

# JPMORGAN CHASE & CO.

## **Notes Linked to One or More Reference Stocks, Indices or Funds**

### General

- JPMorgan Chase & Co. may from time to time offer and sell notes that are linked to one or more Reference Stocks, Indices or Funds (each, as defined below). Investing in the notes is not equivalent to investing (or taking a short position) directly in any Reference Stock, Index or Fund or any of the securities, commodities, futures contracts or other assets or market measures underlying any Index or Fund.
- The notes are unsecured and unsubordinated obligations of JPMorgan Chase & Co. **Any payment on the notes is subject to the credit risk of JPMorgan Chase & Co.**
- This product supplement no. 3a-I describes terms that will apply generally to the notes and supplements the terms described in the prospectus supplement and the 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 these term sheets and pricing supplements generally as terms supplements. A separate underlying supplement or the relevant terms supplement will describe any Index or Fund to which the notes are linked. If the terms described in the relevant terms supplement are inconsistent with those described in this product supplement, any accompanying underlying supplement, the prospectus supplement or the prospectus, the terms described in the relevant terms supplement will govern your notes.
- The notes are not appropriate for all investors and involve a number of risks and important legal and tax consequences that should be discussed with your professional advisers.
- For important information about tax consequences relating to the notes, see "Material U.S. Federal Income Tax Consequences" beginning on page PS-76 of this product supplement.
- The notes will not be listed on any securities exchange unless otherwise specified in the relevant terms supplement.

### Key Terms

- Underlyings:** In this product supplement, we refer to any common stock (each, a "**Reference Stock**"), index (each, an "**Index**") or fund (each, a "**Fund**") referenced in the determination of any payment on the notes as an "**Underlying**" and, collectively, as the "**Underlyings**." See "The Underlyings" in this product supplement.
- Payments on the Notes:** Any amount payable on the notes will be determined pursuant to the terms set forth in the relevant terms supplement. If the amount of any payment calculated as set forth in the relevant terms supplement is less than zero, the amount of that payment will be \$0.  
*For notes linked in whole or in part to a Commodity Index, the timing and amount of any payment on the notes may be affected by the occurrence of a commodity hedging disruption event. See "General Terms of Notes — Consequences of a Commodity Hedging Disruption Event" for additional information.*
- Determination Date(s):** The relevant terms supplement will specify each date on which the value of any Underlying is to be referenced in the determination of any payment on the notes (each, a "**Determination Date**"). Unless otherwise specified in the relevant terms supplement, each Determination Date is subject to postponement as described under "General Terms of Notes — Postponement of a Determination Date."
- Payment Date(s):** The relevant terms supplement will specify the maturity date and any other date on which amounts will or may be payable on the notes (each, a "**Payment Date**"). Unless otherwise specified in the relevant terms supplement, each Payment Date is subject to postponement as described under "General Terms of Notes — Postponement of a Payment Date."

**Investing in the notes involves a number of risks. See "Risk Factors" beginning on page PS-7 of this product supplement.**

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 the relevant terms supplement, this product supplement no. 3a-I, any underlying supplement, the prospectus supplement or the prospectus. Any representation to the contrary is a criminal offense.

***The notes are not bank deposits, are not insured by the Federal Deposit Insurance Corporation or any other governmental agency and are not obligations of, or guaranteed by, a bank.***

J.P.Morgan

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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, this product supplement no. 3a-l, any underlying supplement, the prospectus supplement or the prospectus with respect to the notes offered by the relevant terms supplement and with respect to JPMorgan Chase & Co. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. The relevant terms supplement, together with this product supplement no. 3a-l, any underlying supplement, the prospectus supplement and the prospectus, will contain the terms of the notes and will supersede 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 each of the relevant terms supplement, this product supplement no. 3a-l, any underlying supplement, the prospectus supplement and the prospectus may be accurate only as of the date of that document.

The notes are not appropriate for all investors and involve a number of risks and important legal and tax consequences that should be discussed with your professional advisers. You should be aware that the regulations of Financial Industry Regulatory Authority, Inc., or FINRA, and the laws of certain jurisdictions (including regulations and laws that require brokers to ensure that investments are suitable for their customers) may limit the availability of the notes. The relevant terms supplement, this product supplement no. 3a-l, any underlying supplement, the prospectus supplement and the prospectus do not constitute an offer to sell or a solicitation of an offer to buy the notes under any circumstances in which that offer or solicitation is unlawful.

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

In the relevant terms supplement, this product supplement no. 3a-l, any underlying supplement, the prospectus supplement and the 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 prospectus supplement and "Description of Debt Securities" in the prospectus. The term "note" refers to each Principal Amount (as defined below) of our Notes Linked to One or More Reference Stocks, Indices or Funds.*

### General

The notes are our unsecured and unsubordinated obligations and will rank *pari passu* with all of our other unsecured and unsubordinated obligations. **Any payment on the notes is subject to the credit risk of JPMorgan Chase & Co.**

The notes are a series of debt securities referred to in the prospectus supplement and the prospectus and 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 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 prospectus supplement and "Forms of Securities — Book-Entry System" in the prospectus.

This product supplement no. 3a-I describes terms that will apply generally to the notes and supplements the terms described in the prospectus supplement and the 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 these term sheets and pricing supplements generally as terms supplements. A separate underlying supplement or the relevant terms supplement will describe any Index or Fund (each, as defined below) to which the notes are linked. If the terms described in the relevant terms supplement are inconsistent with those described in this product supplement, any accompanying underlying supplement, the prospectus supplement or the prospectus, the terms described in the relevant terms supplement will govern your notes.

The notes will be issued in minimum denominations specified in the relevant terms supplement, and the principal amount of each note (the "**Principal Amount**") and the original issue price of each note will be specified in the relevant terms supplement.

Subject 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.

The notes are not bank deposits, are not insured by the Federal Deposit Insurance Corporation or any other governmental agency and are not obligations of, or guaranteed by, a bank.

### The Underlying(s)

The notes will be linked to one or more common stocks (each, a "**Reference Stock**"), indices (each, an "**Index**") or funds (each, a "**Fund**") as specified in the relevant terms supplement. In this product supplement, we refer to any Reference Stock, Index or Fund referenced in the determination of any payment on the notes as an "**Underlying**" and, collectively, as the "**Underlyings**." See "The Underlyings" below for additional information.

The relevant terms supplement will specify the manner in which the Underlying(s) will be referenced in the determination of any payment on the notes. Payments on the notes may reflect long (or bullish) exposure to one or more Underlyings (meaning that an increase in the value of the

relevant Underlying(s) would generally be expected to have a positive effect on payments on the notes) and/or short (or bearish) exposure to one or more Underlyings (meaning that a decrease in the value of the relevant Underlying(s) would generally be expected to have a positive effect on payments on the notes).

In addition, the notes may be Single Underlying Notes, Basket Notes, Least Performing Underlying Notes, Greatest Performing Underlying Notes or Relative Performance Notes or the relevant terms supplement may specify that, in the determination of any payments on the notes, the Underlyings will be referenced in a manner that does not directly correspond with any of these types of notes.

*Single Underlying Notes.* “**Single Underlying Notes**” reference the performance of a single Underlying in the determination of one or more payments on the notes.

*Basket Notes.* “**Basket Notes**” reference the performance of a weighted basket composed of two or more Underlyings (a “**Basket**”) in the determination of one or more payments on the notes.

*Least Performing Underlying Notes.* “**Least Performing Underlying Notes**” reflect long (or bullish) exposure to the Underlying with the lowest performance out of the Underlyings specified in the relevant terms supplement in the determination of one or more payments on the notes. Payments on Least Performing Underlying Notes will generally be determined by reference to the performance of the Underlying that would result in the worst performance of the notes.

*Greatest Performing Underlying Notes.* “**Greatest Performing Underlying Notes**” reflect short (or bearish) exposure to the Underlying with the highest performance out of the Underlyings specified in the relevant terms supplement in the determination of one or more payments on the notes. Payments on Greatest Performing Underlying Notes will generally be determined by reference to the performance of the Underlying that would result in the worst performance of the notes.

*Relative Performance Notes.* “**Relative Performance Notes**” reference the relative performance of two or more Underlyings, with long exposure to one or more Underlyings (each, a “**Long Underlying**”) and short exposure to one or more other Underlying(s) (each, a “**Short Underlying**”), in the determination of one or more payments on the notes.

#### ***Terms Relating to Valuation of the Underlying(s)***

The relevant terms supplement will specify the manner in which the initial value, the final value and, if applicable, the strike value of Underlying(s) will be determined. The relevant terms sheet will also specify the manner in which values of the Underlying(s) will be used in the determination of any payment on the notes.

*Initial Value.* The relevant terms supplement will specify the manner in which the initial value of any Underlying will be determined. For example, with respect to any Underlying, the relevant terms supplement may specify that the initial value of that Underlying will be determined by reference to the value of that Underlying on the pricing date or on multiple dates near the beginning of the term of the notes or may specify that the initial value will be equal to a fixed value. Unless otherwise specified in the relevant terms supplement, the initial value of any Underlying will be determined near the beginning of the term of the notes and will be used in determining the performance of that Underlying or as a reference point against which later values of that Underlying will be compared.

*Final Value.* The relevant terms supplement will specify the manner in which the final value of any Underlying with respect to any day will be determined. For example, with respect to any Underlying, the relevant terms supplement may specify that the final value of that Underlying will be determined by reference to the value of that Underlying on that day or on multiple dates during

the term of the notes. Unless otherwise specified in the relevant terms supplement, the final value of any Underlying with respect to any day will be determined after the determination of the initial value and will be used in determining the performance of that Underlying or as a reference point to be compared to the initial value of that Underlying or to other values specified in the relevant terms supplement.

*Strike Value.* The relevant terms supplement may specify a value to be used instead of, or in addition to, the initial value of an Underlying to be used in determining the performance of that Underlying or as a reference point against which later values of that Underlying will be compared. If applicable, the relevant terms supplement will specify the manner in which the strike value of any Underlying will be determined. For example, with respect to any Underlying, the relevant terms supplement may specify a fixed value for the strike value of that Underlying or may specify that the strike value of that Underlying will be equal to a specified percentage of the initial value of that Underlying.

*Determination Dates.* The relevant terms supplement will specify each date on which the value of any Underlying is to be referenced in the determination of any payment on the notes (each, a "**Determination Date**"). Unless otherwise specified in the relevant terms supplement, each Determination Date is subject to postponement as described under "General Terms of Notes — Postponement of a Determination Date" below.

See "The Underlyings" in this product supplement for a description of how the value of each Underlying will be determined. Each Underlying and the value of each Underlying are subject to adjustment under certain circumstances. See "General Terms of Notes — Postponement of a Determination Date" and "The Underlyings" below for additional information.

#### ***Additional Terms Relating to Underlyings***

In this product supplement, we use the following terms in connection with the Underlyings.

*American Depositary Shares.* As used in this product supplement, the term "common stock" includes securities issued through depositary arrangements that represent non-U.S. equity securities, such as American depositary shares, or ADSs. If a Reference Stock is an ADS, references to the "issuer" of that Reference Stock refer to the issuer of the shares underlying the ADS.

*Bond Fund.* We refer to a Fund that is designed to track a bond index or that invests primarily in debt securities as a "**Bond Fund.**"

*Bond Index.* We refer to an Index that is designed to track debt securities as a "**Bond Index.**"

*Commodity Fund.* We refer to a Fund that is designed to track a commodity index or that invests primarily in commodities or commodity futures contracts as a "**Commodity Fund.**"

*Commodity Index.* We refer to an Index that is designed to track commodity futures contracts as a "**Commodity Index.**"

*Equity Index.* We refer to an Index that is designed to track equity securities as an "**Equity Index.**"

*Non-U.S. Fund.* We refer to a Fund that invests primarily in securities issued by non-U.S. companies as a "**Non-U.S. Fund.**"

*Non-U.S. Index.* We refer to an Index that is designed to track primarily securities issued by non-U.S. companies as a "**Non-U.S. Index.**"

*Underlying Index.* We refer to an index tracked by a Fund (or a successor fund, if applicable) as an "**Underlying Index.**"

**Underlying Stock.** We refer to the common stock represented by an ADS as an **"Underlying Stock."**

**Volatility Index.** We refer to an Index that is designed to track futures contracts (**"VIX futures contracts"**) on the CBOE Volatility Index® (the **"VIX Index"**) or any other index that measures market volatility as a **"Volatility Index."**

### **Payments on the Notes**

Any amount payable on the notes will be determined pursuant to the terms set forth in the relevant terms supplement. If the amount of any payment calculated as set forth in the relevant terms supplement is less than zero, the amount of that payment will be \$0. *Any payment on the notes is subject to the credit risk of JPMorgan Chase & Co.*

*For notes linked in whole or in part to a Commodity Index, the timing and amount of any payment on the notes may be affected by the occurrence of a commodity hedging disruption event. See "General Terms of Notes — Consequences of a Commodity Hedging Disruption Event" for additional information.*

The relevant terms supplement will specify the maturity date and any other date on which amounts will or may be payable on the notes (each, a **"Payment Date"**). Unless otherwise specified in the relevant terms supplement, each Payment Date is subject to postponement as described under **"General Terms of Notes — Postponement of a Payment Date"** below.

The **"calculation agent"** or **"note calculation agent"** is the agent appointed by us to make certain calculations with respect to the notes, which, unless otherwise specified in the relevant terms supplement, will be J.P. Morgan Securities LLC (**"JPMS"**). See **"General Terms of Notes — Calculation Agent"** below. JPMS is our affiliate and may have interests adverse to yours. Please see **"Risk Factors — Risks Relating to Conflicts of Interest — We or our affiliates may have economic interests that are adverse to those of the holders of the notes due to JPMS's role as calculation agent."**

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, if any, payable with respect to the notes on the applicable date or dates. We will give DTC irrevocable instructions and authority to pay the applicable amount to the holders of the notes entitled thereto.

### **Interest Payments**

If the relevant terms supplement specifies that the notes will bear periodic interest, the notes will pay interest in arrears at the per annum rate, or such other rate or rates, including rates that reference the performance of the Underlying(s), as specified in the relevant terms supplement. The relevant terms supplement may also specify that the payment of interest is contingent on the performance of the Underlying(s).

Unless otherwise specified in the relevant terms supplement, the interest payment due on each interest payment date specified in the relevant terms supplement for each note, if payable under the terms specified in the relevant terms supplement, will be calculated as follows:

$$\text{Principal Amount} \times \text{Interest Rate} \times 1 / \text{number of interest payment dates per year}$$

where the number of interest payment dates per year is determined by the frequency of the interest payment dates and how many interest payment dates would occur over the course of a full year regardless of the actual term of the notes.

If the payment of interest is not contingent on the performance of the Underlying(s), interest will accrue from and including the issue date of the notes to but excluding the maturity date.

Unless otherwise specified in the relevant terms supplement, interest will be payable in arrears on each interest payment date to and including the maturity date to the holders of record at the close of business on the business day prior to that interest payment date.

### ***Payment at Maturity***

The relevant terms supplement will specify the manner in which any payment at maturity will be determined. **You may lose some of your principal amount at maturity.**

For notes linked to one or more Reference Stocks, the relevant terms supplement may specify that the payment at maturity will consist of the delivery of a predetermined number of shares of a Reference Stock (or the cash value of those shares), which we refer to in this product supplement as the **“Physical Delivery Amount.”** In this product supplement, we refer to notes that may permit the delivery of the Physical Delivery Amount at maturity as **“Physically Settled Notes.”** **The market value of shares delivered as the Physical Delivery Amount (or the cash value of those shares) may be less than your principal amount and may be zero.**

*No Fractional Shares.* If we deliver shares of a Reference Stock to you at maturity or if we deliver Exchange Property (as defined in “The Underlyings — Reference Stocks — Reorganization Events — The Exchange Property”) that includes shares, we will pay cash in lieu of delivering any fractional shares in an amount equal to the product of the closing price of one of those shares on the final Determination Date *times* the applicable fractional amount, unless otherwise specified in the relevant terms supplement.

*Delivery of Shares or Exchange Property.* We may designate any of our affiliates to deliver any shares of a Reference Stock or any Exchange Property pursuant to the terms of the notes, and we will be discharged of any obligation to deliver those shares or that Exchange Property to the extent of that performance by our affiliates. References in this product supplement to delivery of shares of a Reference Stock or any Exchange Property by us will be deemed to include delivery of those shares or that Exchange Property by our affiliates.

## ESTIMATED VALUE AND SECONDARY MARKET PRICES OF THE NOTES

### JPMS's Estimated Value of the Notes

Unless otherwise specified in the relevant terms supplement, the estimated value of the notes when the terms of the notes are set, which we refer to as JPMS's estimated value of the notes, will be set forth on the cover of the relevant terms supplement and will be equal to the sum of the values of the following hypothetical components: (1) a fixed-income debt component with the same maturity as the notes, valued using our internal funding rate for structured debt described below, and (2) the derivative or derivatives underlying the economic terms of the notes. JPMS's estimated value will not represent a minimum price at which JPMS would be willing to buy your notes in any secondary market (if any exists) at any time. The internal funding rate used in the determination of JPMS's estimated value will generally represent a discount from the credit spreads for our conventional fixed-rate debt. For additional information, see "Risk Factors — Risks Relating to the Estimated Value and Secondary Market Prices of the Notes — JPMS's estimated value will not be determined by reference to credit spreads for our conventional fixed-rate debt" below in this product supplement. The value of the derivative or derivatives underlying the economic terms of the notes will be derived from JPMS's internal pricing models. These models are dependent on inputs such as the traded market prices of comparable derivative instruments and on various other inputs, some of which are market-observable, and which can include volatility, correlation, dividend rates, interest rates and other factors, as well as assumptions about future market events and/or environments. Accordingly, JPMS's estimated value of the notes will be determined when the terms of the notes are set based on market conditions and other relevant factors and assumptions existing at that time. See "Risk Factors — Risks Relating to the Estimated Value and Secondary Market Prices of the Notes — JPMS's estimated value will not represent future values of the notes and may differ from others' estimates" below in this product supplement.

Unless otherwise specified in the relevant terms supplement, JPMS's estimated value of the notes will be lower than the original issue price of the notes because costs associated with selling, structuring and hedging the notes will be included in the original issue price of the notes. These costs include the selling commissions and structuring fees, if any, paid to JPMS and other affiliated or unaffiliated dealers, the projected profits, if any, that our affiliates expect to realize for assuming risks inherent in hedging our obligations under the notes and the estimated cost of hedging our obligations under the notes. Because hedging our obligations entails risk and may be influenced by market forces beyond our control, this hedging may result in a profit that is more or less than expected, or it may result in a loss. We or one or more of our affiliates will retain any profits realized in hedging our obligations under the notes unless a portion of the hedging profits is allowed to other affiliated or unaffiliated dealers. Under those circumstances, we or one or more of our affiliates will retain any remaining hedging profits. See "Risk Factors — Risks Relating to the Estimated Value and Secondary Market Prices of the Notes — JPMS's estimated value of the notes will be lower than the original issue price (price to public) of the notes" below in this product supplement.

### Secondary Market Prices of the Notes

For information about factors that will impact any secondary market prices of the notes, see "Risk Factors — Risks Relating to the Estimated Value and Secondary Market Prices of the Notes — Secondary market prices of the notes will be impacted by many economic and market factors" below in this product supplement. In addition, the relevant terms supplement may specify that we will generally expect some of the costs included in the original issue price of the notes to be partially paid back to you in connection with any repurchases of your notes by JPMS in an amount that will decline to zero over an initial predetermined period that will be specified in the relevant terms supplement. The length of any such initial period will reflect the structure of the notes, whether our affiliates expect to earn a profit in connection with our hedging activities, the estimated costs of hedging the notes and when these costs are incurred, all as determined by JPMS. See "Risk Factors — Risks Relating to the Estimated Value and Secondary Market Prices of the Notes — The value of the notes as published by JPMS (and which may be reflected on customer account statements) may be higher than JPMS's then-current estimated value of the notes for a limited time period" below in this product supplement.

## RISK FACTORS

*Your investment in the notes will involve certain risks. Unless otherwise specified in the relevant terms supplement, the notes do not pay interest and do not guarantee any return of principal at, or prior to, maturity. Investing in the notes is not equivalent to investing (or taking a short position) directly in any Reference Stock, Index or Fund or any of the securities, commodities, futures contracts or other assets or market measures underlying any Index or Fund. 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, as well as the discussion of risks included in the relevant terms supplement and any accompanying underlying supplement, before you decide that an investment in the notes is suitable for you.*

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

**The notes differ from conventional debt securities and may not pay interest or return all of your principal amount.**

Any amount payable on the notes will be determined pursuant to the terms set forth in the relevant terms supplement. The notes will not pay interest unless specified in the relevant terms supplement. The relevant terms supplement may specify that you may lose some of your principal amount at maturity. Even if the relevant terms supplement provides for payment of at least your principal amount at maturity (subject to the credit risk of JPMorgan Chase & Co.), you may receive no return on your investment at maturity or the return on your investment at maturity may be less than the amount that would be paid on a conventional debt security of comparable maturity. Under these circumstances, you will not be compensated or fully compensated for any loss in value due to inflation and other factors relating to the value of money over time.

**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. Any actual or potential changes in our creditworthiness or the credit spreads, as determined by the market for taking our credit risk, is likely to affect adversely the value of the notes. Any payment on the notes is subject to the creditworthiness of JPMorgan Chase & Co. If we were to default on our payment obligations, you may not receive any amounts owed to you under the notes and you could lose your entire investment.

**The appreciation potential of the notes may be limited.**

The relevant terms supplement may specify that the return or payment at maturity on the notes in excess of the principal amount will not exceed a specified value. Under these circumstances, the appreciation potential of the notes will be limited to that specified value, regardless of the performance of the Underlying(s). In addition, if the relevant terms supplement specifies that the notes will or may pay interest, the appreciation potential of the notes may be limited to any interest payments, regardless of the performance of the Underlying(s).

**We or our affiliates may have interests that are adverse to those of the holders of the notes.**

We or our affiliates may have interests that are adverse to those of the holders of the notes. See "— Risks Relating to Conflicts of Interest" below.

**If you receive shares of a Reference Stock at maturity, the value of those shares may be less on the maturity date than on the final Determination Date.**

For Physically Settled Notes, the market value of shares delivered as the Physical Delivery Amount may be less than your principal amount on the final Determination Date and could decrease further during the period between the final Determination Date and the maturity date. We will make no adjustments to the Physical Delivery Amount to account for any fluctuations in the value of the shares to be delivered at maturity, and you will bear the risk of any decrease in the value of those shares between the final Determination Date and the maturity date.

**The values of the Underlying(s) will be referenced only on the Determination Date(s) for purposes of determining any payment on the notes.**

The relevant terms supplement will specify each Determination Date on which the value of any Underlying is to be referenced in the determination of any payment on the notes. The value of the notes and any payment on the notes may be adversely affected by referencing the values of the Underlying(s) only on Determination Dates. For example, for notes that provide for a single payment at maturity based on the long (or bullish) performance of an Underlying, as measured from the pricing date to a single Determination Date near the end of the term of the notes, if the value of that Underlying increases or remains relatively constant during the initial term of the notes and then decreases below the initial value of that Underlying, the final value of that Underlying may be significantly less than if it were calculated on a date earlier than the Determination Date. Under these circumstances, you may receive a lower return on the notes than you would have received if you had invested directly in any Reference Stock, Index or Fund, the securities, commodities, futures contracts or other assets or market measures underlying any Index or Fund or any exchange-traded or over-the-counter instruments based on any of the foregoing.

**JPMS's estimated value of the notes will be lower than the original issue price (price to public) of the notes, and secondary market prices of the notes will be impacted by many economic and market factors.**

JPMS's estimated value of the notes will be lower than the original issue price (price to public) of the notes, and secondary market prices of the notes will be impacted by many economic and market factors. See "— Risks Relating to the Estimated Value and Secondary Market Prices of the Notes" below.

**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 any Underlying to which the notes provide long (or bullish) exposure has appreciated since the pricing date and/or any Underlying to which the notes provide short (or bearish) exposure has depreciated 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 any securities exchange. There may be little or no secondary market for the notes. Even if there is a secondary market for the notes, it may not provide enough liquidity to allow you to trade or sell the notes easily.

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.

**If the value of an Underlying changes, the market value of your notes may not change proportionately.**

Owning the notes is not the same as investing (or taking a short position) directly in any Reference Stock, Index or Fund or any of the securities, commodities, futures contracts or other assets or market measures underlying any Index or Fund. Accordingly, changes in the value of an Underlying may not result in a proportionate change in the market value of the notes. For example, for notes that provide long (or bullish) exposure to an Underlying, if the value of that Underlying on any day has increased, the value of the notes may not increase comparably, if at all. It is possible for the value of that Underlying to increase moderately while the value of those notes declines.

**You will have no ownership rights in any Reference Stock, Index or Fund or any of the securities, commodities, futures contracts or other assets or market measures underlying any Index or Fund.**

Investing in the notes is not equivalent to investing (or taking a short position) directly in any Reference Stock, Index or Fund or any of the securities, commodities, futures contracts or other assets or market measures underlying any Index or Fund, the Underlying Stock underlying a Reference Stock that is an ADS or exchange-traded or over-the-counter instruments based on any of the foregoing. As an investor in the notes, you will not have any ownership interests or rights in any of the foregoing.

**Concentration risks may adversely affect the value of the notes.**

If any payment on the notes will be based on the performance of a single Reference Stock, Index or Fund or on a small number of Reference Stocks, Indices or Funds that are concentrated in a single or a limited number of industry or commodity sectors or geographical regions, you will not benefit, with respect to the notes, from the advantages of a diversified investment, and you will bear the risks of a concentrated investment, including the risk of greater volatility than may be experienced in connection with a diversified investment. You should be aware that other investments may be more diversified than the notes in terms of the number and variety of industry or commodity sectors or geographical regions.

**For notes linked in whole or in part to a Commodity Index, if a commodity hedging disruption event occurs, the timing and amount of any payment on the notes could be affected.**

For notes linked in whole or in part to a Commodity Index, upon the occurrence of legal or regulatory changes that the calculation agent determines have interfered with our or our affiliates' ability to hedge our obligations under the notes, or if for any other reason we or our affiliates are unable to enter into or maintain hedge positions that the calculation agent deems necessary to hedge our obligations under the notes, we may, in our sole and absolute discretion, adjust the timing and amount of any payment on the notes as described below. If a commodity hedging disruption event occurs, the value of the notes and any payment on the notes may be adversely affected. See "General Terms of Notes — Consequences of a Commodity Hedging Disruption Event" and "— Risks Relating to a Commodity Index or a Commodity Fund — The commodity futures contracts underlying a Commodity Index or a Commodity Fund are subject to legal and regulatory regimes that may change in ways that could have a substantial adverse effect on the value of the notes and, for notes linked to a Commodity Index, could affect the timing and amount of any payment on the notes" below.

*For notes that are linked in whole or in part to a Commodity Index and that provide for a payment at maturity for each note of the Principal Amount (or the Principal Amount reduced by a percentage specified in the relevant terms supplement) plus a cash payment determined as specified in the relevant terms supplement*

If a commodity hedging disruption event occurs, we will have the right, but not the obligation, to cease making further interest payments (if the notes pay interest based on the performance of the Underlying(s)) and to adjust your payment at maturity based on determinations made by the calculation agent. If a commodity hedging disruption event occurs and we choose to exercise this right, for each note, we will pay you at maturity, instead of the amount set forth in the relevant terms supplement, an amount equal to:

- the Principal Amount (or the Principal Amount reduced by the percentage specified in the relevant terms supplement, if applicable) *plus*
- the Option Value of your notes, determined as described under “General Terms of Notes — Consequences of a Commodity Hedging Disruption Event — Adjustment of the Payment at Maturity.”

Under these circumstances, the Option Value will be payable only at maturity and will not reflect any appreciation or depreciation of the Underlying(s) after the date on which the calculation agent determines that a commodity hedging disruption event has occurred, which we refer to as a commodity hedging disruption date. You will not receive further interest payments, if applicable, or any other amounts (related to the Option Value or otherwise) until maturity. If a commodity hedging disruption event ceases to exist, the amounts determined on the commodity hedging disruption date will not be subsequently revised. See “General Terms of Notes — Consequences of a Commodity Hedging Disruption Event — Adjustment of the Payment at Maturity.”

*For notes that are linked in whole or in part to a Commodity Index and that pay interest based in whole or in part on the performance of the Underlying(s) and that provide for a payment at maturity for each note of the Principal Amount (or the Principal Amount reduced by a percentage specified in the relevant terms supplement)*

If a commodity hedging disruption event occurs, we will have the right, but not the obligation, to adjust further interest payments based on the calculation agent’s good faith determination of the Option Value of your notes on the commodity hedging disruption date. Instead of the amounts set forth in the relevant terms supplement, we will pay you on each remaining interest payment date an amount equal to:

- the Option Value of your notes, determined as described under “General Terms of Notes — Consequences of a Commodity Hedging Disruption Event — Adjustment of Remaining Interest Payments” *divided by*
- the number of interest payment dates occurring after the commodity hedging disruption date.

The interest payment on each remaining interest payment date will be fixed, regardless of any further appreciation or depreciation of the Underlying(s) after the commodity hedging disruption date. If a commodity hedging disruption event ceases to exist, the amounts determined on the commodity hedging disruption date will not be subsequently revised.

#### **The notes are not regulated by the Commodity Futures Trading Commission (the “CFTC”).**

The net proceeds to be received by us from the sale of the notes will not be used to purchase or sell any 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 protections afforded to persons who invest in regulated commodity pools.

**Regulatory developments and investigations may result in changes to the rules or methodology used to determine the value of an Underlying, which may adversely affect any payment on the notes.**

The methodologies used to determine the value of certain "benchmarks," which may include one or more Underlyings, are the subject of recent national, international and other regulatory guidance, proposals for reform and investigations. These reforms or changes made in response to these investigations may cause those benchmarks to perform differently than in the past and may have other consequences that cannot be predicted. In addition, market participants may elect not to continue to participate in the administration of certain benchmarks if these reforms and investigations increase the costs and risks associated with those activities, which could cause changes in the rules or methodologies used in certain benchmarks or lead to the disappearance of certain benchmarks. Any of these changes could adversely affect the value of the notes and any payment on the notes.

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

The calculation agent may, in its sole discretion, determine that the markets have been affected in a manner that prevents it from determining the value of any Underlying on any Determination Date and the amount of any payment on the notes. These events may include disruptions or suspensions of trading in the markets as a whole. If the 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 Determination Dates and Payment Dates will be postponed and that your return will be adversely affected. Market disruption events are defined in the relevant sections of "The Underlyings" below. In addition, if any Determination Date is postponed to the last possible day and the value of any Underlying is not available on that day because of a market disruption event or because that date is not a trading day, the calculation agent will nevertheless determine the value of that Underlying on that last possible day. See "General Terms of Notes — Postponement of a Determination Date" and "General Terms of Notes — Postponement of a Payment Date" for more information.

**Generally, if the term of the notes is not more than one year, we expect to treat the notes as short-term obligations for U.S. federal income tax purposes.**

If the term of the notes is not more than one year (including either the issue date or the last possible date that the notes could be outstanding, but not both), we expect to treat the notes as "short-term obligations" for U.S. federal income tax purposes. No statutory, judicial or administrative authority directly addresses the treatment of these notes or similar instruments for U.S. federal income tax purposes, and we do not intend to request a ruling from the Internal Revenue Service (the "IRS") with respect to these notes. As a result, certain aspects of the U.S. federal income tax consequences of an investment in the notes are uncertain. You should review carefully the section entitled "Material U.S. Federal Income Tax Consequences" in this product supplement no 3a-I and consult your tax adviser regarding your particular circumstances.

**Generally, for notes that provide for an Additional Amount and have a term of more than one year, we expect to treat the notes as “contingent payment debt instruments” for U.S. federal income tax purposes.**

If the term of the notes is more than one year (including either the issue date or the last possible date that the notes could be outstanding, but not both) and the notes provide for an Additional Amount, we expect to treat the notes as “contingent payment debt instruments” for U.S. federal income tax purposes. Under this treatment, subject to the occurrence of a commodity hedging disruption event, you generally will be required to recognize interest income in each year at the “comparable yield,” as determined by us, adjusted to take account of the difference between actual and projected payments in that year. Interest included in income will increase your basis in your notes and the projected amount of interest payments, if any, will reduce your basis in your notes. Special rules may apply if the Additional Amount and/or contingent payment(s) are determined early, including as a result of a commodity hedging disruption event. Generally, amounts received at maturity or on earlier sale or exchange in excess of your basis will be treated as additional interest income. Any loss generally will be treated as an ordinary loss to the extent of all previous inclusions with respect to your notes, with the balance treated as capital loss, which may be subject to limitations. Losses may be subject to special reporting requirements. You should review carefully the section entitled “Material U.S. Federal Income Tax Consequences” in this product supplement no. 3a-I and consult your tax adviser regarding your particular circumstances.

**Generally, the tax treatment of notes that do not provide for an Additional Amount and have a term of more than one year will not be clear.**

We expect to treat notes that do not provide for an Additional Amount and have a term of more than one year as either contingent payment debt instruments or variable rate debt instruments, depending on the terms of the particular offering. In either case, we expect that there will be some risk that the IRS could determine that our treatment of these notes was incorrect. Any such determination could have adverse U.S. federal income tax consequences for you. You should review carefully the section entitled “Material U.S. Federal Income Tax Consequences” in this product supplement no. 3a-I and consult your tax adviser regarding your particular circumstances.

**Historical performance of any Underlying should not be taken as an indication of the future performance of that Underlying during the term of the notes.**

The actual performance of any Underlying over the term of the notes, as well as any payment on the notes, may bear little relation to the historical performance of that Underlying. The future performance of any Underlying may differ significantly from its historical performance, and no assurance can be given as to the value of any Underlying during the term of the notes, including on any Determination Date. It is impossible to predict whether the value of any Underlying will rise or fall. We cannot give you assurance that the performance of the Underlying(s) will not adversely affect any payment on the notes.

**JPMorgan Chase & Co. employees holding the notes must comply with policies that limit their ability to purchase or sell the notes.**

If you are an employee of JPMorgan Chase & Co. or one of its affiliates, you may acquire the notes only 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 the notes from us, and your ability to trade or sell the notes in the secondary market may be limited.

## Risks Relating to Conflicts of Interest

**Our offering of the notes does not constitute an expression of our view about, or a recommendation of, any Reference Stock, Index or Fund or the securities, commodities, futures contracts or other assets or market measures underlying any Index or Fund.**

You should not take our offering of the notes as an expression of our views about how any Reference Stock, Index or Fund or the securities, commodities, futures contracts or other assets or market measures underlying any Index or Fund will perform in the future or as a recommendation to invest (directly or indirectly, by taking a long or 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 one or more of 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 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 one or more Reference Stocks or Funds, the securities, commodities, futures contracts or other assets underlying the Indices and the Funds or related currency exchange rates or instruments the value of which is derived from one or more Reference Stocks, Indices or Funds, the securities, commodities, futures contracts or other assets or market measures underlying one or more Indices or Funds or related currency exchange rates. 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 Determination Date. In addition, JPMS and other affiliates of ours also trade the foregoing 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 or other trading activities could potentially affect the value of the Underlying(s) and may adversely affect the value of the notes or any payment on the notes. See “Use of Proceeds and Hedging” below for additional information about our hedging activities.

This hedging and trading activity may present a conflict of interest between your interests as a holder of the notes and our affiliates’ interests in hedging and other trading activities. These hedging and trading activities could also affect the price at which JPMS is willing to purchase your notes in the secondary market. In addition, our hedging counterparties expect to make a profit. Because hedging our obligations entails risk and may be influenced by market forces beyond our control, this hedging may result in a profit that is more or less than expected, or it may result in a loss. It is possible that these 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 the issuer of a Reference Stock or companies the securities of which are included in an Index, held by a Fund or included in a relevant Underlying 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. 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.

In addition, in the course of our business, we or our affiliates may acquire nonpublic information about one or more Reference Stocks, Indices or Funds or the securities, commodities, futures contracts or other assets or market measures underlying one or more Indices or Funds or currency exchange rates relating to any of the foregoing, and we will not disclose any such information to you.

Furthermore, 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 value of a Reference Stock, an Index or a Fund or the securities, commodities, futures contracts or other assets or market measures underlying an Index or Fund. To the extent that we or one of our affiliates serves as issuer, agent or underwriter for these securities or financial instruments, our or their interests with respect to these securities or financial instruments 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.

The value of one or more Underlyings may be determined in whole or in part by reference to the value of a benchmark that is established based on quotes, prices, values or other data provided by market participants, including, in some cases, us or our affiliates. We and our affiliates will have no obligation to consider your interests as a holder of the notes in taking any actions that might affect the value of any Underlying or the notes.

**We or our affiliates may have economic interests that are adverse to those of the holders of the notes due to JPMS's role as calculation agent.**

JPMS, one of our affiliates, will act as the calculation agent. The calculation agent makes all necessary calculations and determinations in connection with the notes, including with respect to any payments on the notes and the assumptions used to determine the pricing and estimated value of the notes. 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 calculation agent, is entitled to exercise discretion. See "General Terms of Notes — Postponement of a Determination Date" and "The Underlyings" in this product supplement.

**JPMS and its affiliates may have published research, expressed opinions or provided recommendations that are inconsistent with investing in or holding the notes or that may adversely affect the value of the notes, and may do so in the future.**

JPMS and its affiliates may publish research reports, express opinions or provide recommendations from time to time that relate to one or more Reference Stocks, Indices or Funds, the securities, commodities, futures contracts or other assets underlying one or more Indices and the Funds or currency exchange rates relating to any of the foregoing. These research reports, opinions or recommendations may be inconsistent with purchasing or holding the notes and could adversely affect the value of the notes. Any research, opinions or recommendations expressed by JPMS or its affiliates may not be consistent with each other and may be modified from time to time without notice. Investors should make their own independent investigation of the merits of investing in the notes and any Underlying to which the notes are linked.

**Risks Relating to the Estimated Value and Secondary Market Prices of the Notes**

**JPMS's estimated value of the notes will be lower than the original issue price (price to public) of the notes.**

JPMS's estimated value is only an estimate using several factors. Unless otherwise specified in the relevant terms supplement, the original issue price of the notes will exceed JPMS's estimated value because costs associated with selling, structuring and hedging the notes are included in the original issue price of the notes. These costs include the selling commissions and structuring fees, if any, the projected profits, if any, that our affiliates expect to realize for assuming risks inherent in hedging our obligations under the notes and the estimated cost of hedging our obligations under the notes. See "Description of Notes — JPMS's Estimated Value of the Notes" above in this product supplement.

**JPMS's estimated value will not represent future values of the notes and may differ from others' estimates.**

JPMS's estimated value of the notes will be determined by reference to JPMS's internal pricing models when the terms of the notes are set. This estimated value will be based on market conditions and other relevant factors existing at that time and JPMS's assumptions about market parameters, which can include volatility, correlation, dividend rates, interest rates and other factors. Different pricing models and assumptions could provide valuations for notes that are greater than or less than JPMS's estimated value. In addition, market conditions and other relevant factors may change after JPMS's estimated value has been determined, and any assumptions may prove to be incorrect. The value of the notes could change significantly after JPMS's estimated value has been determined based on, among other things, changes in market conditions, our creditworthiness, interest rate movements and other relevant factors, which may impact the price, if any, at which JPMS would be willing to buy notes from you in secondary market transactions. See "Description of Notes — JPMS's Estimated Value of the Notes" above in this product supplement.

**JPMS's estimated value will not be determined by reference to credit spreads for our conventional fixed-rate debt.**

The internal funding rate used in the determination of JPMS's estimated value will generally represent a discount from the credit spreads for our conventional fixed-rate debt. The discount is based on, among other things, our view of the funding value of the notes as well as the higher issuance, operational and ongoing liability management costs of the notes in comparison to those costs for our conventional fixed-rate debt. If JPMS were to use the interest rate implied by our conventional fixed-rate credit spreads, we would expect the economic terms of the notes to be more favorable to you. In addition, JPMS's estimated value might be lower if it were based on the interest rate implied by our conventional fixed-rate credit spreads. Consequently, our use of an internal funding rate would have an adverse effect on the terms of the notes and any secondary market prices of the notes. See "Description of Notes — JPMS's Estimated Value of the Notes" above in this product supplement.

**The value of the notes as published by JPMS (and which may be reflected on customer account statements) may be higher than JPMS's then-current estimated value of the notes for a limited time period.**

The relevant terms supplement may specify that we will generally expect that some of the costs included in the original issue price of the notes will be partially paid back to you in connection with any repurchases of your notes by JPMS in an amount that will decline to zero over an initial predetermined period. These costs can include selling commissions and structuring fees, if any, projected hedging profits, if any, and, in some circumstances, estimated hedging costs and our secondary market credit spreads for structured debt issuances. See "Description of Notes — Secondary Market Prices of the Notes" above in this product supplement. Accordingly, the estimated value of your notes during this initial period may be lower than the value of the notes as published by JPMS (and which may be shown on your customer account statements).

**Secondary market prices of the notes will likely be lower than the original issue price of the notes.**

Any secondary market prices of the notes will likely be lower than the original issue price of the notes because, among other things, secondary market prices take into account our secondary market credit spreads for structured debt issuances and, also, because secondary market prices (a) exclude selling commissions and structuring fees, if any, and (b) may exclude projected hedging profits, if any, and estimated hedging costs that are included in the original issue price of the notes. As a result, the price, if any, at which JPMS will be willing to buy notes from you in secondary market transactions, if at all, is likely to be lower than the original issue price. Any sale by you prior to the maturity date could result in a substantial loss to you. See the immediately following risk factor for information about additional factors that will impact any secondary market prices of the notes.

**Secondary market prices of the notes will be impacted by many economic and market factors.**

The secondary market price of the notes during their term will be impacted by a number of economic and market factors, which may either offset or magnify each other, aside from the selling commissions and structuring fees, if any, projected hedging profits, if any, estimated hedging costs and the value of the Underlying(s), including:

- any actual or potential change in our creditworthiness or credit spreads;
- customary bid-ask spreads for similarly sized trades;
- secondary market credit spreads for structured debt issuances;
- the actual and expected frequency and magnitude of changes in the value of any Underlying (*i.e.*, volatility);
- prevailing market prices, volatility and liquidity of any option or futures contracts relating to any Underlying;
- the time to maturity of the notes;
- the dividend rate on a Reference Stock or on the equity securities underlying an Index or a Fund (while not paid to holders of the notes, dividend payments on a Reference Stock or on any equity securities underlying an Index or a Fund may influence the value of the Underlying(s) and the market value of options on the Underlying(s) and therefore affect the market value of the notes);
- the occurrence of certain corporate events to the shares of a Reference Stock that may or may not require an adjustment to the applicable Stock Adjustment Factor or, in the case of a Reference Stock that is a non-U.S. equity security or an ADS, the selection of a Successor Foreign Reference Stock or a Successor Reference Stock, as applicable;
- the occurrence of certain events to the shares of a Fund that may or may not require an adjustment to the applicable Share Adjustment Factor;
- supply and demand trends and market prices at any time for the commodities underlying the futures contracts that compose any Commodity Index or Commodity Fund;
- interest and yield rates in the market generally, as well as in the markets of a Reference Stock and the markets of the securities, commodities, futures contracts or other assets or market measures underlying an Index or a Fund;
- economic, financial, political, regulatory and judicial events that affect a Reference Stock, the securities underlying an Index or a Fund or stock markets generally;
- economic, financial, political, regulatory, geographical, agricultural, meteorological or judicial events that affect a Commodity Index or a Commodity Fund or commodity markets generally;
- for notes linked to two or more Underlyings, changes in correlation (the extent to which the values of the Underlyings increase or decrease to the same degree at the same time) between the Underlyings; and
- the exchange rates and the volatility of the exchange rates between the U.S. dollar and the currencies in which an Underlying Stock (with respect to a Reference Stock that is an ADS) or the equity securities underlying a Non-U.S. Index or a Non-U.S. Fund are traded, and, if a Non-U.S. Index or a Non-U.S. Fund is calculated in one currency and the equity securities underlying that Non-U.S. Index or Non-U.S. Fund are traded in one or more other currencies, the correlation between those rates and the value of that Non-U.S. Index or Non-U.S. Fund.

Additionally, independent pricing vendors and/or third party broker-dealers may publish a price for the notes, which may also be reflected on customer account statements. This price may be different (higher or lower) than the price of the notes, if any, at which JPMS may be willing to purchase your notes in the secondary market.

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.

### **Risks Relating to Basket Notes**

#### **The Underlyings included in a Basket may not be equally weighted.**

If so specified in the relevant terms supplement, the Underlyings included in a Basket may have different weights in determining the value of the Basket. For example, the relevant terms supplement may specify that the Basket consists of five Underlyings and that the weights of the Underlyings are 25%, 30%, 15%, 20% and 10%. One consequence of an unequal weighting of the Underlyings is that the same percentage change in two of the Underlyings may have different effects on the value of the Basket. For example, if the weight for Underlying A is greater than the weight for Underlying B, a 5% decrease in the value of Underlying A will have a greater effect on the value of the Basket than a 5% decrease in value of Underlying B.

#### **The weights of the Underlyings included in a Basket may be determined on a date other than the pricing date.**

If so specified in the relevant terms supplement, the weights of the Underlyings included in a Basket may be determined on a date or dates other than the pricing date. For example, the relevant terms supplement may specify that the weights of the Underlyings will be determined based on the relative magnitude of the return of each Underlying as of the final Determination Date. As a result, if the relevant terms supplement so specifies, you will not know the weight assigned to each Underlying until a date later than the pricing date, and you may not know the weight assigned to each Underlying in the Basket prior to the final Determination Date.

#### **Changes in the values of the Underlyings included in a Basket may not be correlated and may offset each other, or changes in value may be correlated in a manner that adversely affects any payment on the notes.**

Movements in the values of the Underlyings included in a Basket may not be correlated with each other. For notes that provide long (or bullish) exposure to the Basket, at a time when the value of one or more of the Underlyings increases, the value of the other Underlyings may not increase as much or may even decline. Therefore, in calculating the performance of the Basket, increases in the value of one or more of the Underlyings may be moderated, or more than offset, by lesser increases or declines in the value of the other Underlying or Underlyings, particularly if the Underlying or Underlyings that appreciate are of relatively low weight in the Basket. In addition, high correlation of movements in the values of the Underlyings during periods of negative returns among the Underlyings could have an adverse effect on any payment on the notes.

Similarly, for notes that provide short (or bearish) exposure to the Basket, at a time when the value of one or more of the Underlyings decreases, the value of the other Underlyings may not decrease as much or may even increase. Therefore, in calculating the performance of the Basket, declines in the value of one or more of the Underlyings may be moderated, or more than offset, by lesser declines or increases in the value of the other Underlying or Underlyings, particularly if the Underlying or Underlyings that depreciate are of relatively low weight in the Basket. In addition, high correlation of movements in the values of the Underlyings during periods of positive returns among the Underlyings could have an adverse effect on any payment on the notes.

## **Risks Relating to Least Performing Underlying Notes and Greatest Performing Underlying Notes**

**You are exposed to the risks associated with each Underlying.**

The return on Least Performing Underlying Notes or Greatest Performing Underlying Notes is contingent upon the individual performance of each Underlying and not the performance of a basket of the Underlyings. Unlike an instrument with a return linked to a basket of underlying assets, in which risk is diversified among all the components of the basket, you will be exposed equally to the risks related to any of the Underlyings. The performance of the Underlyings may not be correlated, and the performance of any one of the Underlyings over the term of the notes may negatively affect any payment on the notes and will not be offset by the performance of any or all of the other Underlyings. Accordingly, your investment is subject to the risks associated with each Underlying.

**Any payment on the notes may be determined by reference to the performance of the Underlying that will result in the worst performance of the notes.**

Any payment on the notes may be determined by reference to the performance of the Underlying that will result in the worst performance of the notes, and you will not benefit from the performance of any other Underlying. For example, for Least Performing Underlying Notes, which provide long (or bullish) exposure, any payment on the notes may be determined solely by reference to the Underlying with the lowest return. Similarly, for Greatest Performing Underlying Notes, which provide short (or bearish) exposure, any payment on the notes may be determined solely by reference to the Underlying with the highest return. Accordingly, the performance of a single Underlying can adversely affect the value of the notes and any payment on the notes, regardless of the performance of any other Underlying.

## **Risks Relating to Relative Performance Notes**

**The return on the notes is based on the relative performance of the Underlyings.**

You may receive a lower return on the notes than you could receive by taking directly a long position in the Long Underlying(s) or a short position in the Short Underlying(s). Unlike a long position in the Long Underlying(s) or a short position in the Short Underlying(s), you may not earn a positive return even if each Long Underlying appreciates or each Short Underlying depreciates over the term of the notes. Unless otherwise specified in the relevant terms supplement, it is possible that you will not earn a positive return when all the Underlyings appreciate or when all the Underlyings depreciate, if, in either case, the return of the Long Underlying(s) is less than the return of the Short Underlying(s). The notes will be linked to the performance of the Long Underlying(s) as compared to the performance of the Short Underlying(s) and thus are affected by the relative, not absolute, performance of the Underlyings. Unless otherwise specified in the relevant terms supplement, in order to receive a positive return on the notes, the return of the Long Underlying(s) must be greater than the return of the Short Underlying(s), in each case calculated as set forth in the relevant terms supplement.

**Changes in the value of any Long Underlying may be partially offset or entirely negated by changes in the value of any Short Underlying.**

Changes in the value of any Long Underlying may be partially offset or entirely negated by changes in the value of any Short Underlying. If the returns of the Underlyings are strongly correlated, you may not receive a positive return on the notes, unless otherwise specified in the relevant terms supplement. Conversely, if the returns of the Underlyings are not correlated, your investment will be exposed to the return of the Long Underlying(s) relative to the return of the Short Underlying(s), in each case calculated as set forth in the relevant terms supplement. Your notes may not generate a positive return even if the return of the Long Underlying is positive or the return of the Short Underlying is negative.

**You are exposed to the risks associated with each Underlying.**

The return on Relative Performance Notes is contingent upon the individual performance of each Underlying and not the performance of a basket of the Underlyings. Unlike an instrument with a return linked to a basket of underlying assets, in which risk is diversified among all the components of the basket, you will be exposed equally to the risks related to all of the Underlyings. Poor performance by the Long Underlying(s) or strong performance by the Short Underlying(s) over the term of the notes may negatively affect your return on the notes. Accordingly, your investment is subject to the risks associated with each Underlying.

**Risks Relating to a Reference Stock**

**We have no affiliation with the issuer of any Reference Stock.**

The issuer of any Reference Stock is not an affiliate of ours and will not be involved in any of our offerings of notes pursuant to this product supplement in any way. As a result, we will have no ability to control the actions of the issuer of any Reference Stock, including actions that could affect the value of any Reference Stock or your notes. No Reference Stock issuer will have an obligation to consider your interest as an investor in the notes in taking any corporate actions that might affect the value of your notes. None of the money you pay for the notes will go to the issuer of any Reference Stock.

**Your return on the notes will not reflect dividends or other distributions on a Reference Stock.**

Your return on the notes will not reflect the return you would realize if you actually owned a Reference Stock and received the dividends or other distributions paid on that Reference Stock (except in the limited circumstances set forth under “The Underlyings — Reference Stocks — Anti-Dilution Adjustments — Cash Dividends or Distributions”). This is because the calculation agent will calculate any payment on the notes, in whole or in part, by reference to the values of that Reference Stock. The values of that Reference Stock will reflect the price of that Reference Stock on the relevant Determination Date(s) without taking into consideration the value of dividends or other distributions paid on that Reference Stock.

**If a Reference Stock is a non-U.S. equity security, any amount payable on the notes will not be adjusted for changes in exchange rates that might affect that Reference Stock.**

Although the non-U.S. equity security serving as the Reference Stock is traded in a currency other than U.S. dollars and the notes are denominated in U.S. dollars, amounts payable on the notes, if any, will not be adjusted for changes in the exchange rate between the U.S. dollar and the non-U.S. currency in which a non-U.S. equity security serving as a Reference Stock is denominated. Changes in exchange rates, however, may affect the value of the notes. In addition, changes in exchange rates reflect changes in various non-U.S. economies that in turn may affect any payment on the notes.

**We or one of our affiliates may serve as the depository for the American depositary shares representing the common stock of an issuer.**

We or one of our affiliates may serve as depository for some foreign companies that issue ADSs. If a Reference Stock is an ADS, and we or one of our affiliates serves as depository for those ADSs, our or our affiliate’s interests, as depository for the ADSs, may be adverse to your interests as a holder of the notes.

**If a Reference Stock is an ADS, the notes will be subject to currency exchange risk.**

Because the price of an ADS is quoted and traded in U.S. dollars while the Underlying Stock represented by that ADS is quoted and traded in a non-U.S. currency, the holders of the notes will be exposed to currency exchange rate risk with respect to the currency in which the Underlying Stock trades. An investor's net exposure will depend on the extent to which that currency strengthens or weakens against the U.S. dollar. If the U.S. dollar changes in value relative to that currency, the value of the relevant ADSs and any payment on the notes may be adversely affected.

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 in the countries issuing those currencies and the United States and between each country and its major trading partners;
- political, civil or military unrest in the countries issuing those currencies and the United States; 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.

**We have no control over exchange rates.**

Foreign exchange rates can either float or be fixed by sovereign governments. Exchange rates of the currencies used by most economically developed nations are permitted to fluctuate in value relative to the U.S. dollar and to each other. However, from time to time governments and, in the case of countries using the euro, the European Central Bank, may use a variety of techniques, such as intervention by a central bank, the imposition of regulatory controls or taxes or changes in interest rates to influence the exchange rates of their currencies. Governments may also issue a new currency to replace an existing currency or alter the exchange rate or relative exchange characteristics by a devaluation or revaluation of a currency. These governmental actions could change or interfere with currency valuations and currency fluctuations that would otherwise occur in response to economic forces, as well as in response to the movement of currencies across borders. As a consequence, these governmental actions could adversely affect an investment in a note that is linked, in whole or in part, to the ADSs of one or more foreign issuers, which are quoted and traded in U.S. dollars, each representing an Underlying Stock that is quoted and traded in a foreign currency.

We will not make any adjustment or change in the terms of the notes in the event that exchange rates should become fixed, or in the event of any devaluation or revaluation or imposition of exchange or other regulatory controls or taxes, or in the event of other developments affecting the U.S. dollar or any relevant foreign currency. You will bear those risks.

**If a Reference Stock is a non-U.S. equity security or an ADS, an investment in the notes is subject to risks associated with non-U.S. securities markets.**

An investment in the notes linked, in whole or in part, to the value of a non-U.S. equity security, or the value of the ADSs of one or more foreign issuers representing interests in non-U.S. equity securities, involves risks associated with the securities markets in those countries where the relevant non-U.S. equity securities are traded, 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 SEC, 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 those markets, including changes in a country's government, economic and fiscal policies, currency exchange laws or other laws or restrictions. Moreover, the economies of these 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. These 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, may 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, in whole or in part, to the common stock or ADSs of one or more emerging markets issuers.

Some or all of these factors may influence the price of the non-U.S. equity security or ADSs. 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 non-U.S. equity security or ADSs based on their historical performance. The value of the non-U.S. equity security or ADSs may change in a manner that would adversely affect any payment on the notes.

**There are important differences between the rights of holders of ADSs and the rights of holders of the common stock of the foreign company.**

If your note is linked, in whole or in part, to the performance of the ADSs of one or more foreign issuers, you should be aware that your note is linked, in whole or in part, to the prices of the ADSs and not to the applicable Underlying Stocks, and there exist important differences between the rights of holders of ADSs and those of the Underlying Stocks. Each ADS is a security evidenced by American Depositary Receipts that represents a specified number of shares of common stock of a foreign issuer. Generally, the ADSs are issued under a deposit agreement, which sets forth the rights and responsibilities of the depository, the foreign issuer and holders of the ADSs, which may be different from the rights of holders of common stock of the foreign issuer. For example, the foreign issuer may make distributions in respect of its common stock that are not passed on to the holders of its ADSs. Any such differences between the rights of holders of the ADSs and holders of the applicable Underlying Stock may be significant and may materially and adversely affect the value of the notes.

**In some circumstances, the payment you receive on the notes may be based on the common stock(s) (or ADSs, as applicable) of one or more companies that are not the applicable Reference Stock(s).**

Following certain corporate events relating to a Reference Stock where its issuer is not the surviving entity, a portion of any payment on the notes may be based on the common stock of a successor to that Reference Stock issuer or any cash or any other assets distributed to holders of that Reference Stock in the relevant corporate event. The occurrence of these corporate events and the consequent adjustments may materially and adversely affect the value of the notes. We describe the specific corporate events that can lead to these adjustments and the procedures for selecting Exchange Property (as described below) in the section of this product supplement called “The Underlyings — Reference Stocks — Reorganization Events.”

In addition, following the delisting or discontinuation of trading of a non-U.S. equity security serving as the Reference Stock or the nationalization of the issuer of a non-U.S. equity security serving as the Reference Stock, the calculation agent will have the option to replace the Reference Stock with the common stock of a company organized in or with its principal executive office located in, the country in which the issuer of the Reference Stock is organized, or has its principal executive office, selected from among the common stocks of three companies with the three largest market capitalizations within the same industry as the issuer of the Reference Stock that also have an equity security that is listed and traded on a national securities exchange in the United States. Upon the occurrence of any such event, you will become subject to the closing price risk of the Successor Foreign Reference Stock. We describe the procedures for selecting another Reference Stock and Reference Stock issuer in the section of this product supplement entitled “The Underlyings — Reference Stocks — Delisting of a Reference Stock or Nationalization of a Reference Stock Issuer.” You should read the section of this product supplement called “The Underlyings — Reference Stocks — Delisting of a Reference Stock or Nationalization of a Reference Stock Issuer” for more information. Replacing the original non-U.S. equity security serving as the Reference Stock with another equity security may materially and adversely affect the value of the notes.

Furthermore, for notes linked to the performance of one or more ADSs, if that ADS is no longer listed or admitted to trading on a U.S. securities exchange registered under the Exchange Act, or included in the OTC Bulletin Board, or if the ADS facility between the issuer of the applicable Underlying Stock and the ADS depository is terminated for any reason, the calculation agent will have the option to either (a) (i) replace that ADS with the ADS of a company selected from among the ADSs of three companies organized in, or with their principal executive offices located in, the country in which the issuer of that original ADS is organized, or has its principal executive office, and that are then registered to trade on the New York Stock Exchange (the “NYSE”) or The NASDAQ Stock Market with the same primary Standard Industrial Classification Code (“SIC Code”) as that original ADS that, in the sole discretion of the calculation agent, are the most comparable to that original ADS, taking into account such factors as the calculation agent deems relevant, including, without limitation, market capitalization, dividend history and stock price volatility or (ii) in certain circumstances, replace that ADS with the ADS of a company that is organized in, or with its principal executive office located in, the country in which the issuer of the original ADS is organized, or has its principal executive office and that is then registered to trade on the NYSE or The NASDAQ Stock Market that, in the sole discretion of the calculation agent, is the most comparable to the original ADS, taking into account such factors as the calculation agent deems relevant, including, without limitation, market capitalization, dividend history and stock price volatility and that is within the same Division and Major Group classification (as defined by the Office of Management and Budget) as the primary SIC Code for the original ADS or (iii) in certain circumstances, replace that ADS with the common stock of a company that is then registered to trade on the NYSE or The NASDAQ Stock Market with the same primary SIC Code as the original ADS that, in the sole discretion of the calculation agent, is the most comparable to the original ADS, taking into account such factors as the calculation agent deems relevant including, without limitation, market capitalization, dividend history and stock price volatility or (b) deem the applicable Underlying Stock to be that Reference Stock. You should read the section of this product supplement called “The Underlyings — Reference Stocks — Delisting of ADSs or Termination of ADS Facility” for more information. Replacing the original ADS serving as a Reference Stock with another ADS may materially and adversely affect the value of the notes.

**Anti-dilution protection is limited and may be discretionary.**

The calculation agent will make adjustments to the Stock Adjustment Factor for each Reference Stock, which will be set initially at 1.0, for certain adjustment events (as defined below) affecting that Reference Stock, including stock splits and certain corporate actions, such as mergers. The calculation agent is not required, however, to make such adjustments in response to all corporate actions, including if the issuer of a Reference Stock or another party makes a partial tender or partial exchange offer for a Reference Stock. If such a dilution event occurs and the calculation agent is not required to make an adjustment, the value of the notes may be materially and adversely affected. You should also be aware that the calculation agent may make adjustments in response to events that are not described in this product supplement to account for any dilutive or concentrative effect, but the calculation agent is under no obligation to do so. With respect to the issuance of transferrable rights or warrants, the calculation agent may also make adjustments in a manner that differs from what is described in this product supplement in good faith to ensure an equitable result. Subject to the foregoing, the calculation agent is under no obligation to consider your interests as a holder of the notes in making these determinations. See “The Underlyings — Reference Stocks — Anti-Dilution Adjustments” for further information.

**We may exercise any and all rights we may have as a lender to, or a security holder of, the issuer of a Reference Stock.**

If we or any of our affiliates are lenders to, or hold securities of, the issuer of a Reference Stock, we will have the right, but not the obligation, to exercise or refrain from exercising our rights as a lender to, or holder of securities of, that issuer. Any exercise of our rights as a lender or holder of securities of the issuer of a Reference Stock, or our refraining from such exercise, will be made without regard to your interests and could affect the value of the notes.

**We cannot assure you that publicly available information provided about the issuer of a Reference Stock is accurate or complete.**

All disclosures contained in the relevant terms supplement regarding the issuer of any Reference Stock will be derived from publicly available documents and other publicly available information, without independent verification. We have not participated, and will not participate, in the preparation of those documents, and we have not made, and will not make, any due diligence inquiry with respect to the issuer of any Reference Stock in connection with the offering of the notes. We do not make any representation that those publicly available documents or any other publicly available information regarding the issuer of any Reference Stock is accurate or complete, and we are not responsible for public disclosure of information by the issuer of any Reference Stock, whether contained in filings with the SEC or otherwise. We also cannot give any assurance that all events occurring prior to the date of the relevant terms supplement (including events that would affect the accuracy or completeness of the publicly available documents of the issuer of any Reference Stock) that would affect the value of any Reference Stock will have been publicly disclosed. Subsequent disclosure of any of these events or the disclosure of, or failure to disclose, material future events concerning the issuer of any Reference Stock could affect the market value of the notes or any payment on the notes. Any prospective purchaser of the notes should undertake an independent investigation of the issuer of any Reference Stock as in its judgment is appropriate to make an informed decision with respect to an investment in the notes.

## Risks Relating to an Index

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

The applicable Index Sponsor is responsible for maintaining an Index. The Index Sponsor can add, delete or substitute the securities, commodities, futures contracts or other assets or market measures underlying the applicable Index or make other methodological changes that could change the level of that Index. You should realize that the changing of securities, commodities, futures contracts or other assets or market measures included in an Index may affect that Index, as a newly added security, commodity, futures contract or other asset or market measure may perform significantly better or worse than the asset or assets it replaces. Additionally, the Index Sponsor may alter, discontinue or suspend calculation or dissemination of the applicable Index. Any of these actions could adversely affect the value of the notes. The Index Sponsor of an Index has no obligation to consider your interests in calculating or revising that Index. See the relevant index description section in any accompanying underlying supplement or the relevant terms supplement for additional information.

**The reported level of an Index may include the deduction of index fees or other adjustments.**

Any accompanying underlying supplement or the relevant terms supplement may specify that the reported levels of an Index may include a deduction from the aggregate performance of the relevant securities, commodities, futures contracts or other assets or market measures underlying that Index of index fees or other adjustments. Under these circumstances, as a result of these deductions, the value of that Index will trail the value of a hypothetical identically constituted synthetic portfolio that is not subject to those index fees or other adjustments.

**For notes linked to an Index, unless otherwise specified in the relevant terms supplement or any accompanying underlying supplement, to our knowledge, our securities are not currently included in an Index.**

As a general matter, none of the issuers the securities of which are included in an Index will be involved in the offering of the notes in any way. As a result, we will have no ability to control the actions of the issuers of those securities, including actions that could affect the value of the securities underlying an Index or your notes. None of those issuers 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. Unless otherwise specified in the relevant terms supplement or any accompanying underlying supplement, none of the money you pay for the notes will go to any of the issuers of the securities included in any Index. See any accompanying underlying supplement or the relevant terms supplement for additional information about whether we are one of the companies included in an Index.

In the event that our securities are included in an Index, we will have no obligation to consider your interests as a holder of the notes in taking any action with respect to that issuer that might affect the value of your notes.

**For notes that provide long (or bullish) exposure to an Index that is not a total return index, your return on the notes will not reflect dividends, interest payments or other distributions on the securities underlying that Index.**

For notes that provide long (or bullish) exposure to an Index that is not a total return index, your return on the notes will not reflect the return you would realize if you actually owned the securities underlying that Index and received the dividends, interest payments or other distributions paid on those securities. This is because the calculation agent will calculate any payment on the notes, in whole or in part, by reference to the values of that Index. The values of that Index will reflect the prices of the securities underlying that Index on the relevant Determination Date(s) without taking into consideration the value of dividends, interest payments or other distributions paid on those securities.

**For notes that provide short (or bearish) exposure to an Index that is a total return index, your return on the notes will be adversely affected by dividends, interest payments or other distributions on the securities underlying that Index.**

The level of a total return index reflects the prices of the securities included in that index, as well as the value of dividends, interest payments or other distributions on the securities underlying that Index on those securities. Accordingly, if the notes are linked to a total return index, any dividends, interest payments or other distributions on the securities underlying that Index will have a positive effect on the level of that index, which will adversely affect the value of the short (or bearish) notes.

**For notes linked in whole or in part to a Volatility Index, the notes will be subject to risks associated with Volatility Indices.**

For notes linked in whole or in part to a Volatility Index, the notes will be subject to risks associated with Volatility Indices. See “— Risks Relating to a Volatility Index” below.

**For notes linked in whole or in part to a Non-U.S. Index, the notes will be subject to risks associated with non-U.S. Indices.**

For notes linked in whole or in part to a Non-U.S. Index, the notes will be subject to risks associated with non-U.S. Indices. See “— Risks Relating to a Non-U.S. Index or a Non-U.S. Fund” below.

**For notes linked in whole or in part to a Bond Index, the notes will be subject to risks associated with Bond Indices.**

For notes linked in whole or in part to a Bond Index, the notes will be subject to risks associated with Bond Indices. See “— Risks Relating to a Bond Index or a Bond Fund” below.

**For notes linked in whole or in part to a Commodity Index, the notes will be subject to risks associated with Commodity Indices.**

For notes linked in whole or in part to a Commodity Index, the notes will be subject to risks associated with Commodity Indices. See “— Risks Relating to a Commodity Index or a Commodity Fund” below.

### **Risks Relating to a Volatility Index**

**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. Notes linked to a Volatility Index will reflect the price of the VIX futures contracts included in that Volatility Index. VIX futures contracts allow investors the ability to invest in forward equity volatility based on their view of the future direction of the 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® Index.

As a consequence, investors in notes linked to a Volatility Index 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 monitor their investment in the notes to ensure that it remains consistent with their investment objectives.

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

A Volatility Index is designed to track one or more positions (long and/or short) in VIX futures contracts, which are, in turn, based on the VIX 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 a Volatility Index is based on this theoretically derived calculation. As a result, the behavior of the VIX futures contracts that are included in a Volatility Index may be different from futures contracts the settlement prices of which are based on tradable assets.

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

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

**The settlement price of VIX futures contracts may not be readily available.**

The official settlement prices of VIX futures contracts used to calculate the level of any Volatility Index are calculated and published by the Chicago Board Options Exchange, Incorporated (the "CBOE"). 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 a Volatility Index and may adversely affect the value of the notes.

**Changes in the margin requirements for VIX futures contracts included in a 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 changes the amount of collateral required to be posted to hold positions in VIX futures contracts underlying a Volatility Index, market participants may adjust their positions, which may affect the prices of the relevant VIX futures contracts. As a result, the level of a Volatility Index may be affected, which may adversely affect the value of the notes.

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

VIX futures contracts have traded freely only 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 any Volatility Index are of recent origin and limited historical performance data exists with respect to them, your investment in notes linked to a Volatility Index may involve a greater risk than investing in alternate securities linked solely to one or more market 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 performance of a Volatility Index and the value of the notes.

**Notes linked to a Volatility Index are not linked to the VIX Index directly, and the value of the notes may be less than it would have been had the notes been linked to the VIX Index.**

Your ability to benefit from any rise or fall in the level of the VIX Index through an investment in notes linked to a Volatility Index is limited. A Volatility Index will reflect the performance of VIX futures contracts, which will not necessarily track the performance of the VIX Index or any position in the VIX Index. The notes may not benefit from increases or decreases in the level of the VIX Index because those 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 notes linked to a Volatility Index.

**Notes linked to a Volatility Index are not linked to the options used to calculate the VIX Index, the actual volatility of the S&P 500® Index or 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 notes linked to a Volatility Index will be based in part on the value of the relevant VIX futures contracts included in that Volatility Index. Notes linked to a Volatility Index 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 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 a Volatility Index and notes linked to a Volatility Index. 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.

### **Risks Relating to a Fund**

**The policies of the investment adviser or commodity pool operator, as applicable, for a Fund, and the sponsor of its Underlying Index, if applicable, could affect the value of, and any amount payable on, the notes.**

The policies of the investment adviser or commodity pool operator, as applicable, for a Fund concerning the calculation of the Fund's net asset value; additions, deletions or substitutions of securities, commodities, futures contracts or other assets or market measures underlying that Fund; substitutions of its Underlying Index, if applicable; and the manner in which changes affecting an Underlying Index, if applicable, are reflected in that Fund, could affect the market price of the shares of that Fund and, therefore, affect any payment on the notes and the value of the notes before maturity. Any amount payable on the notes and their value could also be affected if the investment adviser or commodity pool operator, as applicable, changes these policies, for example, by changing the manner in which it calculates the Fund's net asset value, or if the investment adviser or commodity pool operator, as applicable, discontinues or suspends calculation or publication of the Fund's net asset value, in which case it may become difficult to determine the value of the notes.

In addition, the sponsor of an Underlying Index, if applicable, is responsible for the design and maintenance of the Underlying Index. The policies of the sponsor concerning the calculation of the Underlying Index, including decisions regarding the addition, deletion or substitution of the securities, commodities, futures contracts or other assets or market measures included in the Underlying Index, if applicable, could affect the value of the Underlying Index and, consequently, the market prices of the shares of the Fund and, therefore, any payment on the notes and the value of the notes.

**There are risks associated with a Fund.**

A Fund may have a limited operating history. Although the shares of a Fund may be listed for trading on a securities exchange and a number of similar products have been traded on securities exchanges for varying periods of time, there is no assurance that an active trading market will continue for the shares of any Fund or that there will be liquidity in the trading market.

In addition, a Fund is subject to management risk, which is the risk that the applicable investment adviser's investment strategy, the implementation of which is subject to a number of constraints, may not produce the intended results. These constraints could affect the market prices of the shares of a Fund and, consequently, could adversely affect the value of the notes. See any applicable Fund description in the relevant terms supplement or any accompanying underlying supplement for additional information.

**The anti-dilution protection is limited.**

The calculation agent will make adjustments to the Share Adjustment Factor for a Fund, which will be set initially at 1.0 in each case, for certain events affecting the shares of that Fund. See "The Underlyings — Funds — Anti-Dilution Adjustments." The calculation agent is not required, however, to make those adjustments in response to all events that could affect the shares of a Fund. If an event occurs that does not require the calculation agent to make an adjustment, the value of the notes may be materially and adversely affected.

**For notes linked in whole or in part to a Fund that is designed to track an Underlying Index, the performance of the Fund may not correlate with the performance of its Underlying Index.**

Unless otherwise specified in the relevant terms supplement or any accompanying underlying supplement, a Fund that is designed to track an Underlying Index uses a representative sampling strategy or a replication or indexing strategy to attempt to track the performance of its Underlying Index. Pursuant to a representative sampling strategy, a Fund invests in a representative sample of securities that collectively has an investment profile similar to its Underlying Index; however, a Fund may not hold all or substantially all of the securities, commodities, futures contracts or other assets or market measures included in its Underlying Index. Even if a Fund uses a replication or indexing strategy, the Fund may not hold all of the securities, commodities, futures contracts or other assets or market measures included in its Underlying Index. Therefore, while the performance of a Fund is linked principally to the performance of its Underlying Index, its performance is also generally linked in part to assets other than the securities, commodities, futures contracts or other assets or market measures included in its Underlying Index because, unless otherwise specified in the relevant terms supplement, its investment adviser generally may invest a portion of a Fund's assets in securities not included in the Underlying Index and in other assets, including potentially shares of money market funds affiliated with or advised by its investment adviser.

In addition, the performance of a Fund will reflect additional transaction costs and fees that are not included in the calculation of its Underlying Index. Also, the component securities, commodities, futures contracts or other assets or market measures of a Fund may be unavailable in the secondary market due to other extraordinary circumstances. Corporate actions with respect to any of the securities (such as mergers and spin-offs) also may impact the variance between a Fund

and its Underlying Index. Finally, because the shares of a Fund may be traded on a securities exchange and may be subject to market supply and investor demand, the market value of one share of a Fund may differ from the net asset value per share of the Fund.

For all of the foregoing reasons, the performance of a Fund that is designed to track an Underlying Index may not correlate with the performance of its Underlying Index. Consequently, the return on the notes will not be the same as investing (or taking a short position) directly in any Fund or any relevant Underlying Index or in the securities, commodities, futures contracts or other assets or market measures held by any Fund or included in any relevant Underlying Index, and will not be the same as investing in a debt security linked to the performance of any relevant Underlying Index.

**Funds that are actively managed are subject to risks that are different from those of passively managed funds.**

Unlike a passively managed Fund, an actively managed Fund may not attempt to track an index or other benchmark, and the investment decisions for an actively managed Fund are instead made by its portfolio manager. The portfolio manager of an actively managed Fund may change during the term of your notes, and any replacement portfolio manager may not achieve the same results as prior portfolio managers. The portfolio manager of an actively managed Fund may adopt a strategy or strategies that are significantly higher risk than the indexing strategy employed by a passively managed Fund.

**Your return on the notes will not reflect dividends or other distributions on a Fund.**

Your return on the notes will not reflect the return you would realize if you actually owned a Fund and received the dividends or other distributions paid on that Fund (except in the limited circumstances set forth under "The Underlyings — Funds — Anti-Dilution Adjustments — Cash Dividends or Distributions"). This is because the calculation agent will calculate any payment on the notes, in whole or in part, by reference to the values of that Fund. The values of that Fund will reflect the price of that Fund on the relevant Determination Date(s) without taking into consideration the value of dividends or other distributions paid on that Fund.

**We cannot assure you that publicly available information provided about any Fund is accurate or complete.**

All disclosures contained in the relevant terms supplement regarding any Fund will be derived from publicly available documents and other publicly available information, without independent verification. We have not participated, and will not participate, in the preparation of those documents, and we have not made, and will not make, any due diligence inquiry with respect to any Fund in connection with the offering of the notes. We do not make any representation that those publicly available documents or any other publicly available information regarding any Fund is accurate or complete, and we are not responsible for public disclosure of information by any Fund, whether contained in filings with the SEC or otherwise. We also cannot give any assurance that all events occurring prior to the date of the relevant terms supplement (including events that would affect the accuracy or completeness of the publicly available documents of any Fund) that would affect the value of any Fund will have been publicly disclosed. Subsequent disclosure of any of these events or the disclosure of, or failure to disclose, material future events concerning any Fund could affect the market value of the notes or any payment on the notes. Any prospective purchaser of the notes should undertake an independent investigation of any Fund as in its judgment is appropriate to make an informed decision with respect to an investment in the notes.

**For notes linked in whole or in part to a Non-U.S. Fund, the notes will be subject to risks associated with Non-U.S. Funds.**

For notes linked in whole or in part to a Non-U.S. Fund, the notes will be subject to risks associated with Non-U.S. Funds. See “— Risks Relating to a Non-U.S. Index or a Non-U.S. Fund” below.

**For notes linked in whole or in part to a Bond Fund, the notes will be subject to risks associated with Bond Funds.**

For notes linked in whole or in part to a Bond Fund, the notes will be subject to risks associated with Bond Funds. See “— Risks Relating to a Bond Index or a Bond Fund” below.

**For notes linked in whole or in part to a Commodity Fund, the notes will be subject to risks associated with Commodity Funds.**

For notes linked in whole or in part to a Commodity Fund, the notes will be subject to risks associated with Commodity Funds. See “— Risks Relating to a Commodity Index or a Commodity Fund” below.

#### **Risks Relating to a Non-U.S. Index or a Non-U.S. Fund**

**For notes linked in whole or in part to a Non-U.S. Index or a Non-U.S. Fund, if the prices of its component non-U.S. securities are not converted into U.S. dollars for purposes of calculating the value of that Non-U.S. Index or Non-U.S. Fund, any amount payable on the notes will not be adjusted for changes in exchange rates that might affect that Non-U.S. Index or Non-U.S. Fund.**

Because the prices of the non-U.S. securities underlying the applicable Non-U.S. Index or Non-U.S. Fund are not converted into U.S. dollars for purposes of calculating the value of that Non-U.S. Index or Non-U.S. Fund and although the non-U.S. securities underlying that Non-U.S. Index or Non-U.S. Fund are traded in currencies other than U.S. dollars, and the notes, which are linked in whole or in part to that Non-U.S. Index or Non-U.S. Fund, are denominated in U.S. dollars, amounts payable on the notes, 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 non-U.S. securities underlying that Non-U.S. Index or Non-U.S. Fund are denominated. Changes in exchange rates, however, may affect the value of the notes. In addition, changes in exchange rates reflect changes in various non-U.S. economies that in turn may affect any payment on the notes.

**For notes linked in whole or in part to a Non-U.S. Index or a Non-U.S. Fund, if the prices of its component non-U.S. securities are converted into U.S. dollars for purposes of calculating the value of that Non-U.S. Index or Non-U.S. Fund, the notes will be subject to currency exchange risk.**

Because the prices of the non-U.S. securities underlying the applicable Non-U.S. Index or Non-U.S. Fund are converted into U.S. dollars for the purposes of calculating the value of that Non-U.S. Index or Non-U.S. Fund, the holders of the notes will be exposed to currency exchange rate risk with respect to each of the currencies in which the non-U.S. securities underlying that Non-U.S. Index or Non-U.S. Fund trade. An investor’s net exposure will depend on the extent to which those currencies strengthen or weaken against the U.S. dollar and the relative weight of the non-U.S. securities underlying that Non-U.S. Index or Non-U.S. Fund denominated in each applicable currency. If, taking into account the weighting, the U.S. dollar changes in value relative to those currencies, the value of that Non-U.S. Index or Non-U.S. Fund and any payment on the notes may be adversely affected.

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 in the countries issuing those currencies and in the United States and between each country and its major trading partners;
- political, civil or military unrest in the countries issuing those currencies and in the United States; 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 in whole or in part to a Non-U.S. Index or a Non-U.S. Fund, if the prices of its component non-U.S. securities are converted into U.S. dollars for purposes of calculating the value of that Non-U.S. Index or Non-U.S. Fund, changes in the volatility of exchange rates and the correlation between those rates and the values of that Non-U.S. Index or Non-U.S. Fund 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 non-U.S. securities underlying the applicable Non-U.S. Index or Non-U.S. Fund are denominated refers to a foreign exchange spot rate that measures the relative values of two currencies — the particular currency in which a security composing that Non-U.S. Index or Non-U.S. Fund is denominated and the U.S. dollar. This exchange rate reflects the amount of the particular currency in which a security composing a Non-U.S. Index or Non-U.S. Fund 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 security is denominated. The volatility of the exchange rate between the U.S. dollar and each of the currencies in which the non-U.S. securities underlying a Non-U.S. Index or Non-U.S. Fund are denominated refers to the size and frequency of changes in that exchange rate.

Because the applicable Non-U.S. Index or Non-U.S. Fund is calculated, in part, by converting the closing prices of the non-U.S. securities underlying that Non-U.S. Index or Non-U.S. Fund into U.S. dollars, the volatility of the exchange rate between the U.S. dollar and each of the currencies in which those non-U.S. 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 non-U.S. securities underlying a Non-U.S. Index or Non-U.S. Fund are denominated and the value of that Non-U.S. Index or Non-U.S. Fund refers to the relationship between the percentage changes in that exchange rate and the percentage changes in the value of that Non-U.S. Index or Non-U.S. Fund. 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 non-U.S. securities underlying a Non-U.S. Index or Non-U.S. Fund are denominated and the percentage changes in the value of that Non-U.S. Index or Non-U.S. Fund could affect the value of the notes.

**We have no control over exchange rates.**

Foreign exchange rates can either float or be fixed by sovereign governments. Exchange rates of the currencies used by most economically developed nations are permitted to fluctuate in value relative to the U.S. dollar and to each other. However, from time to time governments and, in the case of countries using the euro, the European Central Bank, may use a variety of techniques, such as intervention by a central bank, the imposition of regulatory controls or taxes or changes in interest rates to influence the exchange rates of their currencies. Governments may also issue a new currency to replace an existing currency or alter the exchange rate or relative exchange characteristics by a devaluation or revaluation of a currency. These governmental actions could change or interfere with currency valuations and currency fluctuations that would otherwise occur in response to economic forces, as well as in response to the movement of currencies across borders. As a consequence, these governmental actions could adversely affect an investment in a note that is linked, in whole or in part, to a Non-U.S. Index or Non-U.S. Fund.

We will not make any adjustment or change in the terms of the notes in the event that exchange rates should become fixed, or in the event of any devaluation or revaluation or imposition of exchange or other regulatory controls or taxes, or in the event of other developments affecting the U.S. dollar or any relevant foreign currency. You will bear those risks.

**For notes linked in whole or in part to a Non-U.S. Index or a Non-U.S. Fund, an investment in the notes is subject to risks associated with non-U.S. securities markets.**

Unless otherwise specified in the relevant terms supplement or any accompanying underlying supplement, the securities that compose a Non-U.S. Index or Non-U.S. Fund have been issued by non-U.S. companies. Investments in securities linked to the value of securities of non-U.S. issuers involve risks associated with the securities markets in those countries where the relevant non-U.S. securities are traded, 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 SEC, 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 those markets, including changes in a country's government, economic and fiscal policies, currency exchange laws or other laws or restrictions. Moreover, the economies of these 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. These 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 Non-U.S. Index or Non-U.S. Fund composed of securities traded in one or more emerging market countries.

Some or all of these factors may influence the closing level of a Non-U.S. Index or the closing price of one share of a Non-U.S. Fund. 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 an Index or a Fund based on its historical performance. The level of a Non-U.S. Index or the price of a Non-U.S. Fund may change in a manner that would adversely affect any payment on the notes.

## **Risks Relating to a Bond Index or a Bond Fund**

**Notes linked in whole or in part to a Bond Index or Bond Fund are subject to significant risks associated with fixed-income securities, including interest rate-related risks.**

Investing in notes linked in whole or in part to a Bond Index or Bond Fund differs significantly from investing directly in bonds to be held to maturity, as the values of that Bond Index or Bond Fund change, at times significantly, during each trading day based upon the current market prices of their underlying bonds. The market prices of these bonds are volatile and significantly influenced by a number of factors, particularly the yields on these bonds as compared to current market interest rates and the actual or perceived credit quality of the issuer of these bonds.

In general, fixed-income securities are significantly affected by changes in current market interest rates. As interest rates rise, the price of fixed-income securities is likely to decrease, and as interest rates fall, the price of fixed-income securities is likely to increase. Securities with longer durations tend to be more sensitive to interest rate changes, usually making them more volatile than securities with shorter durations. As a result, rising interest rates may cause the value of the long-dated bonds underlying a Bond Index or Bond Fund to which the notes provide long (or bullish) exposure to decline, possibly significantly, which would adversely affect the value of the notes. In addition, falling interest rates may cause the value of the long-dated bonds underlying a Bond Index or Bond Fund to which the notes provide short (or bearish) exposure to increase, possibly significantly, which would adversely affect the value of the notes.

Interest rates are subject to volatility due to a variety of factors, including:

- sentiment regarding underlying strength or weakness in the local economies of the issuers of the securities underlying a Bond Index or Bond Fund and global economies;
- expectations regarding the level of price inflation;
- sentiment regarding credit quality in the markets of the issuers of the securities underlying a Bond Index or Bond Fund and global credit markets;
- central bank policies regarding interest rates; and
- the performance of capital markets that include the issuers of the securities underlying a Bond Index or Bond Fund and foreign capital markets.

Prices of U.S. treasury notes have recently fallen after trading near historic high prices for an extended period of time. If the price of the U.S. treasury notes reverts to its historic mean or otherwise continues to fall as a result of a general increase in interest rates, Federal Reserve policies or actions, or perceptions of reduced credit quality of the U.S. government or otherwise, the value of the bonds underlying a Bond Index or Bond Fund that includes U.S. treasury notes will decline, which could have a negative impact on the performance of notes that provide long (or bullish) exposure to that Bond Index or Bond Fund.

In addition, inflation-protected bonds typically have lower yields than conventional fixed-rate bonds because of their inflation adjustment feature. For a Bond Index or Bond Fund that tracks inflation-protected bonds, if inflation is low, the benefit received from the inflation-protected feature of the underlying bonds may not sufficiently compensate you for their reduced yield.

**Notes that provide long (or bullish) exposure to a Bond Index or Bond Fund are subject to significant risks associated with fixed-income securities, including credit risk.**

The prices of the bonds underlying a Bond Index or Bond Fund are significantly influenced by the creditworthiness of the issuers of those bonds. The bonds underlying a Bond Index or Bond

Fund may have their credit ratings downgraded, including in the case of the investment-grade bonds, a downgrade from investment grade to non-investment grade status, or have their credit spreads widen significantly. Following a ratings downgrade or the widening of credit spreads, some or all of the bonds underlying a Bond Index or Bond Fund may suffer significant and rapid price declines. These events may affect only a few or a large number of the bonds underlying a Bond Index or Bond Fund. For example, during the most recent credit crisis in the United States, credit spreads widened significantly as the market demanded very high yields on corporate bonds, and as a result, the prices of the bonds in the U.S. dropped significantly. There can be no assurance that some or all of the factors that contributed to that credit crisis will not depress the price, perhaps significantly, of the bonds underlying a Bond Index or Bond Fund to which the notes provide long (or bullish) exposure, which would adversely affect the value of the notes.

Further, a Bond Index or Bond Fund that provides exposure to the high yield corporate market is subject to high-yield securities risk. Securities that are rated below investment grade (commonly known as "junk bonds," including those bonds rated at BB+ or lower by S&P or Fitch or Ba1 or lower by Moody's) may be more volatile than higher-rated securities of similar maturity. High-yield securities may also be subject to greater levels of credit or default risk than higher-rated securities. The value of high-yield securities can be adversely affected by overall economic conditions, such as an economic downturn or a period of rising interest rates, and high-yield securities may be less liquid and more difficult to sell at an advantageous time or price or to value than higher-rated securities. In particular, high-yield securities are often issued by smaller, less creditworthy companies or by highly leveraged (indebted) firms, which are generally less able than more financially stable firms to make scheduled payments of interest and principal.

**Notes that provide short (or bearish) exposure to a Bond Index or Bond Fund are subject to risks associated with improvements in the credit quality of fixed-income securities.**

The prices of the bonds underlying a Bond Index or Bond Fund are significantly influenced by the creditworthiness of the issuers of those bonds. The bonds underlying a Bond Index or Bond Fund may have their credit ratings upgraded, including in the case of the non-investment-grade bonds, an upgrade from non-investment grade to investment grade status, or have their credit spreads tighten significantly. Following a ratings upgrade or the tightening of credit spreads, some or all of the bonds underlying a Bond Index or Bond Fund may increase in price, which would adversely affect the value of notes that provide short (or bearish) exposure to that Bond Index or Bond Fund.

**The value of a Bond Index or Bond Fund may be influenced by unpredictable changes in the local governments and economies of the local governments of the issuers of the bonds underlying that Bond Index or Bond Fund.**

The value of a Bond Index or Bond Fund may be influenced by unpredictable changes, or expectations of changes, in the local markets for the bonds underlying that Bond Index or Bond Fund. Changes in the local governments of the issuers of the bonds underlying a Bond Index or Bond Fund that may influence the value of the notes include:

- economic performance, including any financial or economic crises and changes in the gross domestic product, the principal sectors, inflation, employment and labor, and prevailing prices and wages;
- the monetary system, including the monetary policy, the exchange rate policy, the economic and tax policies, banking regulation, credit allocation and exchange controls;
- the external sector, including the amount and types of foreign trade, the geographic distribution of trade, the balance of payments, and reserves and exchange rates;

- public finance, including the budget process, any entry into or termination of any economic or monetary agreement or union, the prevailing accounting methodology, the measures of fiscal balance, revenues and expenditures, and any government enterprise or privatization program; and
- public debt, including external debt, debt service and the debt record.

These factors interrelate in complex ways, and the effect of one factor on the market value of the bonds underlying a Bond Index or Bond Fund may offset or enhance the effect of another factor. Changes in the value of a Bond Index or Bond Fund may adversely affect any payment on the notes.

### **Risks Relating to a Commodity Index or a Commodity Fund**

**The commodity futures contracts underlying a Commodity Index or a Commodity Fund are subject to legal and regulatory regimes that may change in ways that could have a substantial adverse effect on the value of the notes and, for notes linked to a Commodity Index, could affect the timing and amount of any payment on the notes.**

Futures contracts and options on futures contracts markets, including the futures contracts underlying a Commodity Index or a Commodity Fund, are subject to extensive regulation and margin requirements. The CFTC and the exchanges on which those futures contracts trade are authorized to take extraordinary actions in the event of a market emergency, including, for example, the retroactive implementation of speculative position limits or higher margin requirements, the establishment of daily limits and the suspension of trading. Furthermore, certain exchanges have regulations that limit the amount of fluctuation in futures contract prices that may occur. These limits could adversely affect the market prices of relevant futures contracts and forward contracts. The regulation of commodity transactions in the United States is subject to ongoing modification by governmental and judicial action. In addition, various non-U.S. governments have expressed concern regarding the disruptive effects of speculative trading in the commodity markets and the need to regulate the derivative markets in general. The effect on the value of the notes of any future regulatory change is impossible to predict but could be substantial and adverse to the interests of noteholders.

Notably, with respect to agricultural and exempt commodities as defined in the Commodity Exchange Act (generally, physical commodities such as agricultural commodities, energy commodities and metals), the Dodd-Frank Wall Street Reform and Consumer Protection Act, which was enacted on July 21, 2010, amended the Commodity Exchange Act to provide the CFTC with additional authority to establish limits on the number of positions, other than bona fide hedge positions, that may be held by any person in a commodity through futures contracts, options on futures contracts and other related derivatives, such as swaps, that are economically equivalent to those contracts. In addition, designated contract markets and swap execution facilities, as defined in the Commodity Exchange Act, are authorized to establish and enforce position limits or position accountability requirements on their own markets or facilities, which must be at least as stringent as the CFTC's where CFTC limits also apply.

On November 5, 2013, the CFTC proposed rules to establish position limits that will apply to 28 agricultural, metals and energy futures contracts and futures, options and swaps that are economically equivalent to those futures contracts. The limits would apply to a number of commodity futures contracts that may be included in a Commodity Index or held by a Commodity Fund, such as CBOT Soybeans, Soybean Meal and Wheat futures; ICE Futures US Cotton No. 2, Sugar No. 11 and Sugar No. 16 futures; NYMEX Light Sweet Crude Oil, NY Harbor No. 2 Heating Oil, NY Harbor Gasoline Blendstock and Henry Hub Natural Gas futures; and COMEX Gold, Silver and Copper futures and NYMEX Palladium and Platinum futures. The limits will apply to a person's combined position in futures, options and swaps on the same underlying commodity. The rules also would set new aggregation standards for purposes of these position limits and would specify the

requirements for designated contract markets and swap execution facilities to impose position limits on contracts traded on those markets. The rules, if enacted in their proposed form, may reduce liquidity in the exchange-traded market for those commodity-based futures contracts, which may, in turn, have an adverse effect on any payments on the notes.

For notes linked in whole or in part to a Commodity Index, upon the occurrence of legal or regulatory changes that the calculation agent determines have interfered with our or our affiliates' ability to hedge our obligations under the notes, including the CFTC's adoption of the position limit rules mentioned above, or if for any other reason we or our affiliates are unable to enter into or maintain hedge positions the calculation agent deems necessary to hedge our obligations under the notes, we may adjust the timing and amount of any payment on the notes. See "— Risks Relating to the Notes Generally — For notes linked in whole or in part to a Commodity Index, if a commodity hedging disruption event occurs, the timing and amount of any payment on the notes could be affected" above.

**Prices for the commodities or commodity futures contracts referenced by a Commodity Index or Commodity Fund may change unpredictably and affect the value of the notes in unanticipated ways.**

Market prices of commodities tend to be highly volatile and may fluctuate rapidly based on numerous factors, including: changes in supply and demand relationships, governmental programs and policies, national and international monetary, trade, political and economic events, wars and acts of terror, changes in interest and exchange rates, speculation and trading activities in commodities and related contracts, weather, and agricultural, trade, fiscal and exchange control policies. The price volatility of each commodity also affects the value of the futures and forward contracts related to that commodity and therefore its price at any such time. The price of any one commodity may be correlated to a greater or lesser degree with any other commodity and factors affecting the general supply and demand as well as the prices of other commodities may affect the particular commodity in question. The commodities markets are subject to temporary distortions or other disruptions due to various factors, including the lack of liquidity in the markets, the participation of speculators and government regulation and intervention. Many commodities are also highly cyclical. These factors, some of which are specific to the nature of each such commodity, may affect the value of a Commodity Index or Commodity Fund in varying ways, and different factors may cause the values of different commodities or commodity futures contracts referenced by a Commodity Index or Commodity Fund to move in inconsistent directions at inconsistent rates. This, in turn, will affect the value of the notes. It is not possible to predict the aggregate effect of all or any combination of these factors.

Each Commodity Index or Commodity Fund provides one avenue for exposure to commodities. The high volatility and cyclical nature of commodity markets may render these investments inappropriate as the focus of an investment portfolio. See "— The prices of commodities are volatile and are affected by numerous factors, certain of which are specific to the commodity sector for each commodity" for additional information about factors affecting the value of specific commodity sectors.

**An investment in the notes may not offer direct exposure to physical commodities.**

If the notes are linked to a Commodity Index or a Commodity Fund composed of futures contracts on a commodity, the notes will reflect, in whole or in part, the return on those commodity futures contracts, not the return on the physical commodities underlying those commodity futures contracts. The price of a futures contract reflects the expected value of the commodity upon delivery in the future, whereas the spot price of a commodity reflects the immediate delivery value of the commodity. A variety of factors can lead to a disparity between the expected future price of a commodity and the spot price at a given point in time, such as the cost of storing the commodity for the term of the futures contract, interest charges incurred to finance the purchase of the

commodity and expectations concerning supply and demand for the commodity. The price movements of a futures contract are typically correlated with the movements of the spot price of the reference commodity, but the correlation is generally imperfect, and price movements in the spot market may not be reflected in the futures market (and vice versa). Accordingly, the notes may underperform a similar investment that reflects the return on physical commodities.

**Suspension or disruptions of market trading in relevant commodity and related futures markets may adversely affect the value of the notes.**

The commodity markets are subject to temporary distortions or other disruptions due to various factors, including the lack of liquidity in the markets, the participation of speculators and government regulation and intervention. In addition, U.S. futures exchanges and some foreign exchanges have regulations that limit the amount of fluctuation in futures contract prices that may occur during a single day. These limits are generally referred to as "daily price fluctuation limits," and the maximum or minimum price of a contract on any given day as a result of these limits is referred to as a "limit price." Once the limit price has been reached for a particular contract, no trades may be made at a different price. Limit prices have the effect of precluding trading in a particular contract or forcing the liquidation of contracts at disadvantageous times or prices. These circumstances could affect the level of any Commodity Index or the price of any Commodity Fund, which may adversely affect the value of your notes.

**Changes in the margin requirements for any commodity futures contracts underlying a Commodity Index or a Commodity Fund may adversely affect the value of the notes.**

Futures exchanges require market participants to post collateral in order to open and keep open positions in futures contracts. If an exchange changes the amount of collateral required to be posted to hold positions in commodity futures contracts underlying any Commodity Index or Commodity Fund, market participants may adjust their positions, which may affect prices of the relevant commodity futures contracts. As a result, the level of that Commodity Index or the price of that Commodity Fund, as applicable, may be affected, which may adversely affect the value of the notes.

**A Commodity Index or a Commodity Fund may be subject to pronounced risks of pricing volatility.**

As a general matter, the risk of low liquidity or volatile pricing around the maturity date of a commodity futures contract is greater than in the case of other futures contracts because (among other factors) a number of market participants take physical delivery of the underlying commodities. Many commodities, like those in the energy and industrial metals sectors, have liquid futures contracts that expire every month. Therefore, these contracts are rolled forward every month. Contracts based on certain other commodities, most notably agricultural and livestock products, tend to have only a few contract months each year that trade with substantial liquidity. Thus, these commodities, with related futures contracts that expire infrequently, roll forward less frequently than every month and can have further pronounced pricing volatility during extended periods of low liquidity. The risk of irregular liquidity or pricing around the maturity date of a commodity futures contract is greater than in the case of other futures contracts because (among other factors) a number of market participants take delivery of the underlying commodities. In respect of a Commodity Index or a Commodity Fund that represents energy, it should be noted that due to the significant level of continuous consumption, limited reserves and oil cartel controls, energy commodities are subject to rapid price increases in the event of perceived or actual shortages. These factors (when combined or in isolation) may affect the price of futures contracts and, as a consequence, the level of a Commodity Index or the price of a Commodity Fund and any payment on the notes.

**Changes in future prices of commodity futures contracts included in a Commodity Index or held by a Commodity Fund relative to their current prices may lead to a decrease in any payment on the notes.**

A Commodity Index is composed of, and a Commodity Fund holds, futures contracts on physical commodities. As the contracts underlying a Commodity Index or a Commodity Fund come to expiration, they are replaced by contracts that have a later expiration. For example, a contract purchased and held in August may specify an October expiration. As time passes, the contract expiring in October is replaced by a contract for delivery in November. This is accomplished by selling the October contract and purchasing the November contract. This process is referred to as "rolling." Excluding other considerations, if the market for the underlying futures contracts is in "contango," where the prices are higher in the distant delivery months than in the nearer delivery months, the purchase of the November contract would take place at a price that is higher than the price of the October contract, thereby creating a negative "roll yield." In addition, excluding other considerations, if the market for the underlying futures contracts is in "backwardation," where the prices are lower in the distant delivery months than in the nearer delivery months, the purchase of the November contract would take place at a price that is lower than the price of the October contract, thereby creating a positive "roll yield."

For notes that provide long (or bullish) exposure to a Commodity Index or Commodity Fund, the presence of contango in the commodity markets could adversely affect the value of that Commodity Index or Commodity Fund and, accordingly, any payment on the notes. In addition, for notes that provide short (or bearish) exposure to a Commodity Index or Commodity Fund, the presence of backwardation in the commodity markets could adversely affect the value of that Commodity Index or Commodity Fund and, accordingly, any payment on the notes.

**For notes linked to a Commodity Index, the notes may be linked to an excess return index and not to a total return index.**

The notes may be linked to an excess return index and not to 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 commodity indices 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). If the notes provide long (or bullish) exposure to a Commodity Index that is an excess return index, then investing in the notes will not generate the same return as would be generated from investing directly in the relevant futures contracts or in a total return index related to the relevant futures contracts.

**For notes that provide short (or bearish) exposure to a Commodity Index that is a total return index, your return on the notes will be adversely affected by any interest earned on the cash deposited as collateral for the purchase of the relevant futures contracts.**

The notes may provide short (or bearish) exposure to a Commodity Index that is 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 commodity indices 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). If the notes are linked to a Commodity Index that is a total return index, any interest earned on the cash deposited as collateral for the purchase of the relevant futures contracts will have a positive effect on the level of that index, which will adversely affect the value of the notes.

**The prices of commodities are volatile and are affected by numerous factors, certain of which are specific to the commodity sector for each commodity.**

A change in the price of any of the commodities upon which the futures contracts underlying a Commodity Index or a Commodity Fund are based may have a material adverse effect on the value of the notes and your return on an investment in the notes. Commodities and commodity futures contracts are subject to the effect of numerous factors, certain of which are specific to the commodity sector for each commodity or commodity futures contract to which your notes provide exposure, as discussed below. The relevant terms supplement or any accompanying underlying supplement may provide additional risk factors relating to any relevant Commodity Index or Commodity Fund.

#### *Agricultural Sector*

Global prices of agricultural commodities, including cocoa, coffee, corn, cotton, soybeans, sugar and wheat, are primarily affected by the global demand for and supply of those commodities but are also significantly influenced by speculative actions and by currency exchange rates. In addition, prices for agricultural commodities are affected by governmental programs and policies regarding agriculture, as well as general trade, fiscal and exchange control policies. Extrinsic factors, such as drought, floods, general weather conditions, disease and natural disasters may also affect agricultural commodity prices. Demand for agricultural commodities, such as wheat, corn and soybeans, both for human consumption and as cattle feed, has generally increased with worldwide growth and prosperity.

#### *Energy Sector*

Global prices of energy commodities, including WTI crude oil, Brent crude oil, RBOB gasoline, heating oil, gasoil and natural gas, are primarily affected by the global demand for and supply of these commodities, but they are also significantly influenced by speculative actions and by currency exchange rates. In addition, prices for energy commodities are affected by governmental programs and policies, national and international political and economic events, changes in interest and exchange rates, trading activities in commodities and related contracts, trade, fiscal, monetary and exchange control policies, and with respect to oil, drought, floods, weather, government intervention, environmental policies, embargoes and tariffs. Demand for refined petroleum products by consumers, as well as by the agricultural, manufacturing and transportation industries, affects the price of energy commodities. Sudden disruptions in the supplies of energy commodities, such as those caused by war, natural events, accidents or acts of terrorism, may cause prices of energy commodity futures contracts to become extremely volatile and unpredictable. Also, sudden and dramatic changes in the futures market may occur, for example, upon a cessation of hostilities that may exist in countries producing energy commodities, the introduction of new or previously withheld supplies into the market or the introduction of substitute products or commodities. In particular, supplies of crude oil may increase or decrease depending on, among other factors, production decisions by the Organization of the Oil and Petroleum Exporting Countries (“OPEC”) and other crude oil producers. Crude oil prices are determined with significant influence by OPEC, which has the capacity to influence oil prices worldwide because its members possess a significant portion of the world’s oil supply. Crude oil prices are generally more volatile and more subject to dislocation than are prices of other commodities. Demand for energy commodities such as oil and gasoline is generally linked to economic activity and will tend to reflect general economic conditions.

### *Industrial Metals Sector*

Global prices of industrial metals commodities, including aluminum, copper, lead, nickel and zinc, are primarily affected by the global demand for and supply of these commodities, but they are also significantly influenced by speculative actions and by currency exchange rates. Demand for industrial metals is significantly influenced by the level of global industrial economic activity. Prices for industrial metals commodities are affected by governmental programs and policies, national and international political and economic events, changes in interest and exchange rates, trading activities in commodities and related contracts, trade, fiscal, monetary and exchange control policies, government intervention, embargoes and tariffs. An additional, but highly volatile, component of demand for industrial metals is adjustments to inventory in response to changes in economic activity and/or pricing levels, which will influence investment decisions in new mines and smelters. Sudden disruptions in the supplies of industrial metals, such as those caused by war, natural events, accidents, acts of terrorism, transportation problems, labor strikes and shortages of power, may cause prices of industrial metals futures contracts to become extremely volatile and unpredictable. The introduction of new or previously withheld supplies into the market or the introduction of substitute products or commodities will also affect the prices of industrial metals commodities.

### *Livestock Sector*

Livestock commodities, including live cattle, feeder cattle and lean hogs, are “non-storable” commodities, and therefore may experience greater price volatility than traditional commodities. Global livestock commodity prices are primarily affected by the global demand for and supply of those commodities, but are also significantly influenced by speculative actions and by currency exchange rates. In addition, prices for livestock commodities are affected by governmental programs and policies regarding livestock, as well as general trade, fiscal and exchange control policies. Extrinsic factors, such as drought, floods, general weather conditions, disease (e.g., Bovine Spongiform Encephalopathy, or Mad Cow Disease), availability of and prices for livestock feed and natural disasters may also affect livestock commodity prices. Demand for livestock commodities has generally increased with worldwide growth and prosperity.

### *Precious Metals Sector*

Global prices of precious metals commodities, including gold, silver, platinum and palladium, are primarily affected by the global demand for and supply of those commodities, but they are also significantly influenced by speculative actions and by currency exchange rates. Demand for precious metals is significantly influenced by the level of global industrial economic activity. Prices for precious metals are affected by governmental programs and policies, national and international political and economic events, expectations with respect to the rate of inflation, changes in interest and exchange rates, trading activities in commodities and related contracts, trade, fiscal, monetary and exchange control policies, government intervention, embargoes and tariffs. Sudden disruptions in the supplies of precious metals, such as those caused by war, natural events, accidents, acts of terrorism, transportation problems, labor strikes and shortages of power, may cause prices of precious metals futures contracts to become extremely volatile and unpredictable. In addition, prices for precious metals can be affected by numerous other factors, including jewelry demand and production levels.

**A separate underlying supplement or the relevant terms supplement may provide additional risk factors relating to any Underlying to which the notes are linked.**

## 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 notes will be offered to meet investor demand for products that reflect the risk-return profile and market exposure provided by the notes as set forth in the relevant terms supplement.

Unless otherwise specified in the relevant terms supplement, the original issue price of the notes will be equal to the estimated value of the notes plus the selling commissions and structuring fees, if any, paid to each agent and other affiliated or unaffiliated dealers (as shown on the cover page of the relevant terms supplement), plus (minus) the projected profits (losses) that our affiliates expect to realize for assuming risks inherent in hedging our obligations under the notes, plus the estimated cost of hedging our obligations under the notes. See "Description of Notes — JPMS's Estimated Value of the Notes" and the relevant terms supplement for additional information about JPMS's estimated value. See also "Use of Proceeds" in the 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 more Reference Stocks, Indices or Funds or the securities, commodities, futures contracts or other assets or market measures underlying one or more Indices or Funds or related currency exchange rates. To accomplish this, we, through our affiliates or others, may take positions in one or more Reference Stocks, Indices or Funds, the securities, commodities, futures contracts or other assets or market measures underlying one or more Indices or Funds or related currency exchange rates, or instruments the value of which is derived from one or more Reference Stocks, Indices or Funds or the securities, commodities, futures contracts or other assets or market measures underlying one or more Indices or Funds or related currency exchange rates. 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 affect the value of the Underlying(s) in a manner that adversely affects the value of the notes or any payment on the notes. Because hedging our obligations entails risk and may be influenced by market forces beyond our control, this hedging may result in a profit that is more or less than expected, or it may result in a loss. It is possible that these hedging or trading activities could result in substantial returns for us or our affiliates while the value of the notes declines. See "Risk Factors — Risks Relating to Conflicts of Interest — 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 more Reference Stocks, Indices or Funds or the securities, commodities, futures contracts or other assets or market measures underlying one or more Indices or Funds or related currency exchange rates. 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.

## GENERAL TERMS OF NOTES

### Calculation Agent

Unless otherwise specified in the relevant terms supplement, J.P. Morgan Securities LLC, one of our affiliates, will act as the calculation agent. We may appoint a different calculation agent from time to time after the date of the relevant terms supplement without your consent and without notifying you.

The calculation agent will make all necessary calculations and determinations in connection with the notes, including calculations and determinations relating to any payments on the notes and the assumptions used to determine the pricing and estimated value of the notes. All determinations made by the calculation agent will be at the sole discretion of the calculation agent and will, in the absence of manifest error, be conclusive for all purposes and binding on you and on us.

The calculation agent will provide written notice to the trustee at its New York office, on which notice the trustee may conclusively rely, of any amount payable on the notes at or prior to 11:00 a.m., New York City time, on the date on which payment is to be made.

Unless otherwise specified in the relevant terms supplement, all values with respect to calculations in connection with the notes will be rounded to the nearest one hundred-thousandth, with five one-millionths rounded upward (e.g., 0.876545 would be rounded to 0.87655). Notwithstanding the foregoing, all dollar amounts related to determination of any payment on the notes per note will be rounded to the nearest ten-thousandth, with five one hundred-thousandths rounded upward (e.g., 0.76545 would be rounded up to 0.7655), and all dollar amounts payable, if any, on the aggregate principal amount of notes per holder will be rounded to the nearest cent, with one-half cent rounded upward unless otherwise specified in the relevant terms supplement.

### Postponement of a Payment Date

If any scheduled Payment Date is not a business day, then that Payment Date will be the next succeeding business day following the scheduled Payment Date. If, due to a market disruption event or otherwise, any Determination Date referenced in the determination of a payment on the notes that will or may be payable on any Payment Date is postponed so that it falls less than three business days prior to that scheduled Payment Date, that Payment Date will be the third business day following the latest such Determination Date, as postponed, unless otherwise specified in the relevant terms supplement. If any Payment Date is adjusted as the result of a non-business day, a market disruption event or otherwise, any payment of interest due on that Payment Date will be made on that Payment Date as adjusted, with the same force and effect as if that Payment Date had not been adjusted, but no interest will accrue or be payable as a result of the delayed payment.

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.

### Postponement of a Determination Date

For notes linked to an Index, the relevant terms supplement or an accompanying underlying supplement may provide a formulation of the postponement provisions that will apply to the notes instead of the relevant provisions set forth below.

### ***Notes Linked to a Single Underlying***

*Notes Linked to a Single Underlying (Other Than a Commodity Index).* For notes linked to a single Underlying that is not a Commodity Index, if a Determination Date is a Disrupted Day (as defined below), the applicable Determination Date will be postponed to the immediately succeeding scheduled trading day (as defined below) that is not a Disrupted Day.

In no event, however, will any Determination Date be postponed to a date that is after the applicable Final Disrupted Determination Date (as defined below). If a Determination Date is or has been postponed to the applicable Final Disrupted Determination Date and that day is a Disrupted Day, the calculation agent will determine the closing price or closing level, as applicable, of the Underlying (the “**Underlying Value**”) for that Determination Date on that Final Disrupted Determination Date:

- (a) for notes linked to a Reference Stock or a Fund, in good faith based on the calculation agent’s assessment of the market value of one share of that Reference Stock or Fund, as applicable, on that Final Disrupted Determination Date;
- (b) for notes linked to an Equity Index, unless otherwise specified in the relevant terms supplement or any accompanying underlying supplement, in accordance with the formula for and method of calculating the closing level of that Index last in effect prior to the commencement of the market disruption event (or prior to the non-trading day), using the closing price (or, if trading in the relevant securities has been materially suspended or materially limited, the calculation agent’s good faith estimate of the closing price that would have prevailed but for that suspension or limitation or non-trading day) on that Final Disrupted Determination Date of each security most recently constituting that Index;
- (c) for notes linked to a Bond Index, unless otherwise specified in the relevant terms supplement or any accompanying underlying supplement, in good faith and in a commercially reasonable manner; and
- (d) for notes linked to a Volatility Index, unless otherwise specified in the relevant terms supplement or any accompanying underlying supplement, in accordance with the formula for and method of calculating the closing level of that Index last in effect prior to the commencement of the market disruption event (or prior to the non-trading day), using the official settlement price (or, if trading in any relevant VIX futures contracts has been materially suspended or materially limited, the calculation agent’s good faith estimate of the official settlement price that would have prevailed but for that suspension or limitation or non-trading day) on that Final Disrupted Determination Date of each VIX futures contract most recently constituting that Index and any VIX futures contract required to roll any expiring futures contract in accordance with the method of calculating that Index.

*Notes Linked to a Single Commodity Index.* For notes linked to a single Underlying that is a Commodity Index, if a Determination Date is a Disrupted Day, the applicable Determination Date will be postponed to the earlier of the immediately succeeding scheduled trading day that is not a Disrupted Day and the applicable Final Disrupted Determination Date, and the closing level of the Index on that postponed Determination Date will be deemed to be the Adjusted Closing Level (as defined below) of the Index with respect to the originally scheduled Determination Date.

For purposes of this “— Notes Linked to a Single Underlying” section, with respect to a Determination Date, unless otherwise specified in the relevant terms supplement or any accompanying underlying supplement, the “**Final Disrupted Determination Date**” means the earlier of:

- (a) the tenth scheduled trading day after that Determination Date, as originally scheduled; and
- (b) the last date that could serve as the final Determination Date without causing the maturity date to be more than one year (counting for this purpose either the issue date or the last possible date that the notes could be outstanding, but not both) after the issue date.

### ***Notes Linked to Multiple Underlyings***

For notes linked to multiple Underlyings, if a Determination Date is a Disrupted Day for any Underlying (any Underlying affected by a Disrupted Day, a **“Disrupted Underlying”**), the applicable Determination Date will be postponed to the earliest day on which the Underlying Value of each Underlying has been established, as described below:

- (a) for each Underlying that is not a Disrupted Underlying (an **“Unaffected Underlying”**), the Underlying Value on the postponed Determination Date will be deemed to be the Underlying Value on the originally scheduled Determination Date;
- (b) for each Disrupted Underlying that is not a Commodity Index, the Underlying Value on the postponed Determination Date will be deemed to be the Underlying Value on the first scheduled trading day immediately following the originally scheduled Determination Date that is not a Disrupted Day for that Disrupted Underlying; and
- (c) for each Disrupted Underlying that is a Commodity Index, the Underlying Value on the postponed Determination Date will be deemed to be the Adjusted Closing Level of that Index with respect to the originally scheduled Determination Date.

Accordingly, if a Determination Date is postponed as described above, the calculation agent may reference the Underlying Values of the Underlyings from different days when making any determinations with respect to that Determination Date, as postponed.

For example, assume that the notes are linked to three Underlyings that are not Commodity Indices, Underlying A, Underlying B and Underlying C, and that:

- (a) Scheduled Trading Day 1, a scheduled Determination Date, is not a Disrupted Day for Underlying A, but is a Disrupted Day for Underlyings B and C;
- (b) Scheduled Trading Day 2 is not a Disrupted Day for Underlying B, but is a Disrupted Day for Underlying C; and
- (c) Scheduled Trading Day 3 is not a Disrupted Day for Underlying C.

Under these circumstances, the Determination Date originally scheduled to occur on Scheduled Trading Day 1 would be postponed to Scheduled Trading Day 3 and, with respect to that Determination Date, as postponed, the Underlying Values would be deemed to be (a) for Underlying A, the Underlying Value on Scheduled Trading Day 1; (b) for Underlying B, the Underlying Value on Scheduled Trading Day 2; and (c) for Underlying C, the Underlying Value on Scheduled Trading Day 3.

In no event, however, will any Determination Date be postponed to a date that is after the applicable Final Disrupted Determination Date. If a Determination Date is or has been postponed to the applicable Final Disrupted Determination Date and on that day, the Underlying Value for any Disrupted Underlying has not been established in accordance with the first paragraph of this **“— Notes Linked to Multiple Underlyings”** section (a **“Final Disrupted Underlying”**), the Underlying Value for that Determination Date will be determined by the calculation agent on that Final Disrupted Determination Date and will be deemed to be:

- (a) for each Unaffected Underlying, the Underlying Value on the originally scheduled Determination Date;
- (b) for each Disrupted Underlying that is not a Final Disrupted Underlying, the Underlying Value determined in the manner described in the first paragraph of this **“— Notes Linked to Multiple Underlyings”** section;

- (c) for each Final Disrupted Underlying that is a Reference Stock or a Fund, the closing price of one share of that Reference Stock or Fund, as applicable, determined by the calculation agent in good faith based on the calculation agent's assessment of the market value of one share of that Reference Stock or Fund, as applicable, on that Final Disrupted Determination Date; and
- (d) for each Final Disrupted Underlying that is an Index, unless otherwise specified in the relevant terms supplement or any accompanying underlying supplement:
  - (i) with respect to an Equity Index, the closing level of that Index determined by the calculation agent in accordance with the formula for and method of calculating the closing level of that Index last in effect prior to the commencement of the market disruption event (or prior to the non-trading day), using the closing price (or, if trading in the relevant securities has been materially suspended or materially limited, the calculation agent's good faith estimate of the closing price that would have prevailed but for that suspension or limitation or non-trading day) on that Final Disrupted Determination Date of each security most recently constituting that Index;
  - (ii) with respect to a Bond Index, the closing level of that Index on that Final Disrupted Determination Date determined by the calculation agent in good faith and in a commercially reasonable manner;
  - (iii) with respect to a Commodity Index, the Adjusted Closing Level of that Index with respect to the originally scheduled Determination Date; and
  - (iv) with respect to a Volatility Index, the closing level of that Index determined by the calculation agent in accordance with the formula for and method of calculating the closing level of that Index last in effect prior to the commencement of the market disruption event (or prior to the non-trading day), using the official settlement price (or, if trading in any relevant VIX futures contracts has been materially suspended or materially limited, the calculation agent's good faith estimate of the official settlement price that would have prevailed but for that suspension or limitation or non-trading day) on that Final Disrupted Determination Date of each VIX futures contract most recently constituting that Index and any VIX futures contract required to roll any expiring futures contract in accordance with the method of calculating that Index.

For purposes of this “— Notes Linked to Multiple Underlyings” section, with respect to a Determination Date, unless otherwise specified in the relevant terms supplement or any accompanying underlying supplement, the “**Final Disrupted Determination Date**” means the earlier of:

- (a) the tenth scheduled trading day after that Determination Date, as originally scheduled, for each of the Underlyings (or, if that tenth scheduled trading day is not the same day for each of the Underlyings, the latest of those tenth scheduled trading days); and
- (b) the last date that could serve as the final Determination Date without causing the maturity date to be more than one year (counting for this purpose either the issue date or the last possible date that the notes could be outstanding, but not both) after the issue date.

***Adjusted Closing Level of a Commodity Index***

The “**Adjusted Closing Level**” of a Commodity Index with respect to a Determination Date that is a Disrupted Day will be determined by the calculation agent and will be calculated in accordance with the formula for and method of calculating the closing level of that Index last in effect prior to the originally scheduled Determination Date, using:

- (a) with respect to each Unaffected Index Contract, the official settlement price of that Unaffected Index Contract as of the originally scheduled Determination Date (including any delayed publication of that official settlement price for the originally scheduled Determination Date that occurred on or prior to the determination of the postponed Determination Date); and
- (b) with respect to each Affected Index Contract, the official settlement price of that Affected Index Contract on the first scheduled trading day immediately following the originally scheduled Determination Date that is not a Disrupted Day with respect to any Relevant Index Contract with respect to that Affected Index Contract, *provided* that if each day from and including the originally scheduled Determination Date to and excluding the applicable Final Disrupted Determination Date is a Disrupted Day with respect to any such Relevant Index Contract, the price of each such Relevant Index Contract will be determined in good faith based on the calculation agent's assessment of the official settlement price of that Affected Index Contract on that Final Disrupted Determination Date.

With respect to a Determination Date that is a Disrupted Day, a futures contract included in an Index is an "**Unaffected Index Contract**" if no Relevant Index Contract with respect to that futures contract is affected by that Disrupted Day.

With respect to a Determination Date that is a Disrupted Day, a futures contract included in an Index is an "**Affected Index Contract**" if any Relevant Index Contract with respect to that futures contract is affected by that Disrupted Day.

With respect to a futures contract included in an Index, a "**Relevant Index Contract**" means any futures contract included in that Index that references the same commodity as that futures contract (including that futures contract), in accordance with the published methodology of that Index.

#### ***Additional Defined Terms***

Unless otherwise specified in the relevant terms supplement, a "**Disrupted Day**" means (a) with respect to an Underlying, a day that is not a trading day with respect to that Underlying or a day on which a market disruption event occurs or is continuing with respect to that Underlying and (b) with respect to a Relevant Index Contract for a futures contract included in a Commodity Index, a day that is not a trading day with respect to that Commodity Index or a day on which a market disruption event that affects that Relevant Index Contract occurs or is continuing.

For additional information about market disruption events, see "The Underlyings" section below.

Unless otherwise specified in the relevant terms supplement or any accompanying underlying supplement, a "**scheduled trading day**" is:

- (a) with respect to a Reference Stock, a Fund or any successor fund, a day, as determined by the calculation agent, on which each of the following exchanges is scheduled to be open for trading for their respective regular trading sessions: (i) the relevant exchange for that Reference Stock, Fund or successor fund, as applicable, and (ii) the exchanges on which futures or options contracts related to that Reference Stock, Fund or successor fund, as applicable, are traded; or, with respect to a security issued by a foreign issuer that is not listed or admitted to trading on a U.S. securities exchange or market, a day, as determined by the calculation agent, on the primary non-U.S. securities exchange or market on which that security is listed or admitted to trading is scheduled to be open for trading for its regular trading session;

- (b) with respect to an Equity Index or any relevant successor index, a day, as determined by the calculation agent, on which each of the following exchanges is scheduled to be open for trading for their respective regular trading sessions: (i) the relevant exchanges for securities underlying that Index or successor index, as applicable, and (ii) the exchanges on which futures or options contracts related to that Index or successor index, as applicable, are traded;
- (c) with respect to a Bond Index, a Commodity Index or any relevant successor index, a day, as determined by the calculation agent, on which that Index or successor index, as applicable, is scheduled to be published by the sponsor or calculation agent of that Index or successor index, as applicable, in accordance with the index rules or methodology that governs that Index or successor index, as applicable; and
- (d) with respect to a Volatility Index or any relevant successor index, a day, as determined by the calculation agent, on which each of the relevant exchange for that Index or successor index, as applicable, is scheduled to be open for trading for its regular trading session.

Unless otherwise specified in the relevant terms supplement or any accompanying underlying supplement, a “**trading day**” is:

- (a) with respect to a Reference Stock, a Fund or any successor fund, a day, as determined by the calculation agent, on which trading is generally conducted on (i) the relevant exchange for that Reference Stock, Fund or successor fund, as applicable, and (ii) the exchanges on which futures or options contracts related to that Reference Stock, Fund or successor fund, as applicable, are traded; or, with respect to a security issued by a foreign issuer that is not listed or admitted to trading on a U.S. securities exchange or market, a day, as determined by the calculation agent, on which trading is generally conducted on the primary non-U.S. securities exchange or market on which that security is listed or admitted to trading;
- (b) with respect to an Equity Index or any relevant successor index, a day, as determined by the calculation agent, on which trading is generally conducted on (i) the relevant exchanges for securities underlying that Index or successor index, as applicable, and (ii) the exchanges on which futures or options contracts related to that Index or successor index, as applicable, are traded;
- (c) with respect to a Bond Index, a Commodity Index or any relevant successor index, a day, as determined by the calculation agent, on which that Index or successor index, as applicable, is published by the sponsor or calculation agent of that Index or successor index, as applicable, in accordance with the index rules or methodology that governs that Index or successor index, as applicable; and
- (d) with respect to a Volatility Index or any relevant successor index, a day, as determined by the calculation agent, on which trading is generally conducted on the relevant exchange for that Index or successor index, as applicable.

Unless otherwise specified in the relevant terms supplement or any accompanying underlying supplement, “**relevant exchange**” means:

- (a) with respect to a Reference Stock, an Underlying Stock, a Fund or any successor fund, the primary exchange or market for trading for the shares of that Reference Stock, Underlying Stock, Fund or successor fund, as applicable;
- (b) with respect to an Index, any relevant successor index or any Underlying Index, the primary exchange or market of trading for any security, commodity, futures contract or other asset or market measure (or any combination thereof) then included in that Index, successor index or Underlying Index, as applicable; and
- (c) with respect to any Relevant Index Contract, the primary exchange or market of trading for that futures contract.

## Consequences of a Commodity Hedging Disruption Event

Unless otherwise specified in the relevant terms supplement or any accompanying underlying supplement, for notes linked in whole or in part to a Commodity Index, if a commodity hedging disruption event occurs, we will have the right, but not the obligation, to adjust the timing and amount of any payment on the notes as described below.

A “**commodity hedging disruption event**,” unless otherwise specified in the relevant terms supplement or any accompanying underlying supplement, means that:

- (a) due to (i) the adoption of, or any change in, any applicable law, regulation, rule or order (including, without limitation, any tax law); or (ii) the promulgation of, or any change in, the interpretation, application, exercise or operation by any court, tribunal, regulatory authority, exchange or trading facility or any other relevant entity with competent jurisdiction of any applicable law, rule, regulation, order, decision or determination (including, without limitation, as implemented by the U.S. Commodity Futures Trading Commission or any exchange or trading facility), in each case occurring on or after the pricing date, the calculation agent determines in good faith that it is contrary (or upon adoption, it will be contrary) to that law, rule, regulation, order, decision or determination for us to purchase, sell, enter into, maintain, hold, acquire or dispose of our or our affiliates’ (A) positions or contracts in securities, options, futures, derivatives or foreign exchange or (B) other instruments or arrangements, in each case, in order to hedge our obligations under the notes (in the aggregate on a portfolio basis or incrementally on a trade by trade basis) (“**hedge positions**”), including (without limitation) if those hedge positions (in whole or in part) are (or, but for the consequent disposal thereof, would otherwise be) in excess of any allowable position limit(s) in relation to any commodity traded on any exchange(s) or other trading facility (it being within the sole and absolute discretion of the calculation agent to determine which of the hedge positions are counted towards that limit); or
- (b) for any reason, we or our affiliates are unable, after using commercially reasonable efforts, to (i) acquire, establish, re-establish, substitute, maintain, unwind or dispose of any transaction(s) or asset(s) the calculation agent deems necessary to hedge the risk of entering into and performing our commodity-related obligations with respect to the notes, or (ii) realize, recover or remit the proceeds of any of those transaction(s) or asset(s).

Please see “Risk Factors — Risks Relating to a Commodity Index or a Commodity Fund — The commodity futures contracts underlying a Commodity Index or a Commodity Fund are subject to legal and regulatory regimes that may change in ways that could have a substantial adverse effect on the value of the notes and, for notes linked to a Commodity Index, could affect the timing and amount of any payment on the notes” for more information.

### ***Adjustment of the Payment at Maturity***

Unless otherwise specified in the relevant terms supplement, this “Adjustment of the Payment at Maturity” subsection will apply to notes linked in whole or in part to a Commodity Index for which the payment at maturity, for each note, is equal to the Principal Amount (or the Principal Amount reduced by a percentage specified in the relevant terms supplement (the “**Downside Exposure Percentage**”)) *plus* a cash payment determined as specified in the relevant terms supplement (the “**Additional Amount**”). The relevant terms supplement may specify that the Additional Amount will not be less than a specified amount (the “**Minimum Amount**”). The relevant terms supplement may also specify that the notes will or may pay interest based on the performance of the Underlying(s).

If this subsection applies and a commodity hedging disruption event occurs, we will have the right, but not the obligation, to cease making further interest payments (if applicable) and to adjust your payment at maturity based on determinations made by the calculation agent as described below. If a commodity hedging disruption event occurs and we choose to exercise this right, (a) we will cease making further interest payments (if applicable) and the only remaining payment per note will be due and payable only at maturity and (b) for each note, we will pay you at maturity, instead of the amounts set forth in the relevant terms supplement, an amount equal to:

- (i) the Option Value; *plus*
- (ii) the Principal Amount, or, if the relevant terms supplement specifies a Downside Exposure Percentage, the Principal Amount  $\times$  (1 – Downside Exposure Percentage).

For purposes of this “Adjustment of the Payment at Maturity” subsection, the “**Option Value**” will be determined by the calculation agent in good faith and in a commercially reasonable manner and will be a fixed amount representing the price of the embedded option representing the Additional Amount payable on the notes at maturity, as of the date on which the calculation agent determines that a commodity hedging disruption event has occurred (a “**commodity hedging disruption date**”), and the price of the embedded option representing each of the remaining interest payments (if applicable) from but excluding the commodity hedging disruption date through and including the maturity date, as of the commodity hedging disruption date, *provided* that the Option Value may not be less than zero (or, if applicable, the Minimum Amount).

If a commodity hedging disruption event occurs and we decide to exercise this right, we will provide, or cause the calculation agent to provide, written notice of our election to exercise this right to the trustee at its New York office and to the holders of the notes. We, or the calculation agent, will deliver this notice as promptly as possible and in no event later than the fifth business day immediately following the commodity hedging disruption date. Additionally, we will specify in the notice the Option Value as determined on the commodity hedging disruption date.

#### ***Adjustment of Remaining Interest Payments***

Unless otherwise specified in the relevant terms supplement, this “Adjustment of Remaining Interest Payments” subsection will apply to notes linked in whole or in part to a Commodity Index if the relevant terms supplement specifies that the notes will or may pay interest based on the performance of the Underlying(s) and that your payment at maturity for each note will be equal to the Principal Amount (or the Principal Amount  $\times$  (1 – Downside Exposure Percentage)).

If this subsection applies and a commodity hedging disruption event occurs, we will have the right, but not the obligation, to adjust further interest payments based on determinations made by the calculation agent as described below. If a commodity hedging disruption event occurs and we choose to exercise this right, for each note, we will pay you on each remaining interest payment date, instead of the amounts set forth in the relevant terms supplement, an amount equal to:

- (i) the Option Value; *divided by*
- (ii) the number of interest payment dates occurring after the commodity hedging disruption date.

For the avoidance of doubt, for each note, we will pay to you on the maturity date, in addition to any adjusted interest payment described above payable on the maturity date, the Principal Amount, or, if the relevant terms supplement specifies a Downside Exposure Percentage, the Principal Amount  $\times$  (1 – Downside Exposure Percentage).

For purposes of this “Adjustment of Remaining Interest Payments” subsection, the “**Option Value**” will be determined by the calculation agent in good faith and in a commercially reasonable manner and will be a fixed amount representing the price of the embedded option representing each of the interest payments from but excluding the commodity hedging disruption date through and including the maturity date, as of the commodity hedging disruption date, *provided* that the Option Value will not be less than zero or, if a minimum interest rate applies, the sum of the remaining interest payments that would otherwise be payable based on the minimum interest rate or, if a maximum interest rate applies, greater than the sum of the remaining interest payments that would otherwise be payable based on the maximum interest rate.

If a commodity hedging disruption event occurs and we decide to exercise this right, we will provide, or cause the calculation agent to provide, written notice of our election to exercise this right to the trustee at its New York office and to DTC, as holder of the notes. We (or the calculation agent) will deliver this notice as promptly as possible and in no event later than the fifth business day immediately following the commodity hedging disruption date. Additionally, we will specify in the notice the Option Value as determined on the commodity hedging disruption date.

### **Events of Default**

Under the heading “Description of Debt Securities — Events of Default and Waivers” in the 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 note upon any acceleration of the notes will be determined by the calculation agent and will be an amount in cash equal to the amount payable at maturity per note calculated in the manner described in the relevant terms supplement and calculated as if the date of acceleration were (a) the final Determination Date and (b) the Final Disrupted Determination Date for the final Determination Date (if the date of acceleration is a Disrupted Day).

Unless otherwise specified in the relevant terms supplement, any amount payable as described in the two immediately preceding paragraphs will include any accrued and unpaid interest on the notes; *provided* that any interest payable will be prorated based on the ratio of the actual number of days from and including the previous interest payment date to but excluding the date of acceleration over the number of days from and including the previous interest payment date to but excluding the next scheduled interest payment date.

If the final value of an Underlying is determined on more than one Determination Date, then, for each Determination 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 the Determination Dates in excess of one) will be the corresponding Determination Dates, unless otherwise specified in the relevant terms supplement.

The amount determined as described above will constitute the final payment on the notes, and no additional amounts will accrue with respect to the notes following the date of acceleration, regardless of any performance of the Underlying(s) following the date of acceleration.

If the maturity of the notes is accelerated because of an event of default as described above, we will, or will cause the 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, as holder of the notes, 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 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 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 prospectus supplement under the heading “Description of Notes — Forms of Notes” and in the prospectus under the heading “Forms of Securities — Book-Entry System.”

## **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.

## **Reopening Issuances**

We may, in our sole discretion, “reopen” the notes based upon market conditions and the value of the Underlying(s) at that time. We intend to issue the notes initially in an amount having the aggregate offering price specified on the cover of the relevant terms supplement. However, we may issue additional notes in amounts that exceed the amount on the cover at any time, without your consent and without notifying you. The notes do not limit our ability to incur other indebtedness or to issue other securities. Also, we are not subject to financial or similar restrictions by the terms of the notes. These further issuances, if any, will be consolidated to form a single sub-series with the originally issued notes, will have the same CUSIP number and will trade interchangeably with the notes immediately upon settlement. Any notes bearing the same CUSIP number that are issued pursuant to any future additional issuances of notes bearing the same CUSIP number will increase the aggregate principal amount of the outstanding notes of this series. The price of any additional offering will be determined at the time of pricing of that offering.

***We have no obligation to take your interests into account when deciding whether to issue additional notes. In addition, we are under no obligation to reopen any series of notes or to issue any additional notes.***

## THE UNDERLYINGS

### Reference Stocks

If the notes are linked to any Reference Stock, the relevant terms supplement will provide summary information regarding the business of the issuer of that Reference Stock based on its publicly available documents, without independent verification.

Companies with securities registered under the Exchange Act are required to file periodically certain financial and other information specified by the SEC. Information provided to or filed with the SEC can be inspected and copied at the public reference facilities maintained by the SEC at 100 F Street, NE, Washington, DC 20549, and copies of those materials can be obtained from the Public Reference Section of the SEC, 100 F Street, NE, Washington, DC 20549, at prescribed rates. In addition, information provided to or filed with the SEC electronically can be accessed through a website maintained by the SEC. The address of the SEC's website is <http://www.sec.gov>. Information regarding the issuer of any Reference Stock may also be obtained from other sources including, but not limited to, press releases, newspaper articles and other publicly disseminated documents.

**This product supplement and the relevant terms supplement relate only to the notes offered thereby and do not relate to any Reference Stock or other securities of the issuer of any Reference Stock. All disclosures contained in the relevant terms supplement regarding the issuer of any Reference Stock will be derived from publicly available documents and other publicly available information, without independent verification. We have not participated, and will not participate, in the preparation of those documents, and we have not made, and will not make, any due diligence inquiry with respect to the issuer of any Reference Stock in connection with the offering of the notes. We do not make any representation that those publicly available documents or any other publicly available information regarding the issuer of any Reference Stock is accurate or complete, and we are not responsible for public disclosure of information by the issuer of any Reference Stock, whether contained in filings with the SEC or otherwise. We also cannot give any assurance that all events occurring prior to the date of the relevant terms supplement (including events that would affect the accuracy or completeness of the publicly available documents of the issuer of any Reference Stock) that would affect the value of any Reference Stock will have been publicly disclosed. Subsequent disclosure of any of these events or the disclosure of, or failure to disclose, material future events concerning the issuer of any Reference Stock could affect the market value of the notes or any payment on the notes. Any prospective purchaser of the notes should undertake an independent investigation of the issuer of any Reference Stock as in its judgment is appropriate to make an informed decision with respect to an investment in the notes.**

#### *Price of One Share of a Reference Stock*

Unless otherwise specified in the relevant terms supplement, the "closing price" of one share of a Reference Stock (or one unit of any other security for which a closing price must be determined) on any relevant day means:

- if that Reference Stock (or that security) is listed or admitted to trading on a national securities exchange, the last reported sale price, regular way (or, in the case of The NASDAQ Stock Market, the official closing price), of the principal trading session on that day on the principal U.S. securities exchange registered under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), on which that Reference Stock (or that security) is listed or admitted to trading;

- if that Reference Stock (or that security) is not listed or admitted to trading on any national securities exchange but is included in the OTC Bulletin Board Service (or any successor service) operated by Financial Industry Regulatory Authority, Inc. (the “FINRA”) (the “**OTC Bulletin Board**”), the last reported sale price of the principal trading session on the OTC Bulletin Board on that day;
- if that Reference Stock (or that security) is issued by a foreign issuer and its closing price cannot be determined as set forth in the two bullet points above, and that Reference Stock (or that security) is listed or admitted to trading on a non-U.S. securities exchange or market, the last reported sale price, regular way, of the principal trading session on that day on the primary non-U.S. securities exchange or market on which that Reference Stock (or that security) is listed or admitted to trading; or
- otherwise, if none of the above circumstances is applicable, the mean, as determined by the calculation agent, of the bid prices for that Reference Stock (or that security) obtained from as many dealers in that Reference Stock (or that security), but not exceeding three, as will make such bid prices available to the calculation agent. Bids of any of our affiliates may be included in the calculation of the mean, but only to the extent that any of those bids is not the highest or the lowest of the bids obtained,

in each case *multiplied* by the then-current Stock Adjustment Factor, subject to the provisions of “General Terms of Notes — Postponement of a Determination Date” above and “— Reorganization Events” below.

Unless otherwise specified in the relevant terms supplement, the “**trading price**” for one share of a Reference Stock (or one unit of any other security for which a trading price must be determined) at any time on any relevant day means:

- if that Reference Stock (or that security) is listed or admitted to trading on a national securities exchange, the most recently reported sale price, regular way, at that time during the principal trading session on that day on the principal U.S. securities exchange registered under the Exchange Act, on which that Reference Stock (or that security) is listed or admitted to trading;
- if that Reference Stock (or that security) is not listed or admitted to trading on any national securities exchange but is included in the OTC Bulletin Board, the most recently reported sale price at that time during the principal trading session on the OTC Bulletin Board on that day; or
- if that Reference Stock (or that security) is issued by a foreign issuer and its trading price cannot be determined as set forth in the two bullet points above, and that Reference Stock (or that security) is listed or admitted to trading on a non-U.S. securities exchange or market, the most recently reported sale price, regular way, at that time during the principal trading session on that day on the primary non-U.S. securities exchange or market on which that Reference Stock (or that security) is listed or admitted to trading,

in each case *multiplied* by the then-current Stock Adjustment Factor, subject to the provisions of “— Reorganization Events” below.

Unless otherwise specified in the relevant terms supplement, with respect to a Reference Stock, the “**Stock Adjustment Factor**” will be set initially at 1.0, subject to adjustment upon the occurrence of certain corporate events affecting that Reference Stock. See “— Anti-Dilution Adjustments” and “— Reorganization Events” below.

### ***Market Disruption Events for a Reference Stock***

With respect to a Reference Stock (or any security for which a closing price must be determined), 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 that Reference Stock (or that security) on the relevant exchange for that Reference Stock (or that security) for more than two hours of trading during, or during the one-half hour period preceding the close of, the principal trading session on that relevant exchange;
- a breakdown or failure in the price and trade reporting systems of the relevant exchange for that Reference Stock (or that security) as a result of which the reported trading prices for that Reference Stock (or that security) during the one-half hour period preceding the close of the principal trading session on that 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 that Reference Stock (or that security), if available, during the one-half hour period preceding the close of the principal trading session on that exchange or market; or
- a decision to permanently discontinue trading in those related futures or options contracts,

in each case, as determined by the calculation agent in its sole discretion; and

- a determination by the 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 a Reference Stock (or any security for which a closing price must be determined) 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 that Reference Stock (or that security);
- 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 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 that Reference Stock (or that security) by the primary exchange or market for trading in those contracts, if available, by reason of:
  - a price change exceeding limits set by that exchange or market,
  - an imbalance of orders relating to those contracts or
  - a disparity in bid and ask quotes relating to those contracts

will, in each case, constitute a suspension, absence or material limitation of trading in futures or options contracts related to that Reference Stock (or that security); and

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

### ***Anti-Dilution Adjustments***

The Stock Adjustment Factor for a Reference Stock is subject to adjustment by the calculation agent as a result of the anti-dilution adjustments described in this section.

Unless otherwise specified below, no adjustments to the Stock Adjustment Factor for a Reference Stock will be required unless the Stock Adjustment Factor adjustment would require a change of at least 0.1% in the applicable Stock Adjustment Factor then in effect. The applicable Stock Adjustment Factor resulting from any of the adjustments specified in this section will be rounded to the nearest ten-thousandth with five one hundred-thousandths being rounded upward. The calculation agent will not be required to make any adjustments to the Stock Adjustment Factor for a Reference Stock after the close of business on the business day immediately preceding the maturity date.

No adjustments to the Stock Adjustment Factor for a Reference Stock will be required other than those specified below. The required adjustments specified in this section do not cover all events that could affect the closing price of one share of a Reference Stock on any relevant day during the term of the notes. No adjustments will be made for certain other events, such as offerings of common stock by the issuer of a Reference Stock for cash or in connection with acquisitions or otherwise or the occurrence of a partial tender or exchange offer for that Reference Stock by the issuer of that Reference Stock or any third party.

If an event other than those described below occurs with respect to a Reference Stock and the calculation agent determines that the event has a dilutive or concentrative effect on the theoretical value of that Reference Stock, the calculation agent may calculate the corresponding adjustment or series of adjustments to the applicable Stock Adjustment Factor as the calculation agent determines in good faith to be appropriate to account for that dilutive or concentrative effect. You will not be entitled to any compensation from us or the calculation agent for any loss suffered as a result of any such adjustment or our decision not to make any such adjustment.

For purposes of these adjustments, except as noted below, if an ADS is serving as a Reference Stock, all adjustments to the Stock Adjustment Factor for that Reference Stock will be made as if the applicable Underlying Stock is serving as that Reference Stock. Therefore, for example, if the applicable Underlying Stock is subject to a two-for-one stock split and assuming the Stock Adjustment Factor for the applicable Reference Stock is equal to one, the Stock Adjustment Factor for that Reference Stock would be adjusted to equal two. If a Reference Stock is an ADS, the term "**dividend**" used in this section, with respect to that Reference Stock, will mean, unless we specify otherwise in the relevant terms supplement, the dividend paid by the issuer of the applicable Underlying Stock, net of any applicable foreign withholding or similar taxes that would be due on dividends paid to a U.S. person that claims and is entitled to a reduction in those taxes under an applicable income tax treaty, if available.

If an ADS is serving as a Reference Stock, no adjustment to the applicable Stock Adjustment Factor, including those described below, will be made (1) if holders of those ADSs are not eligible to participate in any of the transactions described below or (2) to the extent that the calculation agent determines in its sole discretion that the issuer or the depositary for those ADSs has adjusted the number of shares of the applicable Underlying Stock represented by each ADS so that the price of that ADS would not be affected by the corporate event in question. However, to the extent that the number of shares of the applicable Underlying Stock represented by each ADS is changed for any other reason, appropriate adjustments to the anti-dilution adjustments described in this product supplement (which may include ignoring such provision, if appropriate) will be made to reflect that change.

Notwithstanding anything to the contrary in this product supplement, if under the provisions below or in the following “— Reorganization Events” section, the calculation agent would make more than one adjustment on the same day, the calculation agent in good faith may make adjustments or a series of adjustments that differ from, or that are in addition to, those described below or under the following “— Reorganization Events” section with a view to offsetting, to the extent practical, any change in your economic position as a holder of the notes that results solely from the applicable event(s). You will not be entitled to any compensation from us or the calculation agent for any loss suffered as a result of any such adjustment or our decision not to make any such adjustment.

The calculation agent will be solely responsible for the determination and calculation of any adjustment to the Stock Adjustment Factor for a Reference Stock and of any related determinations and calculations with respect to any distributions of stock, other securities or other property or assets, including cash, in connection with any corporate event described in this section, and its determinations and calculations will be conclusive absent manifest error.

The calculation agent will provide information as to any adjustments to the Stock Adjustment Factor for a Reference Stock as described below upon written request by any investor in the notes.

#### *Stock Splits and Reverse Stock Splits*

If a Reference Stock is subject to a stock split or reverse stock split, then once that split has become effective, the applicable Stock Adjustment Factor will be adjusted so that the new Stock Adjustment Factor will equal the product of:

- the prior Stock Adjustment Factor, and
- the number of shares that a holder of one share of that Reference Stock before the effective date of the stock split or reverse stock split would have owned immediately following the applicable effective date.

#### *Stock Dividends or Distributions*

If a Reference Stock is subject to (i) a stock dividend, *i.e.*, an issuance of additional shares of that Reference Stock that is given ratably to all or substantially all holders of shares of that Reference Stock or (ii) a distribution of shares of that Reference Stock as a result of the triggering of any provision of the corporate charter of the issuer of that Reference Stock, then, once the dividend or distribution has become effective and the shares of that Reference Stock are trading ex-dividend, the applicable Stock Adjustment Factor will be adjusted so that the new Stock Adjustment Factor will equal the prior Stock Adjustment Factor *plus* the product of:

- the prior Stock Adjustment Factor, and
- the number of additional shares issued in the stock dividend or distribution with respect to one share of that Reference Stock.

Notwithstanding the foregoing, it is expected that the Stock Adjustment Factor of a Reference Stock, that is a non-U.S. equity security with a relevant exchange located outside the United States, will not be adjusted as a result of dividends payable that are in lieu of ordinary cash dividends payable with respect to shares of that Reference Stock. These ordinary dividends may take the form of stock or scrip dividends payable in shares of that Reference Stock as well as other distributions classified as a return of capital.

### *Non-Cash Dividends or Distributions*

If the issuer of a Reference Stock distributes shares of capital stock, evidences of indebtedness or other assets or property of the issuer of that Reference Stock to all or substantially all holders of shares of that Reference Stock (other than (i) dividends, distributions, rights or warrants referred to under “— Stock Splits and Reverse Stock Splits” or “— Stock Dividends or Distributions” above or “— Issuance of Transferable Rights or Warrants” below and (ii) cash dividends or distributions referred under “— Cash Dividends or Distributions” below), then, once the distribution has become effective and the shares of that Reference Stock are trading ex-dividend, the applicable Stock Adjustment Factor will be adjusted so that the new Stock Adjustment Factor will equal the product of:

- the prior Stock Adjustment Factor, and
- a fraction, the numerator of which is the Current Market Price of that Reference Stock and the denominator of which is the amount by which the Current Market Price exceeds the Fair Market Value of that distribution.

The “**Current Market Price**” of a Reference Stock means the closing price of one share of that Reference Stock on the trading day immediately preceding the ex-dividend date of the dividend or distribution requiring an adjustment to the applicable Stock Adjustment Factor.

With respect to a Reference Stock, the “**Fair Market Value**” of any distribution means the value of that distribution on the ex-dividend date for that distribution, as determined by the calculation agent. If that distribution consists of property traded on the ex-dividend date on a U.S. national securities exchange or, if the applicable Reference Stock is a non-U.S. equity security or an ADS and that distribution consists of property traded on the ex-dividend date on a non-U.S. securities exchange or market, the Fair Market Value will equal the opening price of that distributed property on that ex-dividend date, as determined by the calculation agent.

The “**ex-dividend date**,” with respect to a dividend or other distribution for a Reference Stock, means the first trading day on which transactions in the shares of that Reference Stock trade on the relevant exchange without the right to receive that dividend or other distribution.

Notwithstanding the foregoing, a distribution on a Reference Stock described in clause (a), (d) or (e) of the section entitled “— Reorganization Events” below that also would require an adjustment under this section will not cause an adjustment to the applicable Stock Adjustment Factor and will only be treated as a Reorganization Event (as defined below) pursuant to clause (a), (d) or (e) under the section entitled “— Reorganization Events.” A distribution on a Reference Stock described in the section entitled “— Issuance of Transferable Rights or Warrants” that also would require an adjustment under this section will cause an adjustment only pursuant to the section entitled “— Issuance of Transferable Rights or Warrants.”

### *Cash Dividends or Distributions*

If the issuer of a Reference Stock pays dividends or makes other distributions consisting exclusively of cash to all or substantially all holders of shares of that Reference Stock during any quarterly fiscal period during the term of the notes in an aggregate amount that, together with other cash dividends or distributions made previously during that quarterly fiscal period with respect to which an adjustment to the Stock Adjustment Factor has not previously been made under this “— Cash Dividends or Distributions” section, exceeds the Dividend Threshold, then, once the dividend or distribution has become effective and the shares of that Reference Stock are trading ex-dividend, the applicable Stock Adjustment Factor will be adjusted so that the new Stock Adjustment Factor will equal the product of:

- the prior Stock Adjustment Factor, and
- a fraction, the numerator of which is the Current Market Price of that Reference Stock and the denominator of which is the amount by which the Current Market Price exceeds the aggregate amount in cash per share of that Reference Stock distributed in that cash dividend or distribution together with any cash dividends or distributions made previously during that quarterly fiscal period with respect to which an adjustment to the Stock Adjustment Factor has not previously been made under this “— Cash Dividends or Distributions” section to holders of shares of that Reference Stock in excess of the Dividend Threshold.

For the avoidance of doubt, the Stock Adjustment Factor for a Reference Stock may be adjusted more than once in any particular quarterly fiscal period because of cash dividends or distributions that exceed the Dividend Threshold. If the applicable Stock Adjustment Factor has been previously adjusted in a particular quarterly fiscal period because of cash dividends or distributions that exceed the Dividend Threshold, subsequent adjustments will be made if the issuer of the relevant Reference Stock pays cash dividends or makes other distributions during that quarterly fiscal period in an aggregate amount that, together with other cash dividends or distributions since the last adjustment to the Stock Adjustment Factor (because of cash dividends or distributions that exceed the Dividend Threshold), exceeds the Dividend Threshold. Those subsequent adjustments to the applicable Stock Adjustment Factor will only take into account the cash dividends or distributions during that quarterly fiscal period made since the last adjustment to the applicable Stock Adjustment Factor because of cash dividends or distributions that exceed the Dividend Threshold.

The “**Dividend Threshold**” of a Reference Stock is equal to the sum of (x) the immediately preceding cash dividend(s) or other cash distribution(s) paid in the preceding quarterly fiscal period, if any, per share of that Reference Stock *plus* (y) 10% of the closing price of one share of that Reference Stock on the trading day immediately preceding the ex-dividend date, unless otherwise specified in the relevant terms supplement.

Notwithstanding the foregoing, it is expected that the Stock Adjustment Factor of a Reference Stock, that is a non-U.S. equity security with a relevant exchange located outside the United States, will not be adjusted (even if cash dividends or distributions exceed the Dividend Threshold) for a cash dividend that the calculation agent determines, in its sole discretion, is (1) by its terms or declared intent, declared and paid within the normal dividend policy or historical dividend practice of the issuer of that Reference Stock or (2) a cash payment by the issuer of that Reference Stock that such issuer announces will be an ordinary cash dividend.

#### *Issuance of Transferable Rights or Warrants*

Except as provided below, if the issuer of a Reference Stock issues transferable rights or warrants to all holders of shares of that Reference Stock to subscribe for or purchase that Reference Stock, including new or existing rights to purchase that Reference Stock at an exercise price per share less than the closing price of one share of that Reference Stock on the ex-dividend date, then the applicable Stock Adjustment Factor will be adjusted at or prior to the close (as determined by the calculation agent in its sole discretion) on the ex-dividend date for that issuance so that the new Stock Adjustment Factor will equal the product of:

- the prior Stock Adjustment Factor, and
- one *plus* the number of shares of that Reference Stock that can be purchased with the cash value of those warrants or rights distributed on one share of that Reference Stock.

The number of shares that can be purchased will be based on the closing price or the then-applicable trading price of one share of the applicable Reference Stock on the ex-dividend date. The cash value of the warrants or rights, if the warrants or rights are traded on a U.S. national

securities exchange, or, if a non-U.S. equity security with a relevant exchange located outside the United States or an ADS is serving as the applicable Reference Stock, will equal the closing price or the then-applicable trading price of one such warrant or right, or, if the warrants or rights are not traded on a U.S. national securities exchange or a non-U.S. securities exchange or market, as applicable, will be determined by the calculation agent and will equal the average (mean) of the bid prices obtained from three dealers at approximately 3:00 p.m., New York City time, on the ex-dividend date, *provided* that if only two bid prices are available, then the cash value of those warrants or rights will equal the average (mean) of those bids, and if only one bid is available, then the cash value of those warrants or rights will equal that bid.

The “**ex-dividend date**,” with respect to a transferable right or warrant, means the first trading day on which transactions in the shares of that Reference Stock trade on the relevant exchange without the right to receive that transferable right or warrant.

Notwithstanding the foregoing, if the calculation agent determines in good faith that the adjustments in response to the issuance of transferable rights or warrants described above do not achieve an equitable result, the calculation agent in good faith may make adjustments or a series of adjustments that differ from, or that are in addition to, those described above with a view to offsetting, to the extent practical, any change in your economic position as a holder of the notes that results solely from the applicable event. In determining whether or not any adjustment so described achieves an equitable result, the calculation agent may consider any adjustment made by the Options Clearing Corporation or any other equity derivatives clearing organization on options contracts on the applicable Reference Stock. You will not be entitled to any compensation from us or the calculation agent for any loss suffered as a result of any such adjustment or our decision not to make any such adjustment.

### ***Reorganization Events***

If, on or before the final Determination Date (or, in the case of notes for which shares of a Reference Stock will be delivered at maturity, on or before the maturity date),

- (a) there occurs any reclassification or change of a Reference Stock, including, without limitation, as a result of the issuance of tracking stock by the issuer of a Reference Stock;
- (b) the issuer of a Reference Stock, or any surviving entity or subsequent surviving entity of the issuer of a Reference Stock (a “**Successor Entity**”), has been subject to a merger, combination or consolidation and is not the surviving entity;
- (c) any statutory exchange of securities of the issuer of a Reference Stock or any Successor Entity with another corporation occurs, other than pursuant to clause (b) above;
- (d) the issuer of a Reference Stock is liquidated or is subject to a proceeding under any applicable bankruptcy, insolvency or other similar law;
- (e) the issuer of a Reference Stock issues to all of its shareholders equity securities of an issuer other than the issuer of that Reference Stock, other than in a transaction described in clauses (b), (c) or (d) above (a “**Spin-Off Event**”); or
- (f) a tender or exchange offer or going-private transaction is commenced for all the outstanding shares of the issuer of a Reference Stock and is consummated and completed in full for all or substantially all of those shares, as determined by the calculation agent in its sole discretion (an event in clauses (a) through (f), a “**Reorganization Event**”),

then the closing price and, if applicable, the trading price of one share of that Reference Stock from and including the effective date for that Reorganization Event will be adjusted as set forth below.

If a reorganization event other than those described above occurs with respect to a Reference Stock, the calculation agent may calculate the corresponding adjustment or series of adjustments to the closing price and, if applicable, the trading price of one share of that Reference Stock as the calculation agent determines in good faith to be appropriate to account for that reorganization event. In addition, see “Anti-Dilution Adjustments” above for additional information about multiple adjustments on the same day. You will not be entitled to any compensation from us or the calculation agent for any loss suffered as a result of any such adjustment or our decision not to make any such adjustment.

If an ADS is serving as a Reference Stock, the determination as to whether a Reorganization Event has occurred with respect to that Reference Stock will be made as if the applicable Underlying Stock were serving as that Reference Stock. In addition, if an ADS is serving as a Reference Stock, no adjustments will be made in response to the Reorganization Event (1) if holders of those ADSs are not eligible to participate in the Reorganization Event or (2) to the extent that the calculation agent determines in its sole discretion that the issuer or the depositary for those ADSs has adjusted the assets represented by each ADS so that the price of that ADS would not be affected by the Reorganization Event in question.

If a Reorganization Event with respect to a Reference Stock occurs, the calculation agent will be solely responsible for the determination of any Exchange Property, the value of any Exchange Property and the effect of the Reorganization Event on the closing price and, if applicable, the trading price of one share of that Reference Stock, and its determinations and calculations will be conclusive absent manifest error.

The calculation agent will provide information as to any adjustments resulting from a Reorganization Event upon written request by any investor in the notes.

#### *The Exchange Property*

The “**Exchange Property**” with respect to a Reference Stock that is subject to a Reorganization Event will consist of any shares of that Reference Stock that continue to be held by the holders of that Reference Stock and any securities, cash or any other assets distributed to the holders of that Reference Stock with respect to one share of that Reference Stock in, or as a result of, that Reorganization Event. No interest will accrue on any Exchange Property.

In the case of a consummated and completed-in-full tender or exchange offer or going-private transaction involving Exchange Property of a particular type, the Exchange Property will be deemed to include the amount of cash or other property paid by the offeror in the tender or exchange offer with respect to the Exchange Property (in an amount determined on the basis of the rate of exchange in that tender or exchange offer or going-private transaction). In the event of a tender or exchange offer, a merger, combination or consolidation or a going-private transaction with respect to Exchange Property in which an offeree may elect to receive cash or other property, the Exchange Property will be deemed to include the kind and amount of cash and other property received by offerees who do not make an election.

With respect to any portion of the Exchange Property that consists of property other than Exchange Traded Securities or cash (such property, “**Liquidation Property**”), that portion of the Exchange Property will be deemed instead to consist of an amount of cash equal to the market value of the Liquidation Property, as determined by the calculation agent in its sole discretion, on the date the issuer of that Reference Stock distributed all the Liquidation Property.

“**Exchange Traded Securities**” means securities (including, without limitation, securities of the issuer of the applicable Reference Stock or securities of foreign issuers represented by American depositary receipts) traded on the NYSE, the NYSE MKT LLC or The NASDAQ Stock Market.

### *The Closing Price and the Trading Price of the Exchange Property*

On any relevant day, the “closing price” or the “trading price” of the Exchange Property means the product of:

- (a) the sum of:
  - (i) the closing price or trading price, respectively, of one share of any Exchange Traded Securities composing the Exchange Property on that day *multiplied* by the quantity of the applicable Exchange Traded Securities received for each share of the applicable Reference Stock; and
  - (ii) the aggregate cash amount of any Exchange Property (other than Exchange Traded Securities), including the aggregate cash amount resulting from the valuation of the Liquidation Property as described above; and
- (b) the Stock Adjustment Factor for the applicable Reference Stock as of the effective date for the Reorganization Event.

Any Exchange Traded Securities composing the Exchange Property will be subject to the anti-dilution adjustment and reorganization-event adjustments including but not limited to those set forth in this product supplement as if it were a Reference Stock, and the Stock Adjustment Factor of any Exchange Traded Securities will be set equal to 1.0 on the effective date for the Reorganization Event.

### *Adjustment to the Closing Price and the Trading Price of One Share of the Applicable Reference Stock*

If a Reorganization Event with respect to a Reference Stock occurs, then, for purposes of any determination with respect to that Reference Stock on or after the effective date of that Reorganization Event:

- (a) the closing price of one share of that Reference Stock on any relevant day will equal the closing price of the Exchange Property on that day; and
- (b) the trading price of one share of that Reference Stock at any time on any relevant day will equal the trading price of the Exchange Property at that time on that day.

### *Adjustment to the Payment at Maturity*

For Physically Settled Notes, if a Reorganization Event occurs and, at maturity, you would have received the Physical Delivery Amount (or the cash value thereof), then for each note, instead of receiving the number of shares of the applicable Reference Stock equal to the Physical Delivery Amount (or the cash value thereof), you will receive at maturity, for each share of that Reference Stock included in the Physical Delivery Amount as of the effective date for that Reorganization Event, the Exchange Property with respect to one share of the Reference Stock (or the cash value thereof). Fractional shares will be payable in cash.

### *Delisting of a Reference Stock or Nationalization of a Reference Stock Issuer*

If a non-U.S. equity security serving as a Reference Stock with a relevant exchange located outside the United States (an “**Original Foreign Reference Stock**”) is no longer listed or admitted to trading on a securities exchange (a “**Delisting Event**”) or if the issuer of an Original Foreign Reference Stock is nationalized (a “**Nationalization Event**”), the calculation agent, in its sole discretion without consideration for the interests of investors, will either (A) select a Successor

Foreign Reference Stock (as defined below) to that non-U.S. equity security after the close of the principal trading session on the trading day immediately prior to the effective date of the Delisting Event or Nationalization Event, as applicable (the effective date of the Delisting Event or Nationalization Event, as applicable, the **"Change Date"**), in accordance with the following paragraphs (each successor stock as so selected, a **"Successor Foreign Reference Stock"** and each issuer of that Successor Foreign Reference Stock, a **"Successor Foreign Reference Stock Issuer"**) or (B) on and after the Change Date, (i) deem the closing price and, if applicable, the trading price of that Original Foreign Reference Stock on each day to be the closing price of that Original Foreign Reference Stock on the trading day immediately prior to the Change Date and (ii) deem the Stock Adjustment Factor of that Original Foreign Reference Stock on each day to be the Stock Adjustment Factor of that Original Foreign Reference Stock on the trading day immediately prior to the Change Date.

Upon the selection of any Successor Foreign Reference Stock by the calculation agent pursuant to clause (A) of the preceding paragraph, on and after the Change Date, references in this product supplement or the relevant terms supplement to the applicable **"Reference Stock"** will no longer refer to the Original Foreign Reference Stock and will be deemed instead to refer to that Successor Foreign Reference Stock for all purposes, and references in this product supplement or the relevant terms supplement to **"issuer"** of the Original Foreign Reference Stock will be deemed to be to the applicable Successor Foreign Reference Stock Issuer. Upon the selection of any Successor Foreign Reference Stock by the calculation agent pursuant to clause (A) of the preceding paragraph, on and after the Change Date, (i) the Initial Value (or Strike Value, if applicable) for that Successor Foreign Reference Stock will be equal to the Initial Value (or Strike Value, if applicable) of the Original Foreign Reference Stock as of the trading day immediately preceding the Change Date and (ii) the Stock Adjustment Factor for that Successor Foreign Reference Stock will be an amount as determined by the calculation agent in good faith as of the Change Date, taking into account, among other things, the closing price of the Original Foreign Reference Stock on the trading day immediately preceding the Change Date, subject to adjustment for certain corporate events related to that Successor Foreign Reference Stock in accordance with **"— Anti-Dilution Adjustments."**

The **"Successor Foreign Reference Stock"** with respect to the Reference Stock will be the common stock of a company organized in, or with its principal executive office located in, the country in which the issuer of the Original Foreign Reference Stock is organized or has its principal executive office, selected by the calculation agent from among the common stocks of three companies then listed on a securities exchange that are not the Reference Stock, with the three largest market capitalizations within the same industry as the issuer of the Original Foreign Reference Stock that also have an equity security that is listed and traded on a national securities exchange in the United States that, in the sole discretion of the calculation agent, is the most comparable to the Original Foreign Reference Stock (prior to the Change Date), taking into account such factors as the calculation agent deems relevant, including, without limitation, dividend history and stock price volatility; *provided, however*, that a Successor Foreign Reference Stock will not be any stock that is subject to a trading restriction under the trading restriction policies of JPMorgan Chase & Co. or any of its affiliates that would materially limit the ability of JPMorgan Chase & Co. or any of its affiliates to hedge the notes with respect to that stock.

Following a Delisting Event or Nationalization Event, as applicable, in which a Successor Foreign Reference Stock is selected, the Stock Adjustment Factor of the Successor Foreign Reference Stock will be subject to adjustment as described above under **"— Anti-Dilution Adjustments."**

The calculation agent will provide information as to any Successor Foreign Reference Stock (including its Initial Value (or Strike Value, if applicable)) upon written request by any investor in the notes.

### ***Delisting of ADSs or Termination of ADS Facility***

If an ADS serving as a Reference Stock (an "**Original Reference Stock**") is no longer listed or admitted to trading on a U.S. securities exchange registered under the Exchange Act, or included in the OTC Bulletin Board, or if the ADS facility between the issuer of the applicable Underlying Stock and the ADS depository is terminated for any reason, then on and after the date that ADS is no longer so listed or admitted to trading or the date of that termination, as applicable (the "**ADS Change Date**"), the calculation agent, in its sole discretion without consideration for the interests of investors, will either (A) select a Successor Reference Stock (as defined below) to that ADS after the close of the principal trading session on the trading day immediately prior to the ADS Change Date in accordance with the following paragraphs (each successor stock as so selected, a "**Successor Reference Stock**" and each successor stock issuer, a "**Successor Reference Stock Issuer**") or (B) select the applicable Underlying Stock to be that Reference Stock.

Upon the selection of any Successor Reference Stock by the calculation agent pursuant to clause (A) of the preceding paragraph, on and after the ADS Change Date, references in this product supplement or the relevant terms supplement to the applicable "Reference Stock" will no longer refer to the Original Reference Stock and will be deemed instead to refer to that Successor Reference Stock for all purposes, and references in this product supplement or the relevant terms supplement to "issuer" of the Original Reference Stock will be deemed to be to the applicable Successor Reference Stock Issuer. Upon the selection of any Successor Reference Stock by the calculation agent pursuant to clause (A) of the preceding paragraph, on and after the ADS Change Date, (i) the Initial Value (or Strike Value, if applicable) for that Successor Reference Stock will be equal to the Initial Value (or Strike Value, if applicable) of the Original Reference Stock as of the trading day immediately preceding the ADS Change Date and (ii) the Stock Adjustment Factor for that Successor Reference Stock will be an amount as determined by the calculation agent in good faith as of the ADS Change Date, taking into account, among other things, the closing price of the Original Reference Stock on the trading day immediately preceding the ADS Change Date, subject to adjustment for certain corporate events related to that Successor Reference Stock in accordance with "— Anti-Dilution Adjustments."

The "**Successor Reference Stock**" with respect to an ADS will be the ADS of a company organized in, or with its principal executive office located in, the country in which the issuer of the Original Reference Stock is organized or has its principal executive office, selected by the calculation agent from among the ADSs of three companies then registered to trade on the NYSE or The NASDAQ Stock Market with the same primary Standard Industrial Classification Code ("**SIC Code**") as that Original Reference Stock that, in the sole discretion of the calculation agent, are the most comparable to that Original Reference Stock, taking into account such factors as the calculation agent deems relevant, including, without limitation, market capitalization, dividend history and stock price volatility; *provided, however*, that a Successor Reference Stock will not be any ADS that is (or the Underlying Stock for which is) subject to a trading restriction under the trading restriction policies of JPMorgan Chase & Co. or any of its affiliates that would materially limit the ability of JPMorgan Chase & Co. or any of its affiliates to hedge the notes with respect to the ADS (a "**Hedging Restriction**"); *provided further* that if a Successor Reference Stock cannot be identified as set forth above for which a Hedging Restriction does not exist, that Successor Reference Stock will be selected by the calculation agent and will be the ADS of a company that (i) is organized in, or with its principal executive office located in, the country in which the issuer of that Original Reference Stock is organized or has its principal executive office, (ii) is then registered to trade on the NYSE or The NASDAQ Stock Market, (iii) in the sole discretion of the calculation agent, is the most comparable to that Original Reference Stock, taking into account such factors as the calculation agent deems relevant, including, without limitation, market capitalization, dividend history and stock price volatility, (iv) is within the same Division and Major Group classification (as defined by the Office of Management and Budget) as the primary SIC Code for that Original Reference Stock and (v) is not subject to a Hedging Restriction. Notwithstanding the foregoing, if a Successor Reference Stock cannot be identified in the country in which the issuer of that Original Reference Stock is organized or has its principal executive office, as set forth above, that Successor Reference Stock will be selected by the calculation agent and will be a common stock of a company that is then registered to trade on the NYSE or The NASDAQ Stock Market with the same primary SIC Code as that Original Reference Stock that, in the sole discretion of the calculation agent, is the most comparable to that Original Reference Stock, taking into account such factors as the calculation agent deems relevant, including, without limitation, market capitalization, dividend history and stock price volatility and that is not subject to a Hedging Restriction.

Following the selection of a Successor Reference Stock, the Stock Adjustment Factor of the Successor Reference Stock will be subject to adjustment as described above under “— Anti-Dilution Adjustments.”

The calculation agent will provide information as to any Successor Reference Stock (including its Initial Value (or Strike Value, if applicable)) upon written request by any investor in the notes.

If the calculation agent selects the applicable Underlying Stock to be a Reference Stock pursuant to clause (B) of the first paragraph under “— Delisting of ADSs or Termination of ADS Facility” above, the Stock Adjustment Factor for that Reference Stock will thereafter equal the last value of the Stock Adjustment Factor for the ADS multiplied by the number of shares of the applicable Underlying Stock represented by a single ADS, subject to further adjustments as described under “— Anti-Dilution Adjustments.” On and after the ADS Change Date, the closing price of the applicable Reference Stock on any relevant day and, if applicable, the trading price at any time on any relevant day will be expressed in U.S. dollars by converting the closing price into U.S. dollars using the applicable exchange rate as described below.

On any date of determination, the applicable exchange rate will be the spot rate of the local currency of the applicable Underlying Stock relative to the U.S. dollar as reported by Reuters Group PLC (“**Reuters**”) on the relevant page for that rate at approximately the closing time of the relevant exchange for the applicable Underlying Stock on that day. However, (1) if that rate is not displayed on the relevant Reuters page on the date of determination, the applicable exchange rate on that day will equal an average (mean) of the bid quotations in the City of New York received by the calculation agent at approximately 11:00 a.m., New York City time, on the business day immediately following the date of determination, from three recognized foreign exchange dealers (*provided* that each dealer commits to execute a contract at its applicable bid quotation) or, (2) if the calculation agent is unable to obtain three bid quotations, the average of the bid quotations obtained from two recognized foreign exchange dealers or, (3) if the calculation agent is able to obtain a bid quotation from only one recognized foreign exchange dealer, that bid quotation, in each case for the purchase of the applicable non-U.S. currency for U.S. dollars in the aggregate principal amount of the notes for settlement on the third business day following the date of determination. If the calculation agent is unable to obtain at least one bid quotation, the calculation agent will determine the applicable exchange rate in its sole discretion.

## Indices

If the notes are linked to any Index, a separate underlying supplement or the relevant terms supplement will provide additional information relating to that Index. Unless otherwise specified in the relevant terms supplement or any accompanying underlying supplement, we will derive all information regarding any Index, including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information, without independent verification.

### *Level of an Index*

Unless otherwise specified in the relevant terms supplement or any accompanying underlying supplement, the “**closing level**” of an Index or any relevant successor index (as defined under “— Discontinuation of an Index; Alteration of Method of Calculation” below) on any relevant day will equal the official closing level of that Index or successor index, as applicable, published with respect to that day. In certain circumstances, the closing level of an Index or any relevant successor index will be based on the alternative calculation of that Index described under “General Terms of Notes — Postponement of a Determination Date” above or “— Discontinuation of an Index; Alteration of Method of Calculation” below.

Unless otherwise specified in the relevant terms supplement or any accompanying underlying supplement, the “**intraday level**” of an Index or any relevant successor index at any time on any relevant day (including at the open and close of trading for that Index or successor index, as applicable) will equal the most recently reported level at that time for that Index or successor index, as applicable, as published on the applicable page of Bloomberg, L.P., which we refer to as

**“Bloomberg,”** or any successor page, for that index or successor index, as applicable. In certain circumstances, the intraday level of an Index or any relevant successor index will be based on the alternative calculation of that Index described under “— Discontinuation of an Index; Alteration of Method of Calculation” below.

### ***Market Disruption Events for an Equity Index***

With respect to an Equity Index (or any relevant successor index), a **“market disruption event,”** unless otherwise specified in the relevant terms supplement or any accompanying underlying 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 that Equity Index (or that successor index) on the relevant exchanges for those securities for more than two hours of trading during, or during the one-hour period preceding the close of, the principal trading session on that 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 that Equity Index (or that successor index) during the one-hour period preceding the close of the principal trading session on that 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 that Equity Index (or that successor index), if available, for more than two hours of trading during, or during the one-hour period preceding the close of, the principal trading session on that exchange or market; or
- a decision to permanently discontinue trading in those related futures or options contracts,

in each case, as determined by the calculation agent in its sole discretion; and

- a determination by the 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 an Equity Index (or any relevant successor index) exists at any time, if trading in a security included in that Equity Index (or that successor index) is materially suspended or materially limited at that time, then the relevant percentage contribution of that security to the level of that Equity Index (or that successor index) will be based on a comparison of:

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

in each case immediately before that suspension or limitation.

For purposes of determining whether a market disruption event with respect to an Equity Index (or any 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 that Equity Index (or that 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 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 that Equity Index (or that successor index) by the primary exchange or market for trading in those contracts, if available, by reason of:
  - a price change exceeding limits set by that exchange or market,
  - an imbalance of orders relating to those contracts or
  - a disparity in bid and ask quotes relating to those contracts

will, in each case, constitute a suspension, absence or material limitation of trading in futures or options contracts related to that Equity Index (or that 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 that Equity Index (or that successor index) are traded will not include any time when that exchange or market is itself closed for trading under ordinary circumstances.

***Market Disruption Events for a Bond Index***

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

- the occurrence or existence of a suspension, absence or material limitation of trading of securities then constituting 10% or more of the level of that Bond Index (or that successor index) in the market generally for those securities during the principal trading hours of those securities;
- a breakdown or failure in the price and trade reporting systems of the relevant market that results in a failure to determine the price of the securities then constituting 10% or more of the level of that Bond Index (or that successor index) during the principal trading hours of those securities; or
- the closure (including the early closure) of the relevant market in securities then constituting 10% or more of the level of that Bond Index (or that successor index),

in each case, as determined by the calculation agent in its sole discretion; and

- a determination by the 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 a Bond Index (or any relevant successor index) exists at any time, if trading in a security included in that Bond Index (or that successor index) is suspended or materially limited at that time, then the relevant percentage contribution of that security to the level of that Bond Index (or that successor index) will be based on a comparison of:

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

in each case immediately before that suspension or limitation.

### ***Market Disruption Events for a Commodity Index***

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

- any suspension of or limitation imposed on trading in any Relevant Index Contract on the relevant exchange or any other event that disrupts or impairs the ability of market participants in general to affect transactions in, or obtain market values for, any Relevant Index Contract on the relevant exchange, in each case which the calculation agent determines is material;
- all trading in any Relevant Index Contract is suspended for the entire day;
- all trading in any Relevant Index Contract is suspended (which term, for the avoidance of doubt, will not include, for purposes of this bullet point, a Relevant Index Contract being bid or offered at the limit price) subsequent to the opening of trading on that day, and trading does not recommence at least ten minutes prior to the actual closing time of the regular trading session of that Relevant Index Contract on that day; or
- if the relevant exchange establishes limits on the range within which the price of any Relevant Index Contract may fluctuate, the official settlement price of any Relevant Index Contract is at the upper or lower limit of that range on that day,

in each case as determined by the calculation agent in its sole discretion; and

- a determination by the 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.

### ***Market Disruption Events for a Volatility Index***

With respect to a Volatility Index (or any relevant successor index), a “**market disruption event**,” unless otherwise specified in the relevant terms supplement or any accompanying underlying 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 the relevant 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 that 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 the relevant exchange is open for trading during its regular trading session prior to its scheduled closing time, unless that earlier closing time is announced by the relevant exchange at least one hour prior to the actual closing time for the regular trading session on the 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 sponsor or calculation agent of that Volatility Index (or that successor index) to calculate and publish the official closing level of that Volatility Index (or that successor index),

in each case as determined by the calculation agent in its sole discretion; and

- a determination by the 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 a Volatility Index (or any relevant successor index) has occurred, unless otherwise specified in the relevant terms supplement or any accompanying underlying 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***

Unless otherwise specified in the relevant terms supplement or any accompanying underlying supplement, if the sponsor of an Index (an “**Index Sponsor**”) discontinues publication of that Index and that Index Sponsor or another entity publishes a successor or substitute index that the calculation agent determines, in its sole discretion, to be comparable to the discontinued Index (such index being referred to in this product supplement as a “**successor index**”), then (a) the closing level of that Index on any Determination Date, or any other relevant date on which the closing level of that Index is to be determined, will be determined by reference to the level of that successor index published with respect to that day and (b) the intraday level, if applicable, of that Index at any time on any Determination Date, or any other relevant date on which the intraday level of that Index is to be determined, will be determined by reference to the level of that successor index as most recently reported by Bloomberg at that time.

Upon any selection by the calculation agent of a successor index, the calculation agent will cause written notice thereof to be promptly furnished to the trustee, to us and to DTC, as holder of the notes.

Unless otherwise specified in the relevant terms supplement or any accompanying underlying supplement, if the Index Sponsor for an Index discontinues publication of that Index prior to, and that discontinuation is continuing on, a Determination Date or any other relevant date on which the closing level of that Index is to be determined, and the calculation agent determines, in its sole discretion, that no successor index for that Index is available at that time, or the calculation agent has previously selected a successor index for that Index and publication of that successor index is discontinued prior to, and that discontinuation is continuing on, that Determination Date or other relevant date, then (a) the calculation agent will determine the closing level of that Index for that Determination Date or that other relevant date on that date and (b) the intraday level of that Index, if applicable, at any time on any relevant day will be deemed to equal the closing level of that Index on that day, as determined by the calculation agent. Unless otherwise specified in the relevant terms supplement or any accompanying underlying supplement, the closing level of that Index will be computed by the calculation agent:

- (a) with respect to an Equity Index, in accordance with the formula for and method of calculating that Index or successor index, as applicable, last in effect prior to that discontinuation using the closing price (or, if trading in the relevant securities has been materially suspended or materially limited, the calculation agent's good faith estimate of the closing price that would have prevailed but for that suspension or limitation) at the close of the principal trading session on that date of each security most recently composing that Index or successor index, as applicable;
- (b) with respect to a Bond Index, in good faith and in a commercially reasonable manner; or
- (c) with respect to a Commodity Index or a Volatility Index, in accordance with the formula for and method of calculating that Index or successor index, as applicable, last in effect prior to that discontinuation using the official settlement price(s) (or, if trading in the relevant futures contract(s) has been materially suspended or materially limited, the calculation agent's good faith estimate of the applicable settlement price(s) that would have prevailed but for that suspension or limitation) at the close of the principal trading session on that date of each futures contract most recently composing that Index or successor index, as applicable, as well as any futures contract required to roll any expiring futures contract in accordance with the method of calculating that 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 so that it does not, in the opinion of the calculation agent, fairly represent the level of that Index or successor index, as applicable, had those changes or modifications not been made, then the calculation agent will, at the close of business in the City of New York on each date on which the closing level or intraday level, if applicable, of that Index or successor index, as applicable, is to be determined, make such calculations and adjustments as, in the good faith judgment of the calculation agent, may be necessary in order to arrive at a level of an index comparable to that Index or successor index, as the case may be, as if those changes or modifications had not been made, and the calculation agent will calculate the closing level or intraday level, as applicable, of that Index or successor index, as applicable, with reference to that Index or successor index, as adjusted. Accordingly, if the method of calculating an Index or a successor index is modified so that the level of that Index or 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 that Index or successor index), then the calculation agent will adjust its calculation of that Index or successor index, as applicable, in order to arrive at a level of that Index or successor index, as applicable, as if there had been no modification (e.g., as if the split had not occurred).

## **Funds**

If the notes are linked to any Fund, a separate underlying supplement or the relevant terms supplement will provide additional information relating to that Fund.

Registered investment companies are required to file periodically certain financial and other information specified by the SEC. Information provided to or filed with the SEC can be inspected and copied at the public reference facilities maintained by the SEC at 100 F Street, NE, Washington, DC 20549, and copies of those materials can be obtained from the Public Reference Section of the SEC, 100 F Street, NE, Washington, DC 20549, at prescribed rates. In addition, information provided to or filed with the SEC electronically can be accessed through a website maintained by the SEC. The address of the SEC's website is <http://www.sec.gov>. Information regarding any Fund may also be obtained from other sources including, but not limited to, press releases, newspaper articles and other publicly disseminated documents.

This product supplement and the relevant terms supplement relate only to the notes offered thereby and do not relate to any Fund. All disclosures contained in the relevant terms supplement regarding any Fund will be derived from publicly available documents and other publicly available information, without independent verification. We have not participated, and will not participate, in the preparation of those documents, and we have not made, and will not make, any due diligence inquiry with respect to any Fund in connection with the offering of the notes. We do not make any representation that those publicly available documents or any other publicly available information regarding any Fund is accurate or complete, and we are not responsible for public disclosure of information by any Fund, whether contained in filings with the SEC or otherwise. We also cannot give any assurance that all events occurring prior to the date of the relevant terms supplement (including events that would affect the accuracy or completeness of the publicly available documents of any Fund) that would affect the value of any Fund will have been publicly disclosed. Subsequent disclosure of any of these events or the disclosure of, or failure to disclose, material future events concerning any Fund could affect the market value of the notes or any payment on the notes. Any prospective purchaser of the notes should undertake an independent investigation of any Fund as in its judgment is appropriate to make an informed decision with respect to an investment in the notes.

#### *Price of One Share of a Fund*

Unless otherwise specified in the relevant terms supplement, the “closing price” of one share of the Fund or any relevant successor fund (as defined under “— Discontinuation of a Fund; Alternate Calculation of Closing Price and Trading Price”) on any relevant day means:

- if that Fund (or that successor fund) is listed or admitted to trading on a national securities exchange, the last reported sale price, regular way (or, in the case of The NASDAQ Stock Market, the official closing price) of the principal trading session on that day on the principal U.S. securities exchange registered under the Exchange Act, on which that Fund (or that successor fund) is listed or admitted to trading;
- if that Fund (or that successor fund) is not listed or admitted to trading on any national securities exchange but is included in the OTC Bulletin Board, the last reported sale price of the principal trading session on the OTC Bulletin Board on that day; or
- if, because of a market disruption event or otherwise, the last reported sale price or official closing price, as applicable, for that Fund (or that successor fund) is not available pursuant to the preceding bullet points, the mean, as determined by the calculation agent, of the bid prices for the shares of that Fund (or that successor fund) obtained from as many recognized dealers in that Fund (or that successor fund), but not exceeding three, as will make those bid prices available to the calculation agent. Bids of any of our affiliates may be included in the calculation of the mean, but only to the extent that any of those bids is not the highest or the lowest of the bids obtained,

in each case *multiplied* by the then-current Share Adjustment Factor, subject to the provisions of “General Terms of Notes — Postponement of a Determination Date” above and “— Discontinuation of a Fund; Alternate Calculation of Closing Price and Trading Price” below.

Unless otherwise specified in the relevant terms supplement, the “trading price” of one share of a Fund or any relevant successor fund at any time on any relevant day means:

- if that Fund (or that successor fund) is listed or admitted to trading on a national securities exchange, the most recently reported sale price, regular way, at that time during the principal trading session on that day on the principal U.S. securities exchange registered under the Exchange Act, on which that Fund (or that successor fund) is listed or admitted to trading; or

- if that Fund (or that successor fund) is not listed or admitted to trading on any national securities exchange but is included in the OTC Bulletin Board, the most recently reported sale price at that time during the principal trading session on the OTC Bulletin Board on that day,

in each case *multiplied* by the then-current Share Adjustment Factor, subject to the provisions of “— Funds — Discontinuation of a Fund; Alternate Calculation of Closing Price and Trading Price” below.

Unless otherwise specified in the relevant terms supplement, with respect to a Fund, the “**Share Adjustment Factor**” will be set initially at 1.0, subject to adjustment upon the occurrence of certain events affecting that Fund. See “— Anti-Dilution Adjustments” below.

***Market Disruption Events for a Fund***

With respect to a Fund (or any relevant successor fund), a “**market disruption event**,” unless otherwise specified in the relevant terms supplement or any accompanying underlying supplement, means:

- the occurrence or existence of a suspension, absence or material limitation of trading of the shares of that Fund (or that successor fund) on the relevant exchange for the shares of that Fund (or that successor fund) for more than two hours of trading during, or during the one-half hour period preceding the close of, the principal trading session on that relevant exchange;
- a breakdown or failure in the price and trade reporting systems of the relevant exchange for the shares of that Fund (or that successor fund) as a result of which the reported trading prices for the shares of that Fund (or that successor fund) during the last one-half hour preceding the close of the principal trading session on that relevant exchange are materially inaccurate;
- if applicable, the occurrence or existence of a suspension, absence or material limitation of trading of securities, commodities, futures contracts or other assets or market measures then constituting 20% or more of the level of the applicable Underlying Index on the relevant exchanges for those securities, commodities, futures contracts or other assets or market measures for more than two hours of trading during, or during the one-half hour period preceding the close of, the principal trading session on that relevant exchange; or
- 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 applicable Underlying Index, if any, or shares of that Fund (or that successor fund), if available, for more than two hours of trading during, or during the one-half hour period preceding the close of, the principal trading session on that exchange or market,

in each case, as determined by the calculation agent in its sole discretion; and

- a determination by the 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 a Fund (or any relevant successor fund) exists at any time, if trading in a security, commodity, futures contract or other asset or market measure included in the applicable Underlying Index, if any, is materially suspended or materially limited at that time, then the relevant percentage contribution of that security, commodity, futures contract or other asset or market measure to the level of the applicable Underlying Index, if any, will be based on a comparison of:

- the portion of the level of the applicable Underlying Index, if any, attributable to that security, commodity, futures contract or other asset or market measure relative to
- the overall level of the applicable Underlying Index, if any,

in each case immediately before that suspension or limitation.

For purposes of determining whether a market disruption event with respect to a Fund (or any relevant successor fund) 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 shares of that Fund (or that successor fund);
- a decision to permanently discontinue trading in the relevant futures or options contract or exchange-traded fund will not constitute a market disruption event;
- 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 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 applicable Underlying Index, if any, or shares of that Fund (or that successor fund) by the primary exchange or market for trading in those contracts, if available, by reason of:
  - a price change exceeding limits set by that exchange or market,
  - an imbalance of orders relating to those contracts or
  - a disparity in bid and ask quotes relating to those contracts

will, in each case, constitute a suspension, absence or material limitation of trading in futures or options contracts related to the applicable Underlying Index, if any, or the shares of that Fund (or that successor fund); 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 applicable Underlying Index, if any, or the shares of that Fund (or that successor fund) are traded will not include any time when that exchange or market is itself closed for trading under ordinary circumstances.

### ***Anti-Dilution Adjustments***

The Share Adjustment Factor for a Fund (or any relevant successor fund) is subject to adjustment by the calculation agent as a result of the anti-dilution adjustments described in this section.

Unless otherwise specified below, no adjustments to the Share Adjustment Factor for a Fund (or any relevant successor fund) will be required unless the Share Adjustment Factor adjustment would require a change of at least 0.1% in the applicable Share Adjustment Factor then in effect. The applicable Share Adjustment Factor resulting from any of the adjustments specified in this section will be rounded to the nearest ten-thousandth with five one hundred-thousandths being rounded upward. The calculation agent will not be required to make any adjustments to the Share Adjustment Factor for a Fund (or any relevant successor fund) after the close of business on the business day immediately preceding the maturity date.

No adjustments to the Share Adjustment Factor for a Fund (or any relevant successor fund) will be required other than those specified below. The required adjustments specified in this section do not cover all events that could affect the closing price of one share of a Fund (or any relevant successor fund) on any relevant day during the term of the notes.

The calculation agent will be solely responsible for the determination and calculation of any adjustments to the Share Adjustment Factor for a Fund (or any relevant successor fund) and of any related determinations and calculations, and its determinations and calculations with respect thereto will be conclusive in the absence of manifest error.

The calculation agent will provide information as to any adjustments to the Share Adjustment Factor for a Fund (or any relevant successor fund) upon written request by any investor in the notes.

#### *Share Splits and Reverse Share Splits*

If the shares of a Fund (or any relevant successor fund) are subject to a share split or reverse share split, then once that split has become effective, the applicable Share Adjustment Factor will be adjusted so that the new Share Adjustment Factor will equal the product of:

- the prior Share Adjustment Factor, and
- the number of shares that a holder of one share of that Fund (or that successor fund) before the effective date of the share split or reverse share split would have owned immediately following the applicable effective date.

#### *Share Dividends or Distributions*

If a Fund (or any relevant successor fund) is subject to (i) a share dividend, *i.e.*, an issuance of additional shares of that Fund (or that successor fund) that is given ratably to all or substantially all holders of shares of that Fund (or that successor fund) or (ii) a distribution of shares of that Fund (or that successor fund) as a result of the triggering of any provision of the corporate charter of that Fund (or that successor fund), then, once the dividend or distribution has become effective and the shares of that Fund (or that successor fund) are trading ex-dividend, the applicable Share Adjustment Factor will be adjusted so that the new Share Adjustment Factor will equal the prior Share Adjustment Factor *plus* the product of:

- the prior Share Adjustment Factor, and
- the number of additional shares issued in the share dividend or distribution with respect to one share of that Fund (or that successor fund).

#### *Non-Cash Dividends or Distributions*

If a Fund (or any relevant successor fund) distributes shares of capital stock, evidences of indebtedness or other assets or property of that Fund (or that successor fund) to all or substantially all holders of shares of that Fund (or that successor fund) (other than (i) share dividends or distributions referred to under “— Share Splits and Reverse Share Splits” or “— Share Dividends or Distributions” above and (ii) cash dividends referred under “— Cash Dividends or Distributions” below), then, once the distribution has become effective and the shares of that Fund (or that successor fund) are trading ex-dividend, the applicable Share Adjustment Factor will be adjusted so that the new Share Adjustment Factor will equal the product of:

- the prior Share Adjustment Factor, and
- a fraction, the numerator of which is the Current Market Price of that Fund (or that successor fund) and the denominator of which is the amount by which the Current Market Price exceeds the Fair Market Value of that distribution.

The “**Current Market Price**” of a Fund (or any relevant successor fund) means the closing price of one share of that Fund (or that successor fund) on the trading day immediately preceding the ex-dividend date of the dividend or distribution requiring an adjustment to the applicable Share Adjustment Factor.

With respect to a Fund, the “**Fair Market Value**” of any distribution means the value of that distribution on the ex-dividend date for that distribution, as determined by the calculation agent. If that distribution consists of property traded on the ex-dividend date on a U.S. national securities exchange, the Fair Market Value will equal the opening price of the distributed property on that ex-dividend date.

The “**ex-dividend date**,” with respect to a dividend or other distribution for a Fund (or any relevant successor fund), means the first trading day on which transactions in the shares of that Fund (or that successor fund) trade on the relevant exchange without the right to receive that dividend or other distribution.

#### *Cash Dividends or Distributions*

If a Fund (or any relevant successor fund) pays dividends or makes other distributions consisting exclusively of cash to all or substantially all holders of shares of that Fund (or that successor fund) during any dividend period during the term of the notes in an aggregate amount that, together with other cash dividends or distributions made previously during that dividend period with respect to which an adjustment to the Share Adjustment Factor has not previously been made under this “— Cash Dividends or Distributions” section, exceeds the Dividend Threshold, then, once the dividend or distribution has become effective and the shares of that Fund (or that successor fund) are trading ex-dividend, the applicable Share Adjustment Factor will be adjusted so that the new Share Adjustment Factor will equal the product of:

- the prior Share Adjustment Factor, and
- a fraction, the numerator of which is the Current Market Price of that Fund (or that successor fund) and the denominator of which is the amount by which the Current Market Price exceeds the aggregate amount in cash per share of that Fund (or that successor fund) distributed in that cash dividend or distribution together with any cash dividends or distributions made previously during that dividend period with respect to which an adjustment to the Share Adjustment Factor has not previously been made under this “— Cash Dividends or Distributions” section to holders of shares of that Fund (or that successor fund) in excess of the Dividend Threshold.

For the avoidance of doubt, the Share Adjustment Factor for a Fund (or any relevant successor fund) may be adjusted more than once in any particular dividend period because of cash dividends or distributions that exceed the Dividend Threshold. If the applicable Share Adjustment Factor has been previously adjusted in a particular dividend period because of cash dividends or distributions that exceed the Dividend Threshold, subsequent adjustments will be made if the relevant Fund (or the relevant successor fund) pays cash dividends or makes other distributions during that dividend period in an aggregate amount that, together with other cash dividends or distributions since the last adjustment to the Share Adjustment Factor (because of cash dividends or distributions that exceed the Dividend Threshold), exceeds the Dividend Threshold. Those subsequent adjustments to the applicable Share Adjustment Factor will only take into account the cash dividends or distributions during that dividend period made since the last adjustment to that Share Adjustment Factor because of cash dividends or distributions that exceed the Dividend Threshold.

The “**Dividend Threshold**” of a Fund (or any relevant successor fund) is equal to the sum of (x) the immediately preceding cash dividend(s) or other cash distribution(s) paid in the preceding dividend period, if any, per share of that Fund (or that successor fund) *plus* (y) 10% of the closing price of one share of that Fund (or that successor fund) on the trading day immediately preceding the ex-dividend date, unless otherwise specified in the relevant terms supplement.

The “**dividend period**” of a Fund (or any relevant successor fund) means any period during the term of the notes for which dividends are paid on a regular and consistent basis to shareholders of that Fund (or that successor fund).

### ***Discontinuation of a Fund; Alternate Calculation of Closing Price and Trading Price***

Unless otherwise specified in the relevant terms supplement, if a Fund (or a successor fund (as defined in this product supplement)) is delisted from the relevant exchange for that Fund (or that successor fund), liquidated or otherwise terminated, the calculation agent will substitute an exchange-traded fund that the calculation agent determines, in its sole discretion, to be comparable to the discontinued Fund (or that successor fund) (such substitute fund being referred to in this product supplement as a “**successor fund**”). If a Fund (or a successor fund) is delisted, liquidated or otherwise terminated and the calculation agent determines that no successor fund is available, then (a) the calculation agent will, in its sole discretion, calculate the appropriate closing price of one share of that Fund by a computation methodology that the calculation agent determines will as closely as reasonably possible replicate that Fund and (b) the trading price, if applicable, of that Fund at any time on any relevant day will be deemed to equal the closing price on that day, as determined by the calculation agent. If a successor fund is selected or if the calculation agent calculates a closing price by a computation methodology that the calculation agent determines will as closely as reasonably possible replicate that Fund, that successor fund or closing price will be substituted for that Fund (or that successor fund) for all purposes of the notes.

Upon any selection by the calculation agent of a successor fund, the calculation agent will cause written notice thereof to be promptly furnished to the trustee, to us and to DTC, as holder of the notes.

Unless otherwise specified in the relevant terms supplement, if at any time, a Fund (or a successor fund) or an Underlying Index, if applicable, is changed in a material respect, or a Fund (or a successor fund) in any other way is modified so that it does not, in the opinion of the calculation agent, fairly represent the price of the shares of that Fund (or that successor fund) had those changes or modifications not been made, then the calculation agent will, at the close of business in the City of New York on each date on which the closing price of one share of that Fund (or that successor fund) is to be determined, make such calculations and adjustments as, in the good faith judgment of the calculation agent, may be necessary in order to arrive at a closing price of one share of an exchange-traded fund comparable to that Fund (or that successor fund) as if those changes or modifications had not been made, and calculate the closing price with reference to that Fund (or that successor fund), as adjusted. The calculation agent may also determine that no adjustment is required by the modification of the method of calculation.

The calculation agent will be solely responsible for the method of calculating the closing price of one share of a Fund (or any successor fund) and of any related determinations and calculations, and its determinations and calculations with respect thereto will be conclusive in the absence of manifest error.

The calculation agent will provide information as to the method of calculating the closing price of the shares of a Fund upon written request by any investor in the notes.

## MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES

The following is a discussion of the material U.S. federal income and certain estate tax consequences of owning and disposing of the notes. It applies to you only if you are an initial investor who purchases a note at its issue price for cash and holds it as a capital asset within the meaning of Section 1221 of the Internal Revenue Code of 1986, as amended (the "Code"). This discussion does not address the U.S. federal income tax consequences of the ownership or disposition of any Reference Stock that you may receive at maturity. You should consult your tax adviser regarding the potential U.S. federal income tax consequences of owning and disposing of the Reference Stock.

This discussion 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, including alternative minimum tax consequences, the potential application of the provision of the Code known as the Medicare contribution tax and the different consequences that may apply if you are an investor 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 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 "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.

If you are a partnership for U.S. federal income tax purposes, the U.S. federal income tax treatment of a partner will generally depend on the status of the partner and your activities.

This discussion 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 hereof, may affect the tax consequences described herein, possibly with retroactive effect. 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 discussion. Moreover, the effects of any applicable state, local or non-U.S. 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, as well as any tax consequences arising under the laws of any state, local or non-U.S. jurisdiction.**

The following discussion does not apply to notes with fixed payments. The tax consequences of an investment in these notes will be described in the relevant terms supplement.

### Tax Treatment of the Notes

The tax treatment of the notes for U.S. federal income tax purposes will depend upon the facts at the time of the relevant offering. The following discussion applies to notes properly treated as indebtedness for U.S. federal income tax purposes, which will be the case unless otherwise stated in an applicable terms supplement. In the case of notes with a term of not more than one year, we

expect to treat the notes as “short-term obligations,” as described below. In the case of notes that provide for an Additional Amount and have a term of more than one year, we expect to treat the notes as “contingent payment debt instruments,” as described below.

We expect to treat notes that do not provide for an Additional Amount and that have a term of more than one year as either contingent payment debt instruments or “variable rate debt instruments” (as described below) depending on the terms of the particular offering. In either case, we expect that there will be some risk that the IRS could determine that our treatment of these notes was incorrect. For example, if we treat an offering of these notes as variable rate debt instruments, we expect that there will be some risk that the IRS could determine that they were in fact contingent payment debt instruments, or *vice versa*. Any such determination could have adverse U.S. federal income tax consequences for you.

At the time of the relevant offering, we may seek an opinion of counsel regarding the tax consequences of owning and disposing of the notes. In this event, whether or not counsel is able to opine regarding the correctness of the treatment we intend to apply to a particular offering of notes, we generally expect that counsel will be able to opine that the tax consequences described in the applicable sections below are the material tax consequences of owning and disposing of the notes if that treatment is respected, as well as material tax consequences that may apply if it is not respected. Unless otherwise indicated in the relevant terms supplement, we expect that counsel will not be able to opine regarding issues identified below as uncertain unless and except to the extent that a treatment is described below as more likely than not or one that should apply. The following discussion assumes the treatment described in an applicable section below is respected, except where otherwise indicated. The relevant terms supplement may indicate other issues applicable to a particular offering of notes.

#### **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 individual resident of the United States;
- a corporation created or organized in or under the laws of the United States, any state therein 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.

#### ***Notes with a Term of Not More than One Year***

The following discussion applies to notes with a term of not more than one year (including either the issue date or the last possible date that the notes could be outstanding, but not both) that do not provide for payments prior to maturity. The tax consequences of an investment in notes with a term of not more than one year that provide for periodic interest payments will be described in the relevant terms supplement.

No statutory, judicial or administrative authority directly addresses the treatment of these notes or similar instruments for U.S. federal income tax purposes, and we do not intend to request a ruling from the IRS with respect to these notes. Because the term of these notes is not more than one year, we expect to treat the notes as “short-term obligations.” Generally, a short-term obligation is treated for U.S. federal income tax purposes as issued at a discount equal to the difference between the payments due thereon and the instrument’s issue price, and this discount is treated as interest income when received or accrued, as described further below. There is no authority, however, regarding the accrual of discount on short-term obligations, such as the notes, that provide for contingent payments, and no ruling will be requested from the IRS with respect to the notes. As a result, several aspects of the U.S. federal income tax consequences of an investment in these notes are uncertain, as discussed below.

*Tax Treatment Prior to Maturity.* If you are a cash-method taxpayer, you will not be required to recognize income with respect to the notes prior to maturity, other than pursuant to a sale or exchange, as described below. You may, however, elect to accrue discount into income on a current basis, in which case you would be subject to the rules described in the following paragraph. Generally, if you own a short-term obligation and do not make this election, you will be required to defer deductions with respect to any interest paid on indebtedness incurred to purchase or carry the short-term obligation, to the extent of accrued discount that you have not yet included in income. As noted above, however, there is no authority regarding the accrual of discount on short-term obligations such as the notes. It is therefore unclear how, if at all, the rules regarding deferral of interest deductions would apply to your notes.

Generally, accrual-method owners and certain other owners of a short-term obligation (including electing cash-method owners) are required to accrue discount on the obligation into income on a straight-line basis. As noted above, however, there is no authority regarding the accrual of discount on short-term obligations such as the notes. Consequently, the timing and amounts of the discount to be accrued on these notes is generally unclear. If the overall amount of discount that will be received has become fixed (or the likelihood of this amount not being a fixed amount has become remote) prior to maturity, it is more likely than not that the amount of discount to be accrued will be determined based on the fixed amount.

*Tax Treatment upon Sale, Exchange or Redemption.* Upon a sale or exchange of a note (including early redemption or repurchase, acceleration or redemption at maturity), you will recognize gain or loss in an amount equal to the difference between the amount you receive and your adjusted basis in the note. Your adjusted basis in the note will equal the amount you paid to acquire the note, increased by any discount that you have previously included in income but not received. The amount of any resulting loss will be treated as a capital loss. A loss in excess of certain thresholds may be subject to special reporting requirements, although this is unclear. Gain resulting from redemption at maturity should be treated as ordinary interest income.

Generally, if you are a cash-method taxpayer who has not elected an accrual method of tax accounting in respect of the notes, gain recognized on a sale or exchange prior to maturity will be treated as ordinary interest income in an amount not exceeding the accrued but unpaid discount. As noted above, however, there is no authority regarding the accrual of discount on short-term obligations such as the notes. If the overall amount of discount that will be received at maturity has become fixed (or the likelihood of this amount not being a fixed amount has become remote) prior to the sale or exchange, it is more likely than not that the portion of your gain on the sale or exchange that will be treated as accrued discount (and, therefore, taxed as ordinary income) will be determined based on the fixed amount. If you are a cash-method U.S. Holder, any portion of gain attributable to fixed but unpaid interest will be treated as interest income to you.

Generally, if you own a short-term obligation and you are subject to an accrual method of tax accounting, gain recognized on a sale or exchange will be short-term capital gain, because accrued discount will already have been included in your income. As noted above, however, there is no authority regarding the accrual of discount on short-term obligations such as the notes. Consequently, there is uncertainty regarding what portion, if any, of gain recognized upon the sale or exchange prior to maturity of a note subject to an accrual method of tax accounting will be treated as short-term capital gain. Notwithstanding this uncertainty, if you are an accrual-method taxpayer, you will recognize interest income no later than, and in an amount not less than, if the notes were subject to cash-method accounting.

## ***Notes with a Term of More than One Year***

### ***Notes Treated as Contingent Payment Debt Instruments***

The following discussion applies to notes that are properly treated as “contingent payment debt instruments” for U.S. federal income tax purposes (“**CPDI Notes**”). CPDI Notes will generally be subject to the original issue discount (“**OID**”) provisions of the Code and the Treasury regulations issued thereunder, and you will be required to accrue as interest income the OID on the CPDI Notes as described below.

We are required to determine a “comparable yield” for the CPDI Notes. The comparable yield is the yield at which we could issue a fixed-rate debt instrument with terms similar to those of the CPDI Notes, including the level of subordination, term, timing of payments and general market conditions, but excluding any adjustments for the riskiness of the contingencies or the liquidity of the CPDI Notes. Solely for purposes of determining the amount of interest income that you will be required to accrue, we are also required to construct a “projected payment schedule” in respect of the CPDI Notes representing a payment or a series of payments the amount and timing of which would produce a yield to maturity on the CPDI Notes equal to the comparable yield.

Unless otherwise provided in the relevant terms supplement, we will provide, and you may obtain, the comparable yield for a particular offering of CPDI Notes, and the related projected payment schedule, in the final terms supplement for these CPDI Notes, which we will file with the SEC.

**Neither the comparable yield nor the projected payment schedule constitutes a representation by us regarding the actual amount(s) of any contingent payment(s) that we will make on the CPDI Notes.**

For U.S. federal income tax purposes, you are required to use our determination of the comparable yield and projected payment schedule in determining interest accruals and adjustments in respect of your CPDI Notes, unless you timely disclose and justify the use of other estimates to the IRS. Regardless of your method of tax accounting, you will be required to accrue as interest income OID on your CPDI Notes in each taxable year at the comparable yield, adjusted upward or downward to reflect the difference, if any, between the actual and the projected amount(s) of the contingent payment(s), if any, on the CPDI Notes during the year (as described below).

In addition to interest accrued based upon the comparable yield as described above, you will be required to recognize interest income equal to the amount of any net positive adjustment, *i.e.*, the excess of actual payments over projected payments, in respect of a CPDI Note for a taxable year. A net negative adjustment, *i.e.*, the excess of projected payments over actual payments, in respect of a CPDI Note for a taxable year:

- will first reduce the amount of interest in respect of the CPDI Note that you would otherwise be required to include in income in the taxable year; and
- to the extent of any excess, will give rise to an ordinary loss, but only to the extent that the total amount of all previous interest inclusions under the CPDI Note exceeds the total amount of your net negative adjustments treated as ordinary loss on the CPDI Note in prior taxable years.

A net negative adjustment is not subject to the limitation imposed on miscellaneous itemized deductions under Section 67 of the Code. Any net negative adjustment in excess of the amounts described above will be carried forward to offset future interest income in respect of the CPDI Note or to reduce the amount realized on a sale or exchange of the CPDI Note (including early redemption or repurchase, acceleration or redemption at maturity).

Upon a sale or exchange of a CPDI Note, you generally will recognize taxable income or loss equal to the difference between the amount received from the sale or exchange (reduced by any net negative adjustment carryforward, as described in the preceding paragraph) and your adjusted tax basis in the CPDI Note. Your adjusted tax basis in the CPDI Note will equal the amount you paid to acquire the CPDI Note, increased by the amount of interest income you have previously accrued in respect of the CPDI Note (determined without regard to any of the positive or negative adjustments to interest accruals described above) and decreased by the amount of any projected payments in respect of the CPDI Note through the date of the sale or exchange. You generally must treat any income as interest income and any loss as ordinary loss to the extent of previous interest inclusions (reduced by the total amount of net negative adjustments previously taken into account as ordinary losses), and the balance as capital loss. As with net negative adjustments, these ordinary losses are not subject to the limitation imposed on miscellaneous itemized deductions under Section 67 of the Code. The deductibility of capital losses, however, is subject to limitations. Additionally, if you recognize a loss above certain thresholds, you might be required to file a disclosure statement with the IRS, although this is uncertain.

Special rules may apply if one or more contingent payments becomes fixed prior to maturity, including as a result of a commodity hedging disruption event (if applicable). The applicability of these rules, and their potential consequences, will depend upon the specific terms of the relevant offering. Additional details regarding this issue may be provided in the relevant terms supplement.

#### *Notes Treated as Variable Rate Debt Instruments*

The following discussion applies to notes that are properly treated as “variable rate debt instruments” for U.S. federal income tax purposes (“**VRDI Notes**”). It does not apply to VRDI Notes issued at a price that is less than or equal to their “stated redemption price at maturity” by more than a *de minimis* threshold (“**OID VRDI Notes**”). If applicable, the relevant terms supplement will describe the tax consequences relating to OID VRDI Notes.

Interest paid on a VRDI Note generally will be taxable to you as ordinary income at the time it accrues or is received in accordance with your method of tax accounting.

Upon the sale or exchange of a VRDI Note (including early redemption or repurchase, acceleration or redemption at maturity), you will recognize taxable gain or loss in an amount equal to the difference between the amount realized and your adjusted tax basis in the VRDI Note. In general, gain or loss recognized upon the sale or exchange of a VRDI Note will be capital gain or loss and will be long-term capital gain or loss if you have held the VRDI Note for more than one year at that time. The deductibility of capital losses is subject to limitations.

For purposes of determining the amount of gain recognized upon the sale or exchange of a VRDI Note, the amount realized does not include any amount attributable to accrued interest, which will be treated as a payment of interest. There is no controlling authority, however, regarding the accrual of a contingent interest payment prior to the time it has become fixed. It is therefore unclear what, if any, portion of the amount realized upon the sale or exchange of a VRDI Note prior to the applicable Determination Date for the next succeeding interest payment date will be treated as a payment of accrued interest.

#### **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 of a note. 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 early redemption or repurchase, acceleration or redemption at maturity).

Subject to the discussion below, income and gain from a note generally will be exempt from U.S. federal income tax (including withholding tax) if these amounts are not effectively connected with your conduct of a U.S. trade or business and you provide a properly completed IRS Form W-8 appropriate to your circumstances.

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 (and, if an applicable income tax treaty so requires, is attributable to a permanent establishment in the United States), although exempt from the withholding tax discussed above, you generally will be taxed in the same manner as a U.S. Holder with respect to that income. You will not be subject to withholding in this case if you provide a properly completed IRS Form W-8ECI. If this paragraph applies to you, you should consult your tax adviser with respect to other U.S. tax consequences of owning and disposing of notes, including the possible imposition of a 30% branch profits tax if you are a corporation.

Section 871(m) imposes a 30% withholding tax on certain “dividend equivalents” paid or deemed paid with respect to U.S. equities or equity indices under certain circumstances. Several recent Treasury proposals could apply Section 871(m) in the future to notes linked to U.S. equities or equity indices offered under this product supplement, under certain circumstances, even in cases where no current payment is made under the notes. Pursuant to published guidance, these regulations are not expected to apply to “grandfathered” notes issued prior to 90 days after the date that final regulations are published. If a note is not grandfathered, no assurances can be given as to whether or how Section 871(m) will be applied to notes linked to U.S. equities or equity indices. You should consult your tax adviser regarding the potential application of Section 871(m). Where warranted, we will disclose further information regarding the possible application of Section 871(m) in the relevant terms supplement.

We will not pay additional amounts with respect to any withholding taxes.

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

If you are an individual Non-U.S. Holder, your notes will not be treated as U.S.-situs property subject to U.S. federal estate tax, provided that your income from the notes is not then effectively connected with your conduct of a U.S. trade or business.

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

Interest (including OID) accrued or paid on your notes and the proceeds received from a sale or exchange of your notes (including early redemption or repurchase, acceleration or redemption at maturity) will generally be subject to information reporting unless you are an “exempt recipient.” You may also be subject to backup withholding on payments in respect of your notes 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 provide a properly completed IRS Form W-8 appropriate to your circumstances. 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.

## FATCA

Legislation commonly referred to as "FATCA," and regulations promulgated thereunder, generally impose a 30% withholding tax on payments to certain foreign entities (including financial intermediaries) with respect to debt instruments such as the notes, unless various U.S. information reporting and due diligence requirements have been satisfied. An intergovernmental agreement between the United States and the foreign entity's jurisdiction may modify these requirements. This regime applies to payments of interest and, if your notes mature after December 31, 2016, to the payment on your notes at maturity, as well as the proceeds of any sale or other disposition of a note occurring after December 31, 2016. You should consult your tax adviser regarding the potential application of FATCA to the notes.

We will not pay any additional amounts with respect to any withholding tax.

**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, NON-U.S. 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 are or may become 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 that 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.

Our affiliates, including JPMS, may use this product supplement no. 3a-I, any accompanying underlying supplement and the prospectus supplement, prospectus or terms supplement in connection with offers and sales of the notes in the secondary market. 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 that offer or sale; accordingly, the Agents or a dealer may change the public offering price, concession and discount after the offering has been completed.

Unless otherwise specified in the relevant terms supplement, there is currently no public trading market for the notes. In addition, unless otherwise specified in the relevant terms supplement, we have not applied and do not intend to apply to list the notes on any securities exchange or to have the notes quoted on a quotation system. JPMS may act as a market-maker for the notes. However, JPMS is not obligated to do so and may discontinue any market-making in the notes at any time in its sole discretion. Therefore, we cannot assure you that a liquid trading market for the notes will develop, that you will be able to sell your notes at a particular time or that the price you receive if you sell your notes will be favorable.

In connection with an offering of the notes, JPMS may engage in overallotment, stabilizing transactions and syndicate covering transactions in accordance with Regulation M under the Securities Exchange Act of 1934. Overallotment involves sales in excess of the offering size, which create a short position for JPMS. Stabilizing transactions involve bids to purchase the notes in the open market for the purpose of pegging, fixing or maintaining the price of the notes. Syndicate covering transactions involve purchases of the notes in the open market after the distribution has been completed in order to cover short positions. Stabilizing transactions and syndicate covering transactions may cause the price of the notes to be higher than it would otherwise be in the absence of those transactions. If JPMS engages in stabilizing or syndicate covering transactions, it may discontinue them at any time.

Certain of the Agents engage in transactions with and perform services for us and our subsidiaries in the ordinary course of business.

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. 3a-l, any accompanying underlying supplement or the 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 the relevant terms supplement, this product supplement no. 3a-l, any underlying supplement, the prospectus supplement or the prospectus 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 that it will not offer or sell the notes in any non-U.S. jurisdiction (i) if that offer or sale would not be in compliance with any applicable law or regulation or (ii) if any consent, approval or permission is needed for that offer or sale by that Agent or for or on our behalf, unless the consent, approval or permission has been previously obtained. We will have no responsibility for, and the applicable Agent will obtain, any consent, approval or permission required by that Agent for the subscription, offer, sale or delivery by that Agent of the notes, or the distribution of any offering materials, under the laws and regulations in force in any non-U.S. jurisdiction to which that Agent is subject or in or from which that Agent makes any subscription, offer, sale or delivery. 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).

### **Conflicts of Interest**

JPMS has a "conflict of interest" within the meaning of FINRA Rule 5121 in any offering of the notes in which it participates because we own, directly or indirectly, all of the outstanding equity securities of JPMS and because the net proceeds received from the sale of the notes will be used, in part, by JPMS or its affiliates in connection with hedging our obligations under the notes. The underwriting arrangements for an offering of the notes 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 an offering of the notes to any of its discretionary accounts without the specific written approval of the customer.

## NOTICE TO INVESTORS

We will offer to sell, and will solicit offers to buy, the notes only in jurisdictions where offers and sales are permitted. None of the relevant terms supplement, this product supplement no. 3a-l, any underlying supplement, the prospectus supplement and the prospectus (each, a “**Disclosure Document**” and, collectively, the “**Disclosure Documents**”) will constitute an offer to sell, or a solicitation of an offer to buy, the notes by any person in any jurisdiction in which it is unlawful for that person to make an offer or solicitation. Neither the delivery of any Disclosure Document nor any sale made thereunder implies that our affairs have not changed or that the information in any Disclosure Document is correct as of any date after the date thereof.

You must (i) comply with all applicable laws and regulations in force in any jurisdiction in connection with the possession or distribution of the Disclosure Documents 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 those 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 that constitute a public offering of securities under Argentine Law No. 26,831 (the “**Capital Markets Law**”).

The Capital Markets 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:

- (a) targeted investors should be qualified or sophisticated investors, capable of understanding the risk of the proposed investment;
- (b) investors should be contacted on an individual, direct and confidential basis, without using any type of mass means of communication;
- (c) the number of contacted investors should be relatively small;
- (d) investors should receive complete and precise information on the proposed investment;
- (e) any material, brochures, documents, etc., regarding the investment should be delivered in a personal and confidential manner, identifying the name of the recipient;
- (f) the documents or information mentioned in item (e) above 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; and
- (g) 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 may not be offered or sold in or from within The Bahamas unless the offer or sale is made by a person appropriately licensed or registered to conduct securities business in or from within The Bahamas.

The notes may not be offered or sold to persons or entities deemed resident in The Bahamas pursuant to the Exchange Control Regulations, 1956 of The Bahamas unless the prior approval of the Central Bank of The Bahamas is obtained.

No distribution of the notes may be made in The Bahamas unless a preliminary prospectus and a prospectus have been filed with the Securities Commission of The Bahamas and the Securities Commission of The Bahamas has issued a receipt for each document, unless such offering is exempted pursuant to the Securities Industry Regulations, 2012.

## **Bermuda**

The notes may be offered or sold in Bermuda only in compliance with the provisions of the Investment Business Act 2003 of Bermuda, which regulates the sale of securities in Bermuda. Additionally, non-Bermudian persons (including companies) may not carry on or engage in any trade or business in Bermuda unless such persons are authorized to do so under applicable Bermuda legislation. Engaging in the activity of offering or marketing the notes in Bermuda to persons in Bermuda may be deemed to be 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, each Agent has represented and agreed, and any additional Agents will be required to represent and agree, that it has not and will not sell, promise to sell, offer, solicit, advertise and/or market the notes within the Federative Republic of Brazil in an offering that can be construed as a public offering or unauthorized distribution of securities under Brazilian law and regulations. Additionally, each Agent has represented and agreed, and any additional Agents will be required to represent and agree, that it has not and will not violate any of the registration requirements and securities distribution, sales and marketing restrictions under CVM Instruction n° 400, dated 29 December 2003, as amended from time to time, and Federal Law 6.385, dated 7 December 1976, as amended from time to time.

## **British Virgin Islands**

The notes may not be offered to the public 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 British Virgin Islands company formed under or otherwise governed by the BVI Business Companies Act 2004 of the British Virgin Islands.

## **Cayman Islands**

Each Agent has represented and agreed, and any additional Agents will be required to represent and agree, that it shall not offer and sell the notes from a place of business within the Cayman Islands (including an offering from an internet or other electronic service provider located in the Cayman Islands) or in a manner constituting the commencement of business in the Cayman Islands unless it is appropriately registered and licensed or otherwise permitted to undertake such an offer or sale under applicable laws (including, without limitation, the Securities Investment Business Law of the Cayman Islands).

An Agent may therefore offer and sell the notes to investors resident and incorporated in the Cayman Islands without restriction on such Agent or us if such Agent is, according to applicable Cayman Islands law, not located in the Cayman Islands (as a branch, an incorporated entity, a resident or otherwise) and does not have a place of business in and/or has not commenced the carrying on of business in the Cayman Islands.

## Chile

The Agents, we and the notes have not been and will not be registered in the *Registro de Valores Extranjeros* (Foreign Securities Registry) maintained by the *Superintendencia de Valores y Seguros* (Chilean Securities and Insurance Commission or "SVS") and will not be subject to the supervision of the SVS. If the notes are offered in Chile, they will be offered and sold only pursuant to General Rule 336 of the SVS, an exemption to the registration requirements, or in circumstances that do not constitute a public offer of securities in Chile within the meaning of Article 4 of the Chilean Securities Market Law 18,045. None of the Agents or we have an obligation to deliver public information in Chile. The notes shall not be subject to public offering in Chile unless registered in the Foreign Securities Registry.

## Colombia

Each Agent has represented and agreed, and any additional Agents will be required to represent and agree, that the notes have not been and will not be marketed, offered, sold or distributed in Colombia or to Colombian residents except in circumstances that do not constitute a public offer of securities in Colombia within the meaning of article 6.1.1.1.1 of Decree 2555 of 2010 as amended from time to time. The Disclosure Documents are for the sole and exclusive use of the addressee as a determined individual/entity and cannot be understood as addressed for the use of any third party. Accordingly, the notes will not be publicly offered, marketed or negotiated in Colombia through promotional or advertisement activities (as defined under Colombian law) except in compliance with the requirements of the Colombian Financial and Securities Market Regulation (Decree 2555 of 2010, Law 964 of 2005 and Organic Statute of the Financial System) as amended and restated, and decrees and regulations made thereunder. The notes have not been and will not be registered in the National Securities and Issuers Registry (*Registro Nacional de Valores y Emisores*) of the Colombian Financial Superintendence (*Superintendencia Financiera de Colombia*).

Investors acknowledge the Colombian laws and regulations (specifically foreign exchange and tax regulations) applicable to any transaction or investment consummated pursuant thereto and represent that they are the sole liable party for full compliance with any such laws and regulations.

The investors represent that any investment in the notes is a permitted investment for them under their corporate bylaws and/or particular investment regime that may be applicable.

## Costa Rica

The notes may not be offered or sold, directly or indirectly, to any person within the Republic of Costa Rica, in circumstances that require the issuer or offeror and the notes to be authorized by the *Superintendencia General de Valores* (public offering) or the *Superintendencia General de Entidades Financieras* (general financial intermediation). Any offering, express or implicit, that seeks to issue, negotiate or sell securities among public investors, is deemed under Costa Rican law (*Ley Reguladora del Mercado de Valores, N° 7732, and its Regulations*) as a public offering, which requires the issuer or offeror and the notes to be authorized by the *Superintendencia General de Valores*. A public offering is any invitation or transmission by any means to the public or determined groups of persons exceeding 50 potential investors. A public offering is presumed when made through public or collective means of communication (mass media), such as press, radio, television and internet, or when the offering includes standardized securities.

Accordingly, each Agent has represented and agreed, and any additional Agents will be required to represent and agree, that (i) such Agent is appropriately registered with the *Superintendencia General de Valores*, (ii) it has not offered or sold and will not offer or sell, directly or indirectly, the notes to the public in Costa Rica and (iii) that sales of the notes in Costa Rica shall be placed or negotiated only on an individual basis with private investors, limited to a maximum 50 investors. Each Agent will evidence in writing, for each offering, compliance with the above requirements by means of an affidavit, a party declaration or any form of express acknowledgement. Each Agent has acknowledged that it is registered as a financial intermediary with the *Superintendencia General de Valores* or the *Superintendencia General de Entidades Financieras* (as the case may be), and that the Disclosure Documents have not been filed with the *Superintendencia General de Valores* and, therefore, are not intended for any public offering of the notes in Costa Rica within the meaning of Costa Rican law.

## 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, and any additional Agents will be required to represent and agree, that it will not make an invitation for subscription or purchase of the notes to indeterminate individuals, nor will it make known any Disclosure Documents 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, that are not directed to the Salvadoran public. The offering of the notes will not be registered with an authorized stock exchange in the Republic of El Salvador. Any negotiation for the purchase or sale of the notes in the Republic of El Salvador will be negotiated only on an individual basis with determinate individuals or entities in strict compliance with the aforementioned Article 2 of the Salvadoran Securities Market Law, and will in any event, be effected in accordance with all securities, tax and exchange control regulations 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 that has implemented the Prospectus Directive (each, a “**Relevant Member State**”), each Agent has represented and agreed, and any additional Agents will be required to represent and agree, 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 the notes to the public in that Relevant Member State except that it may, with effect from and including the Relevant Implementation Date, make an offer of the notes to the public in that Relevant Member State:

- (a) at any time to any legal entity that is a qualified investor as defined in the Prospectus Directive;
- (b) at any time to fewer than 100 or, if the Relevant Member State has implemented the relevant provision of the 2010 PD Amending Directive, 150, natural or legal persons (other than qualified investors as defined in the Prospectus Directive), subject to obtaining the prior consent of the Agent; or
- (c) at any time in any other circumstances falling within Article 3(2) of the Prospectus Directive,

provided that no offer of notes will require us or any Agent to publish a prospectus pursuant to Article 3 of the Prospectus Directive.

For the purposes of this provision, the expression “**an offer of the notes to the public**” 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, the expression “**Prospectus Directive**” means Directive 2003/71/EC (and amendments thereto, including the 2010 PD Amending Directive, to the extent implemented in the Relevant Member State), and includes any relevant implementing measure in the Relevant Member State and the expression “**2010 PD Amending Directive**” means Directive 2010/73/EU.

Each Agent has represented and agreed, and any additional Agents will be required to represent and agree, that any commission or fee received from us complies with the applicable rules set out in the Markets in Financial Instrument Directive 2004/39/EC.

## Hong Kong

Each Agent has acknowledged and agreed that the notes have not been authorized by the Hong Kong Securities and Futures Commission. Each Agent has represented and agreed, and any additional Agents will be required to represent and agree, that:

- (a) it has not offered or sold and will not offer or sell in Hong Kong, by means of any document, the notes (except for notes which are a “structured product” as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong (“**Securities and Futures Ordinance**”)) other than (a) to “professional investors” as defined in the Securities and Futures Ordinance and any rules made under that Ordinance; or (b) in other circumstances that do not result in the document being a “prospectus” as defined in the Companies (Winding Up and Miscellaneous Provisions) Ordinance (Cap. 32) of Hong Kong or that do not constitute an offer to the public within the meaning of that Ordinance; and
- (b) it has not issued or had in its possession for the purposes of issue, and will not issue or have in its possession for the purposes of issue, whether in Hong Kong or elsewhere, any advertisement, invitation or document relating to the notes that is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to notes that are or are intended to be disposed of only to persons outside Hong Kong or only to “professional investors” as defined in the Securities and Futures Ordinance and any rules made under that Ordinance.

## Mexico

Under the Mexican Securities Market Law, the notes have not been, and will not be, registered with the Mexican National Securities Registry (*Registro Nacional de Valores*) maintained by the Mexican National Banking and Securities Commission (*Comisión Nacional Bancaria y de Valores*; the “**CNBV**”) and may not be offered or sold publicly in the United Mexican States or be the subject of brokerage activities in the United Mexican States.

Pursuant to Article 8 of the Mexican Securities Market Law, the notes may be offered or sold by non-Mexican broker-dealers, on a private placement basis, as an offering not requiring any approval from the CNBV, to Mexican investors that are deemed as qualified or institutional investors (*inversionistas institucionales or inversionistas calificados*).

## The Netherlands

For selling restrictions in respect of The Netherlands, see “European Economic Area” above and in addition:

- (a) *Specific Dutch selling restriction for exempt offers*: Each Agent has represented and agreed, and any additional Agents will be required to represent and agree, that it will not make an offer of the notes to the public in The Netherlands in reliance on Article 3(2) of the Prospectus Directive unless:
  - (i) such offer is made exclusively to persons or legal entities which are qualified investors (as defined in the Dutch Financial Supervision Act (*Wet op het financieel toezicht*, the “**FSA**”) and which includes authorized discretionary asset managers acting for the account of retail investors under a discretionary investment management contract) in The Netherlands; or
  - (ii) standard exemption logo and wording are disclosed as required by article 5:20(5) of the FSA; or

- (iii) such offer is otherwise made in circumstances in which article 5:20(5) of the FSA is not applicable,

*provided* that no offer of the notes will require us or any Agent to publish a prospectus pursuant to Article 3 of the Prospectus Directive or supplement a prospectus pursuant to Article 16 of the Prospectus Directive.

For the purposes of this provision, the expressions (i) an “**offer of the notes to the public**” in The Netherlands; and (ii) “**Prospectus Directive**”, have the meaning given to them above under the section entitled “European Economic Area”.

- (b) *Regulatory capacity to offer the notes in The Netherlands*: Each Agent has represented and agreed, and any additional Agents will be required to represent and agree, that did and does not have the requisite Dutch regulatory capacity to make offers or sales of financial instruments in The Netherlands has represented and agreed or, in the case of additional Agents, will be required to represent and agree with us that it has not offered or sold and will not offer or sell the notes in The Netherlands, other than through one or more investment firms acting as principals and having the Dutch regulatory capacity to make such offers or sales.

## **Panama**

The Disclosure Documents and the notes have not been approved by, the Superintendencia of Capital Markets (“**SCM**”) of the Republic of Panama for its offering in Panama. Consequently, the notes may not be offered, sold or advertised and the Disclosure Documents, and any other information related thereto, may not be distributed, directly or indirectly, to any person in the Republic of Panama other than institutional investors or private placement investors as are defined by the Securities Laws of the Republic of Panama, or through a corresponding brokerage firm licensed by the SCM to offer and sell securities in Panama.

## **Peru**

Each Agent has represented and agreed, and any additional Agents will be required to represent and agree, that the notes have not been and will not be placed, offered, sold, disposed of or distributed in Peru, except in circumstances which do not constitute a public offer of securities in Peru within the meaning of Peruvian securities laws and regulations. Accordingly, the notes will not be the subject of a duly diffused invitation for subscription, acquisition or purchase of the notes in Peru, pursuant to the Peruvian Securities Market Law, Supreme Decree No. 093-2002-EF, as amended and restated.

The notes may be offered in Peru only under private offerings complying with the Securities Market Law and the regulations that govern the investment policy of institutional investors such as, but not restricted to, banking and other financial entities, insurance entities, private pension fund managers, open ended and close ended collective investment schemes.

Each Agent has acknowledged, and any additional Agents will be required to acknowledge, that the Disclosure Documents have not been subject to review by the Securities Market Superintendencia (*Superintendencia del Mercado de Valores*, “**SMV**”) and have not been registered with the Peruvian Securities Market Public Registry, and therefore are not intended for any public offer of the notes in Peru. If the notes were to be offered under private offerings in Peru, regulations do not impose reporting obligations with SMV, to us or the Agents, notwithstanding, when offering the notes to investors subject to the supervision of the Peruvian Financial Services Authority (*Superintendencia de Banca y Seguros y Administradoras Privadas de Fondos de Pensiones*), certain disclosure requirements should be met in order to be in good standing with the regulations issued by such authority.

## Singapore

None of the Disclosure Documents has been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, the Disclosure Documents and/or 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 (as defined in Section 275(2) of the SFA) pursuant to Section 275(1), 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.

Where the notes are subscribed or purchased under Section 275 of the SFA by a relevant person, which is:

- (a) a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or
- (b) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor,

securities (as defined in Section 239(1) of the SFA) of that corporation or the beneficiaries' rights and interest (howsoever described) in that trust will not be transferred within six months after that corporation or that trust has acquired the notes pursuant to an offer made under Section 275 of the SFA except:

- (i) to an institutional investor or to a relevant person defined in Section 275(2) of the SFA, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA;
- (ii) where no consideration is or will be given for the transfer;
- (iii) where the transfer is by operation of law;
- (iv) as specified in Section 276(7) of the SFA; or
- (v) as specified in Regulation 32 of the Securities and Futures (Offers of Investments) (Shares and Debentures) Regulations 2005 of Singapore.

## Switzerland

Unless otherwise specified in the relevant Disclosure Documents:

- (a) the notes may not be offered, sold or otherwise distributed in or from Switzerland, as such term is defined or interpreted under the Swiss Federal Code of Obligations or the Swiss Federal Act on Collective Investment Schemes, and neither the Disclosure Documents nor any other offering or marketing material relating to the notes shall constitute a prospectus in the sense of article 652a or 1156 of the Swiss Federal Code of Obligations, or constitute a simplified prospectus in the sense of article 5 of the Swiss Federal Act on Collective Investment Schemes. 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 they are neither subject to approval nor supervision by the Swiss Financial Market Supervisory Authority FINMA; and

- (b) the notes may be distributed only in or from Switzerland to individually selected qualified investors within the meaning of, and in accordance with, the Swiss Federal Act on Collective Investment Schemes and the Swiss Collective Investment Schemes Ordinance. Qualified investors within the meaning of the Swiss Federal Act on Collective Investment Schemes and the Swiss Collective Investment Schemes Ordinance are:
- (i) regulated financial intermediaries such as banks, brokers dealers, fund administrations and asset managers of collective investment schemes as well as central banks;
  - (ii) regulated insurance companies;
  - (iii) public entities and pension funds with a professional treasury (professional treasury is assumed if there is at least one qualified employee with experience in the financial sector who is responsible for the management of the investments);
  - (iv) corporations organised under private law having a professional treasury;
  - (v) high net worth individuals (i.e. according to article 6 of the Swiss Collective Investment Schemes Ordinance (a) individuals having the knowledge necessary to understand the risks in connection with the investment based on personal education and professional experience or similar experience in the financial sector and possessing bankable assets of at least CHF 500,000.00 or (b) individuals possessing bankable assets of at least CHF 5,000,000.00), provided they declare in writing that they want to be treated as qualified investors; and
  - (vi) investors who have concluded a written discretionary asset management contract with a regulated financial intermediary or with an independent asset manager, provided that the independent asset manager is (a) a financial intermediary within the meaning of the Swiss Anti-Money Laundering Act and (b) subject to conduct of business rules of an organization in the financial sector that have been recognized by the Swiss Financial Market Supervisory Authority FINMA as minimum standard and that the discretionary asset management contract is in accordance with the recognized guidelines of such organization, except for investors having declared in writing that they do not want to be treated as qualified investors.

## United Kingdom

Each Agent has represented and agreed, and any additional Agents will be required to represent and agree, that:

- (a) *Notes with maturities of less than one year*: in relation to any notes where the issue of the notes would otherwise constitute a contravention of section 19 of the Financial Services and Markets Act 2000 ("FSMA") by us:
  - (i) 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;
- (b) *Financial promotion*: 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;

- (c) *General compliance*: it has complied and will comply with all applicable provisions of the FSMA and the Financial Conduct Authority Handbook with respect to anything done by it in relation to the notes in, from or otherwise involving the United Kingdom; and
- (d) *Commissions and fees*:
  - (i) if it is distributing notes that are “retail investment products” (as such term is defined in the Financial Conduct Authority Handbook) into the United Kingdom and it is entitled to receive any commission or fee from us, it will not transfer any part of that commission or fee to any third party who may advise retail investors to purchase a note that is a retail investment product; and
  - (ii) if it is authorized and regulated by the Financial Conduct Authority to provide investment advice to retail investors in the United Kingdom and it is providing advice to retail investors in respect of a note that is a retail investment product, it undertakes not to request any commission or fee from us and to otherwise reject any such payment offered to it other than in circumstances where we have agreed to facilitate the payment of an advisory fee and have the express consent of the retail investor to do so.

## **Uruguay**

The notes have not been registered with the “Superintendencia of Financial Services” of the Central Bank of Uruguay (the “**CBU**”) and have not and will not be traded on any Uruguayan stock exchange.

The notes are not offered to the public in or from Uruguay. The notes have not been and will not be announced to the public and the Disclosure Documents and any other offering material relating to the notes will not be made available to the public except in circumstances which do not constitute a public offer of securities in Uruguay in compliance with the requirements of the Uruguayan Securities Market Law (Law No 18.627 of 24 November 2009). Public advertising of the notes will be avoided.

The notes will be offered to people in or from Uruguay only through occasional private offerings and never on a professional or regular basis.

If private offers are made in or from Uruguay on a professional and regular basis, the intermediary entity has to be registered with the Uruguayan Brokers Registry kept by the Superintendencia of Financial Services of the CBU, and must comply with the obligations indicated in the Compilation of Securities Market Regulations (Please note that the Security Brokers' obligations are established in the following articles: 60 to 69, 142 and 143, 147 to 151, 185 to 206, 209 and 210, 212 to 214, 225,234,245 to 249, 252, 255 and 256, 283 to 300).

## **Venezuela**

No public offering of the notes has been authorized by the National Securities Superintendencia (*Superintendencia Nacional de Valores – “SNV”*). Each Agent has represented and agreed, and any additional Agents will be required to represent and agree, that (i) it shall not offer and/or sell the notes in Venezuela by means of a public offering, without obtaining the prior authorization of SNV in accordance with the relevant provisions of the Securities Markets Law of 5 November 2010 (*Ley de Mercado de Valores*) and (ii) any documents relating to the offering of the notes has not been and will not be announced to the public and offering material will not be made available to the public, without the prior authorization of SNV.

## 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 statutory or administrative exemptive relief were available.

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 is appropriate for, or meets all relevant legal requirements with respect to investments by, Plans or Non-ERISA Arrangements generally or any particular Plan or Non-ERISA Arrangement.