Republic of El Salvador. Any negotiation for the purchase or sale of notes in the Republic of El Salvador shall only be negotiated on an individual basis with determinate individuals or entities in strict compliance with the aforementioned Article 2 of the Salvadoran Securities Market Law, and shall in any event be effected in accordance with all securities, tax and exchange control of the Dominican Republic, Central America, and United States Free Trade Agreements, and other applicable laws or regulations of the Republic of El Salvador.

### **European Economic Area**

In relation to each Member State of the European Economic Area which has implemented the Prospectus Directive (each, a "Relevant Member State"), each Agent has represented and agreed that with effect from and including the date on which the Prospectus Directive is implemented in that Relevant Member State (the "Relevant Implementation Date") it has not made and will not make an offer of notes which are the subject of the offering contemplated by this product supplement no. 214-A-I and the accompanying prospectus, prospectus supplement and terms supplement to the public in that Relevant Member State prior to the publication of a prospectus in relation to the notes which has been approved by the competent authority in that Relevant Member State or, where appropriate, approved in another Relevant Member State and notified to the competent authority in that Relevant Member State, all in accordance with the Prospectus Directive except that it may, with effect from and including the Relevant Implementation Date, make an offer of such notes to the public in that Relevant Member State:

- (a) at any time to legal entities which are authorized or regulated to operate in the financial markets or, if not so authorized or regulated, whose corporate purpose is solely to invest in securities;
- (b) at any time to any legal entity which has two or more of (1) an average of at least 250 employees during the last financial year; (2) a total balance sheet of more than €43,000,000; and (3) an annual net turnover of more than €50,000,000, as shown in its last annual or consolidated accounts;
- (c) to fewer than 100 natural or legal persons (other than qualified investors as defined in the Prospectus Directive) subject to obtaining the prior consent of the Agent; or
- (d) at any time in any other circumstances which do not require the publication by us of a prospectus pursuant to Article 3 of the Prospectus Directive.

For the purposes of this provision, the expression an "offer of notes to the public" in relation to any notes in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and the notes to be offered so as to enable an investor to decide to purchase or subscribe the notes, as the same may be varied in that Member State by any measure implementing the Prospectus Directive in that Member State and the expression "Prospectus Directive" means Directive 2003/71/EC and includes any relevant implementing measure in each Relevant Member State.

This European Economic Area selling restriction is in addition to any other selling restrictions set out herein.

## **Hong Kong**

The notes may not be offered or sold in Hong Kong, by means of any document, other than to persons whose ordinary business it is to buy or sell shares or debentures, whether as principal or agent, or in circumstances that do not constitute an offer to the public within the meaning of the Companies Ordinance (Cap. 32) of Hong Kong. Each Agent has not issued and will not issue any advertisement, invitation or document relating to the notes, whether in Hong Kong or elsewhere, which is directed at, or the contents of which are likely to be accessed or read by, the public in Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to notes which are intended to be disposed of only to persons outside Hong Kong or only to “professional investors” within the meaning of the Securities and Futures Ordinance (Cap. 571) of Hong Kong and any rules made thereunder.

## **Jersey**

Each Agent has represented to and agreed with us that it will not circulate in Jersey any offer for subscription, sale or exchange of any notes which would constitute an offer to the public for the purposes of Article 8 of the Control of Borrowing (Jersey) Order 1958.

## **Mexico**

The notes have not been, and will not be, registered with the Mexican National Registry of Securities maintained by the Mexican National Banking and Securities Commission nor with the Mexican Stock Exchange and therefore, may not be offered or sold publicly in the United Mexican States. This product supplement no. 214-A-I, any related index supplement and the accompanying prospectus supplement, prospectus and terms supplement may not be publicly distributed in the United Mexican States. The notes may be privately placed in Mexico among institutional and qualified investors, pursuant to the private placement exemption set forth in Article 8 of the Mexican Securities Market Law.

## **The Netherlands**

An offer to the public of any notes which are the subject of the offering and placement contemplated by this product supplement no. 214-A-I, any related index supplement and the accompanying prospectus supplement, prospectus and terms supplement may not be made in The Netherlands and each Agent has represented and agreed that it has not made and will not make an offer of such notes to the public in The Netherlands, unless such an offer is made exclusively to one or more of the following categories of investors in accordance with the Dutch Financial Markets Supervision Act (*Wet op het financieel toezicht*, the “FMSA”):

1. Regulated Entities: (a) any person or entity who or which is subject to supervision by a regulatory authority in any country in order to lawfully operate in the financial markets (which includes: credit institutions, investment firms, financial institutions, insurance companies, collective investment schemes and their management companies, pension funds and their management companies, commodity dealers) (“Supervised Entities”); and (b) any person or entity who or which engages in a regulated activity on the financial markets but who or which is not subject to supervision by a regulatory authority because it benefits from an exemption or dispensation (“Exempt Entities”);
2. Investment Funds and Entities: any entity whose corporate purpose is solely to invest in securities (which includes, without limitation, hedge funds);
3. Governmental institutions: the Dutch State, the Dutch Central Bank, Dutch regional, local or other decentralized governmental institutions, international treaty organizations and supranational organizations;
4. Self-certified Small and Medium-Sized Enterprises (“SMEs”): any company having its registered office in The Netherlands which does not meet at least two of the three criteria mentioned in (6) below and which has (a) expressly requested the Netherlands Authority for the Financial Markets (the “AFM”) to be considered as a qualified investor, and (b) been entered on the register of qualified investors maintained by the AFM;

5. Self-certified Natural Persons: any natural person who is resident in The Netherlands if this person meets at least two (2) of the following criteria:
- (i) the investor has carried out transactions of a significant size on securities markets at an average frequency of, at least, ten (10) per quarter over the previous four (4) quarters;
  - (ii) the size of the investor's securities portfolio exceeds €500,000;
  - (iii) the investor works or has worked for at least one (1) year in the financial sector in a professional position which requires knowledge of investment in securities,

*provided* this person has:

- (a) expressly requested the AFM to be considered as a qualified investor; and
  - (b) been entered on the register of qualified investors maintained by the AFM;
6. Large Enterprises: any company or legal entity which meets at least two of the following three criteria according to its most recent consolidated or non-consolidated annual accounts:
- (a) an average number of employees during the financial year of at least 250;
  - (b) total assets of at least €43,000,000; or
  - (c) an annual net turnover of at least €50,000,000.
7. Discretionary individual portfolio managers: any portfolio manager in The Netherlands who or which purchases the notes for the account of clients who are not Qualified Investors on the basis of a contract of agency that allows for making investment decisions on the client's behalf without specific instructions of or consultation with any such client;
8. Minimum consideration: any person or entity for a minimum consideration of €50,000 or more (or equivalent in foreign currency) for each offer of notes; or
9. Fewer than 100 Offerees: fewer than 100 natural or legal persons (other than Qualified Investors).

For the purposes of this provision, the expression:

- (a) an "offer to the public" in relation to any notes means making a sufficiently determined offer as meant in Section 217(1) of Book 6 of the Dutch Civil Code (*Burgerlijk Wetboek*) addressed to more than one person to conclude a contract to purchase or otherwise acquire notes, or inviting persons to make an offer in respect of such notes;
- (b) "Qualified Investors" means the categories of investors listed under (1) up to and including (6) above.

Zero Coupon Notes may not, directly or indirectly, as part of their initial distribution (or immediately thereafter) or as part of any re-offering be offered, sold, transferred or delivered in The Netherlands. For purposes of this paragraph "Zero Coupon Notes" are notes (whether in definitive or in global form) that are in bearer form and that constitute a claim for a fixed sum against us and on which interest does not become due prior to maturity or on which no interest is due whatsoever.

## **Panama**

The notes have not been and will not be registered with the National Securities Commission of the Republic of Panama under Decree Law No. 1 of July 8, 1999 (the "Panamanian Securities Law") and may not be publicly offered or sold within Panama, except in certain limited transactions exempt from the registration requirements of the Panamanian Securities Law. The notes do not benefit from the tax incentives provided by the Panamanian Securities Law and are not subject to regulation or supervision by the National Securities Commission of the Republic of Panama.

## Peru

The notes have been and will be offered only to institutional investors (as defined by the Peruvian Securities Market Law – “*Ley de Mercado de Valores*” enacted by Legislative Decree No. 861 – Unified Text of the Law approved by Supreme Decree No. 093-2002-EF) and not to the public in general or a segment of it. The placement of the notes shall comply with article 5 of the Peruvian Securities Market Law.

## Singapore

None of this product supplement no. 214-A-I nor any related index supplement nor the accompanying prospectus supplement, prospectus or terms supplement has been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this product supplement no. 214-A-I, any related index supplement, the accompanying prospectus supplement, prospectus or terms supplement, and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the notes may not be circulated or distributed, nor may the notes be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore (the “SFA”), (ii) to a relevant person, or any person pursuant to Section 275(1A), and in accordance with the conditions, specified in Section 275 of the SFA or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

## Switzerland

The notes have not been and will not be offered or sold, directly or indirectly, to the public in Switzerland, and this product supplement no. 214-A-I, any related index supplement and the accompanying prospectus supplement, prospectus and terms supplement do not constitute a public offering prospectus as that term is understood pursuant to article 652a or article 1156 of the Swiss Federal Code of Obligations.

We have not applied for a listing of the notes on the SWX Swiss Exchange or on any other regulated securities market and, consequently, the information presented in this product supplement no. 214-A-I, any related index supplement and the accompanying prospectus supplement, prospectus and terms supplement does not necessarily comply with the information standards set out in the relevant listing rules.

The notes do not constitute a participation in a collective investment scheme in the meaning of the Swiss Federal Act on Collective Investment Schemes and are not licensed by the Swiss Federal Banking Commission. Accordingly, neither the notes nor holders of the notes benefit from protection under the Swiss Federal Act on Collective Investment Schemes or supervision by the Swiss Federal Banking Commission.

## United Kingdom

Each Agent has represented and agreed that:

(a) it is a person whose ordinary activities involve it in acquiring, holding, managing or disposing of investments (as principal or agent) for the purposes of its business and (ii) it has not offered or sold and will not offer or sell the notes other than to persons whose ordinary activities involve them in acquiring, holding, managing or disposing of investments (as principal or as agent) for the purposes of their businesses or who it is reasonable to expect will acquire, hold, manage or dispose of investments (as principal or agent) for the purposes of their businesses where the issue of the notes would otherwise constitute a contravention of Section 19 of the Financial Services and Markets Act 2000 (the “FSMA”) by the Issuer;

(b) it has only communicated or caused to be communicated and will only communicate or cause to be communicated an invitation or inducement to engage in investment activity (within the meaning of Section 21 of the FSMA) received by it in connection with the issue or sale of the notes in circumstances in which Section 21(1) of the FSMA does not apply to us; and

(c) it has complied and will comply with all applicable provisions of the FSMA with respect to anything done by it in relation to the notes in, from or otherwise involving the United Kingdom.

### **Uruguay**

The offering of notes in Uruguay constitutes a private offering and each Agent has agreed that the notes and us will not be registered with the Central Bank of Uruguay pursuant to section 2 of Uruguayan law 16.749.

### **Venezuela**

The notes comprising this offering have not been registered with the Venezuelan National Securities Commission (*Comisión Nacional de Valores*) and are not being publicly offered in Venezuela. No document related to the offering of the notes shall be interpreted to constitute a public offer of securities in Venezuela. This document has been sent exclusively to clients of the Agents and the information contained herein is private, confidential and for the exclusive use of the addressee. Investors wishing to acquire the notes may use only funds located outside of Venezuela, which are not of mandatory sale to the Central Bank of Venezuela (*Banco Central de Venezuela*) or are not otherwise subject to restrictions or limitations under the exchange control regulation currently in force in Venezuela.

## BENEFIT PLAN INVESTOR CONSIDERATIONS

A fiduciary of a pension, profit-sharing or other employee benefit plan subject to the Employee Retirement Income Security Act of 1974, as amended ("ERISA"), including entities such as collective investment funds, partnerships and separate accounts whose underlying assets include the assets of such plans (collectively, "ERISA Plans") should consider the fiduciary standards of ERISA in the context of the ERISA Plan's particular circumstances before authorizing an investment in the notes. Among other factors, the fiduciary should consider whether the investment would satisfy the prudence and diversification requirements of ERISA and would be consistent with the documents and instruments governing the ERISA Plan.

Section 406 of ERISA and Section 4975 of the Internal Revenue Code of 1986, as amended, (the "Code") prohibit ERISA Plans, as well as plans (including individual retirement accounts and Keogh plans) subject to Section 4975 of the Code (together with ERISA Plans, "Plans"), from engaging in certain transactions involving the "plan assets" with persons who are "parties in interest" under ERISA or "disqualified persons" under Section 4975 of the Code (in either case, "Parties in Interest") with respect to such Plans. As a result of our business, we, and our current and future affiliates, may be Parties in Interest with respect to many Plans. Where we (or our affiliate) are a Party in Interest with respect to a Plan (either directly or by reason of our ownership interests in our directly or indirectly owned subsidiaries), the purchase and holding of the notes by or on behalf of the Plan could be a prohibited transaction under Section 406 of ERISA and/or Section 4975 of the Code, unless exemptive relief were available under an applicable exemption (as described below).

Certain prohibited transaction class exemptions ("PTCEs") issued by the U.S. Department of Labor may provide exemptive relief for direct or indirect prohibited transactions resulting from the purchase or holding of the notes. Those class exemptions are PTCE 96-23 (for certain transactions determined by in-house asset managers), PTCE 95-60 (for certain transactions involving insurance company general accounts), PTCE 91-38 (for certain transactions involving bank collective investment funds), PTCE 90-1 (for certain transactions involving insurance company separate accounts) and PTCE 84-14 (for certain transactions determined by independent qualified asset managers). In addition, ERISA Section 408(b)(17) and Section 4975(d)(20) of the Code may provide a limited exemption for the purchase and sale of the notes and related lending transactions, provided that neither the issuer of the notes nor any of its affiliates have or exercise any discretionary authority or control or render any investment advice with respect to the assets of the Plan involved in the transaction and provided further that the Plan pays no more, and receives no less, than adequate consideration in connection with the transaction (the so-called "service provider exemption"). There can be no assurance that any of these statutory or class exemptions will be available with respect to transactions involving the notes.

Accordingly, the notes may not be purchased or held by any Plan, any entity whose underlying assets include "plan assets" by reason of any Plan's investment in the entity (a "Plan Asset Entity") or any person investing "plan assets" of any Plan, unless such purchaser or holder is eligible for the exemptive relief available under PTCE 96-23, 95-60, 91-38, 90-1 or 84-14 or the service-provider exemption or there is some other basis on which the purchase and holding of the notes will not constitute a non-exempt prohibited transaction under ERISA or Section 4975 of the Code. Each purchaser or holder of the notes or any interest therein will be deemed to have represented by its purchase or holding of the notes that (a) it is not a Plan and its purchase and holding of the notes is not made on behalf of or with "plan assets" of any Plan or (b) its purchase and holding of the notes will not result in a non-exempt prohibited transaction under Section 406 of ERISA or Section 4975 of the Code.

Certain governmental plans (as defined in Section 3(32) of ERISA), church plans (as defined in Section 3(33) of ERISA) and non-U.S. plans (as described in Section 4(b)(4) of ERISA) ("Non-ERISA Arrangements") are not subject to these "prohibited transaction" rules of ERISA or Section 4975 of the Code, but may be subject to similar rules under other applicable laws or regulations ("Similar Laws"). Accordingly, each such purchaser or holder of the notes shall be required to represent (and deemed to have represented by its purchase of the notes) that such purchase and holding is not prohibited under applicable Similar Laws.



Due to the complexity of these rules, it is particularly important that fiduciaries or other persons considering purchasing the notes on behalf of or with “plan assets” of any Plan consult with their counsel regarding the relevant provisions of ERISA, the Code or any Similar Laws and the availability of exemptive relief under PTCE 96-23, 95-60, 91-38, 90-1, 84-14, the service provider exemption or some other basis on which the acquisition and holding will not constitute a non-exempt prohibited transaction under ERISA or Section 4975 of the Code or a violation of any applicable Similar Laws.

The notes are contractual financial instruments. The financial exposure provided by the notes is not a substitute or proxy for, and is not intended as a substitute or proxy for, individualized investment management or advice for the benefit of any purchaser or holder of the notes. The notes have not been designed and will not be administered in a manner intended to reflect the individualized needs and objectives of any purchaser or holder of the notes.

Each purchaser or holder of any notes acknowledges and agrees that:

- (i) the purchaser or holder or its fiduciary has made and shall make all investment decisions for the purchaser or holder and the purchaser or holder has not relied and shall not rely in any way upon us or our affiliates to act as a fiduciary or adviser of the purchaser or holder with respect to (A) the design and terms of the notes, (B) the purchaser or holder’s investment in the notes, or (C) the exercise of or failure to exercise any rights we have under or with respect to the notes;
- (ii) we and our affiliates have acted and will act solely for our own account in connection with (A) all transactions relating to the notes and (B) all hedging transactions in connection with our obligations under the notes;
- (iii) any and all assets and positions relating to hedging transactions by us or our affiliates are assets and positions of those entities and are not assets and positions held for the benefit of the purchaser or holder;
- (iv) our interests are adverse to the interests of the purchaser or holder; and
- (v) neither we nor any of our affiliates is a fiduciary or adviser of the purchaser or holder in connection with any such assets, positions or transactions, and any information that we or any of our affiliates may provide is not intended to be impartial investment advice.

Each purchaser and holder of the notes has exclusive responsibility for ensuring that its purchase, holding and subsequent disposition of the notes does not violate the fiduciary or prohibited transaction rules of ERISA, the Code or any applicable Similar Laws. The sale of any notes to any Plan is in no respect a representation by us or any of our affiliates or representatives that such an investment meets all relevant legal requirements with respect to investments by Plans or Non-ERISA Arrangements generally or any particular Plan or Non-ERISA Arrangement, or that such an investment is appropriate for Plans or Non-ERISA Arrangements generally or any particular Plan or Non-ERISA Arrangement.

ANNEX A

# J.P. Morgan Strategic Volatility Index Series

## Index Rules

**J.P.Morgan**

17 June 2011

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## **PART A**

### **General Rules**

#### **1. This Document**

##### **1.1 Introduction**

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

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

<b>Index</b>	<b>Index Rules – applicable Parts and Module</b>
J.P. Morgan Strategic Volatility Index	Part A, Part B and Module 1.0

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 Contract(s) 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 Ltd. of 125 London Wall, London EC2Y 5AJ, 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 because there is no actual portfolio of Futures Contracts nor 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 performance of which are used as a reference point for the purposes of calculating the level of each Index.

### **3. Index Calculation Agent**

#### **3.1 Identity**

J.P. Morgan Securities Ltd. 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 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 a 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 any Futures Contract, the Base Index, variable, input or other matter which 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 may, if practicable and it considers such correction material, adjust or correct the published Index Level for such day and/or each subsequent Index Business Day and 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 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 formula and method of calculation as used in the calculation of 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 adjustment to the Index Rules, as it determines in good faith is 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), 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 intention 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 definition of any Futures Contract or in any other way materially modifies such contract (other than a modification prescribed in the definition of such contract); or
  - (ii) permanently cancels any Futures Contract and no Successor Futures Contract exists or is otherwise unable or unwilling to publish a level of 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 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 cease publication of the affected 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 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 adjustment to these Index Rules, as it determines in good faith is appropriate, to account for such change.

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

Without prejudice to the ability of the Index Calculation Agent to amend the Index Rules (see section 1), 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 intention of the relevant Index,

including (without prejudice to the generality of the foregoing) changes announced by the applicable sponsor of the Base Index relating to the modification, exclusion, inclusion or substitution of any 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 to maintain that Base Index in the event of changes in constituent stock and capitalization and other routine events); or
  - (ii) permanently cancels the Base Index and no Successor Base Index exists or is otherwise unable or unwilling to publish a level of the Base Index,

then the Index Calculation Agent may 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 on the Relevant Exchange or an equivalent exchange and 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 cease publication of the Affected Base Index.

### 7.3 Cancellation of license 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 other component (“**Affected Component**”) for the purposes of the Index terminates, or the Index Calculation Agent’s rights to use the Base Index or other underlying 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 base index or other underlying component having similar characteristics to the Affected Component; and (b) the date of such replacement) on such dates as selected by the Index Calculation Agent or cease publication of the affected 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**” the index as specified in the Applicable Parts / Module;

“**Base Level**” means the level specified in the Applicable Parts / Module;

“**Change in Law**” means due to the adoption of, or any change in, any applicable law, regulation or rule (including, without limitation, any tax law) or the promulgation of, or any change in, the 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 taking 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 the Futures Contracts;

**“Closing Price”** means, in respect of a Futures Contract and 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 and an Index Business Day, the occurrence or existence of a Market Disruption Event in respect of a Futures Contract and/or the Base Index;

**“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 (including, without limitation, the Futures Contracts) or options contracts relating to the Base index on any Relevant Exchange;

**“Final Settlement Value”** 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;

**“Futures Contract”** means the futures contract(s) in respect of the Base Index as specified in the Applicable Parts / Module;

**“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”** means J.P. Morgan Securities Ltd or any affiliate, subsidiary or delegate designated by it in accordance with section 3.1 of this Part A;

**“Index”** means each Index specified in the table in section 1.1 above;

**“Index Level”** has the meaning given in section 4.2 of this Part A;

**“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, in respect of:

- (a) a Futures Contract:
  - (i) a failure by the Relevant Exchange to publish the Closing Price for the Futures Contract on an Index Business Day or the Final Settlement Value on a Rebalancing Settlement Date (as the case may be); or
  - (ii) any event that, in the determination of the Index Calculation Agent, disrupts or impairs the ability of market participants generally to effect transactions in or obtain market values for such Futures Contract on the Index Business Day. Such events may include, but are not limited to, the occurrence of any of a Trading Disruption, Exchange Disruption or Early Closure; or
- (b) a Base Index, 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.

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

**“Relevant Exchange”** in respect of an Index, 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 (including, without limitation, the Futures Contracts) or options 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.

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## **Part B**

### **J.P. Morgan Strategic Volatility Index**

#### **1. Introduction**

This Part B applies to each of the Indices in the Modules to this Part B (each an “**Index**” and together the “**Indices**”). The Index Rules of each Index are comprised of Part A of this document, this Part B and the Applicable Module to this Part B.

The Indices model returns from combining a systematic long and an opportunistic short synthetic exposure to the Futures Contracts that are rolled continuously throughout the period between the settlement dates for the various Futures Contracts.

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

The synthetic short exposure to the Futures Contracts measures the return from a rolling short position in the first and second month Futures Contracts and is only activated when volatility term structure is upward sloping. The short exposure is partially increased (or decreased) following three consecutive days of the Base Index being below (or above) the rolling average of the first and second Futures Contracts, with the size of the increase (or decrease) in exposure for each subsequent Index Business Day being equal to 20% (and subject to an overall maximum short exposure of 100% and a minimum short exposure of 0%). If no such condition is met, the short position is rolled over with the same exposure as the previous Index Business Day. Subject to the occurrence of a Market Disruption Event, the short exposure in the Indices rolls continuously throughout each month from the first month Futures Contract into the second month Futures Contract.

For each 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 expires on the Rebalancing Settlement Date occurring in the Settlement Month specified in the table. For example, a Futures Contract with the Contract Letter “J” expires in Settlement Month April.

Each row in the table provides the applicable Contract Letter for each Futures Contract (i = 1, 2, 3) by reference to the month in which the relevant Rebalancing Period ends. For example, the Contract Letter for Futures Contract (i = 3) for the Rebalancing Period ending in June is “Q”.

In the table below, references to Futures Contract(s) (i=1, 2, 3) are to the futures contract(s) by reference to the month in which the relevant Rebalancing Period ends. For example, Futures Contract (i=1) means the Futures Contract expiring at the end of the current Rebalancing Period and Futures Contract (i=2) means the Futures Contract expiring at the end of the Rebalancing Period immediately following the current Rebalancing Period.

In respect of a Rebalancing Period, the number applicable to the Futures Contract (ie i=1, 2, 3) applies to such Futures Contract up to and including the Rebalancing Settlement Date which occurs at the end of that Rebalancing Period.

**Table: Futures Contracts**

Futures Contract[s]	The month in which the Rebalancing Period ends											
	J a n	F e b	M a r	A p r	M a y	J u n	J u l	A u g	S e p	O c t	N o v	D e c
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

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 Period

The Futures Contracts referenced in the Index are rebalanced on each Rebalancing Date from, and including one Rebalancing Settlement Date to, but excluding, the next Rebalancing Settlement Date (each such period, a “**Rebalancing Period**”). The initial Rebalancing Period commenced on, and included, the Base 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:

$$\mathbf{Index (t) = Index (t-1) * (1 + Return t)}$$

Where:

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

$$\text{Return } t = (\text{GrossIndex}(t) / \text{GrossIndex}(t-1)) - 1 - (\text{Rebal Fut } (t-1) * R) - (A * n(t-1,t) / 360)$$

Where:

$$\text{GrossIndex}(t) = \text{GrossIndex}(t-1) * (1 + \text{Long Return}(t) - I(t-1) * \text{Short Return}(t))$$

If Index Business Day t-1 is a Rebalancing Settlement Date, then:

$$\text{Short Return } (t) = \text{DCRP } (1, t) / \text{DCRP } (2, t-1) - 1$$

$$\text{Long Return } (t) = \text{DCRP } (2, t) / \text{DCRP } (3, t-1) - 1$$

Where:

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

**Daily Contract Reference Price** means either: (a) in respect of any Index Business Day that is a Rebalancing Settlement Date, the Final Settlement Value; or (b) in respect of any other Index Business Day, the Closing Price of the Futures Contract.

If Index Business Day t-1 is not a Rebalancing Settlement Date:

$$\text{Short Return } (t) = \text{CRW } (1, t-1) * \text{DCRP } (1, t) / \text{DCRP } (1, t-1) + \text{CRW } (2, t-1) * \text{DCRP } (2, t) / \text{DCRP } (2, t-1) - 1$$

$$\text{Long Return } (t) = \text{CRW } (1, t-1) * \text{DCRP } (2, t) / \text{DCRP } (2, t-1) + \text{CRW } (2, t-1) * \text{DCRP } (3, t) / \text{DCRP } (3, t-1) - 1$$

Where:

$$\text{CRW } (1, t) = dr / dp,$$

$$\text{CRW } (2, t) = (dp - dr) / dp$$

The reference above to CRW “1” or “2” is to the closest and the next following Futures Contracts that are referred to in the relevant provision. For example, in the calculation of the Long Return, “1” is a reference to Futures Contract (i=2) and “2” is a reference to Futures Contract (i=3).

**dp** is the total number of Index Business Days in the Rebalancing Period in which the Index Business Day(t) falls (irrespective of whether any such day(s) are or become subject to a Market Disruption Event);

**dr** is the total number of Index Business Days from, and including, the Index Business Day(t) to, but excluding, the next Rebalancing Settlement Date (irrespective of whether any such day(s) are or become subject to a Market Disruption Event);

**I(t-1)** is the signal utilised to determine the exposure (if any) 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:

$$\text{CRW}(1, t-j) * \text{DCRP } (1, t - j) + \text{CRW}(2, t-j) * \text{DCRP}(2, t - j)$$

$$\text{then, } I(t-1) = \text{MAX}[0, I(t-2) - 20\%],$$

- (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:

$$\mathbf{CRW(1, t-j) * DCRP (1, t - j) + CRW(2, t-j) * DCRP(2, t - j)}$$

then,  $I(t-1) = \text{MIN}[1, I(t-2)+20\%]$ , and

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

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

**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 notional Rebalancing Adjustment Factor as specified in the Applicable Module, determined by reference to the Base Index on Index Business Day (t-1).

**A** means the notional Adjustment Factor as specified in the Module for the Index; and

**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-1)** refers to the proportion of the relevant Futures Contract notionally rebalanced between Index Business Day t-1 and Index Business Day t and is calculated as follows:

$$\mathbf{Rebal Fut (t-1) = |Rebal Fut (1,t-1)| + |Rebal Fut (2,t-1)| + |Rebal Fut (3,t-1)| + |I(t-1) - I(t)|}$$

Where

If Index Business Day t-1 is not a Rebalancing Settlement Date:

$$RebalFut(1, t-1) = -CRW(1, t-1) \times I(t-1) \times \frac{DCRP(1, t)}{DCRP(1, t-1)} \times \frac{GrossIndex(t-1)}{GrossIndex(t)} + CRW(1, t) \times I(t)$$

$$RebalFut(2, t-1) = [-CRW(2, t-1) \times I(t-1) + CRW(1, t-1)] \times \frac{DCRP(2, t)}{DCRP(2, t-1)} \times \frac{GrossIndex(t-1)}{GrossIndex(t)} - [-CRW(2, t) \times I(t) + CRW(1, t)]$$

$$RebalFut(3, t-1) = CRW(2, t-1) \times \frac{DCRP(3, t)}{DCRP(3, t-1)} \times \frac{GrossIndex(t-1)}{GrossIndex(t)} - CRW(2, t)$$

If Index Business Day t-1 was a Rebalancing Settlement Date

$$RebalFut(1, t-1) = -I(t-1) \times \frac{DCRP(1, t)}{DCRP(2, t-1)} \times \frac{GrossIndex(t-1)}{GrossIndex(t)} + CRW(1, t) \times I(t)$$

$$RebalFut(2, t-1) = \frac{DCRP(2, t)}{DCRP(3, t-1)} \times \frac{GrossIndex(t-1)}{GrossIndex(t)} - [-CRW(2, t) \times I(t) + CRW(1, t)]$$

$$RebalFut(3, t-1) = CRW(2, t)$$

## 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 may suspend the calculation and publication of the Index Level until the first succeeding Index Business Day which 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 date 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, 2, 3 and 4) shall be deemed to be references to the Index Business Days (that are themselves not Disrupted Days) occurring on such day or days prior to the First Disrupted Day.

If the first Rebalancing Date following the Final Disrupted Day falls after a Rebalancing Settlement Day then for the purposes of calculating the Index Level references to:

DCRP (3,t) shall be deemed to be references to DCRP(2,t);

DCRP (2,t) shall be deemed to be references to DCRP(1,t); and

DCRP(1,t) shall be deemed to be the Final Settlement Value of the relevant Futures Contract expiring on that Rebalancing Settlement Day (as published by the Relevant Exchange).

## Module B1.0: J.P. Morgan Strategic Volatility Index

This Module B1.0 sets out the specific information pertaining to the J.P. Morgan Strategic Volatility Index.

Name of Index	JPMorgan Strategic Volatility Index (JPUSSTVL <Index> )	
Currency of the Index	US Dollar	
Base Index	The CBOE Volatility Index (Bloomberg Code: VIX Index)	
Index Business Days	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 open for trading during its or their regular trading sessions	
Relevant Exchange	Means, as at 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 Base Index is listed (as the case may be) from time to time	
Rebalancing Settlement Dates	Means, in respect of a Futures Contract, the final settlement date (or howsoever it is called) as published by the Relevant Exchange	
Rebalancing Date	Means each Index Business Day occurring during a Rebalancing Period	
Adjustment Factor	0.75% per annum	
Rebalancing Adjustment Factor ("R") utilized for Index Business Day (t).  The Rebalancing Adjustment Factor is referenced in the definition of "Return (t)".  The Rebalancing Adjustment Factor is not a per annum amount, but applied to "Rebal Fut (t-1)" (being the proportion of Futures Contracts notionally rebalanced between Index Business Day (t) and Index Business Day (t-1)).	Base Index Level on Index Business Day (t-1)	Rebalancing Adjustment Factor
	=< 35	0.20%
	=< 50 and > 35	0.30%
	=< 70 and > 50	0.40%
	> 70	0.50%
Base Date	19 September 2006	
Base Level	100.00	