

# JPMORGAN CHASE & CO.

## Notes Linked to a Reference Stock, an Index, a Fund or a Basket

### General

- JPMorgan Chase & Co. may from time to time offer and sell notes that are linked to the common stock of a single issuer, a single index, a single fund or a basket of common stocks, indices and/or funds as described below. 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, the term "issuer" of such Reference Stock refers to the issuer of the shares underlying the ADS. This product supplement no. 4-I describes terms that will apply generally to the notes, and supplements the terms described in the accompanying prospectus supplement and prospectus. A separate term sheet or pricing supplement, as the case may be, will describe terms that apply to specific issuances of the notes, including any changes to the terms specified below. We refer to such term sheets and pricing supplements generally as terms supplements. A separate 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 or in any related underlying supplement, or in the accompanying prospectus supplement or prospectus, the terms described in the relevant terms supplement will control.
- The notes are senior unsecured obligations of JPMorgan Chase & Co. **Any payment on the notes is subject to the credit risk of JPMorgan Chase & Co.**
- Payment is linked to a Reference Stock, an Index, a Fund or a Basket, as described below.
- For important information about tax consequences, see "Material U.S. Federal Income Tax Consequences" beginning on page PS-73.
- Minimum denominations of \$1,000 and integral multiples thereof, unless otherwise specified in the relevant terms supplement
- Investing in the notes is not equivalent to investing directly in any Reference Stock, any Index, any Fund or the securities, commodities, futures contracts or other assets or financial measures underlying any Index or Fund.
- The notes will not be listed on any securities exchange unless otherwise specified in the relevant terms supplement.

### Key Terms

Underlying:	In this product supplement, we refer to the Reference Stock, the Index, the Fund or the Basket to which the notes are linked as the "Underlying."
Components:	In this product supplement, we refer to any single Reference Stock, Index or Fund to which the notes are linked or that is included in a Basket as a "Component" and, collectively, as the "Components."
Reference Stock:	Any common stock to which the notes are linked or that is included in a Basket will be specified in the relevant terms supplement (each, a "Reference Stock").
Index:	Any index to which the notes are linked or that is included in a Basket will be specified in the relevant terms supplement (each, an "Index"). We refer to an Index that is designed to track equity securities as an "Equity Index," and we refer to an Index that is designed to track commodities or commodity futures contracts as a "Commodity Index."
Fund:	Any fund to which the notes are linked or that is included in a Basket will be specified in the relevant terms supplement (each, a "Fund"). We refer to a Fund that is designed to track a commodity index or primarily invests in commodities or commodity futures contracts as a "Commodity Fund."
Basket:	If the notes are linked to a basket, the relevant terms supplement will specify the Reference Stocks, Indices and/or Funds that are included in the basket (the "Basket").
Payment at Maturity:	Your payment at maturity per \$1,000 principal amount note will be linked to the performance of the Underlying, as specified in the relevant terms supplement. <i>For notes linked in whole or in part to a Commodity Index, if a commodity hedging disruption event occurs, we may accelerate your notes. See "General Terms of Notes — Additional Index Provisions — A. Consequences of a Commodity Hedging Disruption Event" for additional information.</i>
Knock-Out Event:	If the relevant terms supplement specifies that a knock-out feature applies to the notes, the relevant terms supplement will specify (a) the circumstances that will constitute a "Knock-Out Event" and (b) the method by which your payment at maturity per \$1,000 principal amount note will be determined both with respect to whether a Knock-Out Event has occurred and with respect to whether a Knock-Out Event has not occurred.
Interest Rate:	If the relevant terms supplement specifies that the notes will bear interest, the notes will bear interest at the per annum rate, or such other rate or rates, including rates that reference the performance of the Underlying, as specified in the relevant terms supplement.
Automatic Call:	If the relevant terms supplement specifies that the notes include an automatic call feature, the notes will be automatically called in the circumstances set forth in the relevant terms supplement for a cash payment that will be determined as set forth in the relevant terms supplement.

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Investing in the notes involves a number of risks. See "Risk Factors" beginning on page PS-21.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of the notes or passed upon the accuracy or the adequacy of this product supplement no. 4-I, the accompanying prospectus supplement and prospectus, or any related underlying supplement or terms supplement. Any representation to the contrary is a criminal offense.

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

J.P.Morgan

**Key Terms (continued)**

Underlying Return:	In this product supplement, we refer to the Stock Return, the Index Return, the Fund Return or the Basket Return, as applicable, as the Underlying Return.
Initial Underlying Value:	In this product supplement, we refer to the Initial Stock Price (or Stock Strike Price, if applicable), the Initial Index Level (or Index Strike Level, if applicable), the Initial Share Price (or Share Strike Price, if applicable) or the Starting Basket Level (or Basket Strike Level, if applicable), as applicable, as the Initial Underlying Value.
Ending Underlying Value:	In this product supplement, we refer to the Final Stock Price, the Ending Index Level, the Final Share Price or the Ending Basket Level, as applicable, as the Ending Underlying Value.
Underlying Value:	In this product supplement, we refer to the closing price of the Reference Stock, the Index closing level, the closing price of the Fund or the Basket Closing Level, as applicable, as the Underlying Value.
Stock Return:	Unless otherwise specified in the relevant terms supplement, with respect to a Reference Stock: $\frac{\text{Final Stock Price} - \text{Initial Stock Price (or Stock Strike Price, if applicable)}}{\text{Initial Stock Price (or Stock Strike Price, if applicable)}}$
Initial Stock Price:	Unless otherwise specified in the relevant terms supplement, with respect to a Reference Stock, the "Initial Stock Price" is (a)(i) the closing price of one share of that Reference Stock on the pricing date or such other date as specified in the relevant terms supplement, or (ii) the arithmetic average of the closing prices of one share of that Reference Stock on each of the Initial Averaging Dates, if so specified in the relevant terms supplement, <i>divided by</i> (b) the Stock Adjustment Factor for that Reference Stock. The closing price of one share of a Reference Stock on an Initial Averaging Date, if applicable, used to determine its Initial Stock Price may be subject to adjustment. See "Description of Notes — Payment at Maturity," "General Terms of Notes — Additional Reference Stock Provisions — A. Anti-Dilution Adjustments" and "General Terms of Notes — Additional Reference Stock Provisions — B. Reorganization Events."
Final Stock Price:	Unless otherwise specified in the relevant terms supplement, with respect to a Reference Stock, the closing price of one share of that Reference Stock on the Observation Date or such other date as specified in the relevant terms supplement, or, if the relevant terms supplement specifies Ending Averaging Dates, (a) for notes linked to a single Reference Stock, the arithmetic average of the closing prices of one share of that Reference Stock on each of the Ending Averaging Dates, and (b) for notes linked to a Basket (where the Ending Basket Level is based on the weighted Component Returns calculated on each Ending Averaging Date), the closing price of one share of that Reference Stock on the relevant Ending Averaging Date. For notes linked to a single Reference Stock, if the relevant terms supplement specifies Ending Averaging Dates, the closing price of one share of the Reference Stock on an Ending Averaging Date used to determine its Final Stock Price may be subject to adjustment. See "Description of Notes — Payment at Maturity" and "General Terms of Notes — Additional Reference Stock Provisions — A. Anti-Dilution Adjustments."
Stock Adjustment Factor:	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 "General Terms of Notes — Additional Reference Stock Provisions — A. Anti-Dilution Adjustments."
Stock Strike Price:	With respect to a Reference Stock, the relevant terms supplement may specify a price other than the Initial Stock Price of that Reference Stock, which we refer to as the "Stock Strike Price," to be used for calculating the Stock Return of that Reference Stock and the amount payable at maturity, if any. The Stock Strike Price, if applicable, for a Reference Stock will be equal to (a) a percentage of the closing price of one share of that Reference Stock as of a specified date or (b) a fixed amount determined without regard to the closing price of one share of that Reference Stock as of a particular date, in each case <i>divided by</i> the Stock Adjustment Factor for that Reference Stock. For example, the relevant terms supplement may specify that, for a particular Reference Stock, a Stock Strike Price equal to 95% of the closing price of one share of that Reference Stock on the pricing date, <i>divided by</i> the Stock Adjustment Factor for that Reference Stock ( <i>i.e.</i> , the Initial Stock Price), will be used to calculate the Stock Return of that Reference Stock.
Index Return:	Unless otherwise specified in the relevant terms supplement, with respect to an Index: $\frac{\text{Ending Index Level} - \text{Initial Index Level (or Index Strike Level, if applicable)}}{\text{Initial Index Level (or Index Strike Level, if applicable)}}$
Initial Index Level:	Unless otherwise specified in the relevant terms supplement, with respect to an Index, the Index closing level of that Index on the pricing date or such other date as specified in the relevant terms supplement, or the arithmetic average of the Index closing levels of that Index on each of the Initial Averaging Dates, if so specified in the relevant terms supplement.
Ending Index Level:	Unless otherwise specified in the relevant terms supplement, with respect to an Index, the Index closing level of that Index on the Observation Date or such other date as specified in the relevant terms supplement, or, if the relevant terms supplement specifies Ending Averaging Dates, (a) for notes linked to a single Index, the arithmetic average of the Index closing levels of that Index on each of the Ending Averaging Dates, and (b) for notes linked to a Basket (where the Ending Basket Level is based on the weighted Component Returns calculated on each Ending Averaging Date), the Index closing level of that Index on the relevant Ending Averaging Date.
Index Strike Level:	With respect to an Index, the relevant terms supplement may specify a level other than the Initial Index Level of that Index, which we refer to as the "Index Strike Level," to be used for calculating the Index Return of that Index and the amount payable at maturity, if any. The Index Strike Level, if applicable, for an Index may be based on and/or expressed as a percentage of the Index closing level of that Index as of a specified date, or may be determined without regard to the Index closing level of that Index as of a particular date. For example, the relevant terms supplement may specify that, for a particular Index, an Index Strike Level equal to 95% of the Initial Index Level of that Index will be used to calculate the Index Return of that Index.

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**Key Terms (continued)**

Fund Return:	<p>Unless otherwise specified in the relevant terms supplement, with respect to a Fund:</p> $\frac{\text{Final Share Price} - \text{Initial Share Price (or Share Strike Price, if applicable)}}{\text{Initial Share Price (or Share Strike Price, if applicable)}}$
Initial Share Price:	<p>Unless otherwise specified in the relevant terms supplement, with respect to a Fund, the "Initial Share Price" is (a)(i) the closing price of one share of that Fund on the pricing date or such other date as specified in the relevant terms supplement, or (ii) the arithmetic average of the closing prices of one share of that Fund on each of the Initial Averaging Dates, if so specified in the relevant terms supplement, <i>divided by</i> (b) the Share Adjustment Factor for that Fund. The closing price of one share of a Fund on an Initial Averaging Date, if applicable, used to determine its Initial Share Price may be subject to adjustment. See "Description of Notes — Payment at Maturity" and "General Terms of Notes — Additional Fund Provisions — A. Anti-Dilution Adjustments."</p>
Final Share Price:	<p>Unless otherwise specified in the relevant terms supplement, with respect to a Fund, the closing price of one share of that Fund on the Observation Date or such other date as specified in the relevant terms supplement, or, if the relevant terms supplement specifies Ending Averaging Dates, (a) for notes linked to a single Fund, the arithmetic average of the closing prices of one share of that Fund on each of the Ending Averaging Dates, and (b) for notes linked to a Basket (where the Ending Basket Level is based on the weighted Component Returns calculated on each Ending Averaging Date), the closing price of one share of that Fund on the relevant Ending Averaging Date. For notes linked to a single Fund, if the relevant terms supplement specifies Ending Averaging Dates, the closing price of one share of the Fund on an Ending Averaging Date used to determine its Final Share Price may be subject to adjustment. See "Description of Notes — Payment at Maturity" and "General Terms of Notes — Additional Fund Provisions — A. Anti-Dilution Adjustments."</p>
Share Adjustment Factor:	<p>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 "General Terms of Notes — Additional Fund Provisions — A. Anti-Dilution Adjustments."</p>
Share Strike Price:	<p>With respect to a Fund, the relevant terms supplement may specify a price other than the Initial Share Price of that Fund, which we refer to as the "Share Strike Price," to be used for calculating the Fund Return of that Fund and the amount payable at maturity, if any. The Share Strike Price, if applicable, for a Fund will be equal to (a) a percentage of the closing price of one share of that Fund as of a specified date or (b) a fixed amount determined without regard to the closing price of one share of that Fund as of a particular date, in each case <i>divided by</i> the Share Adjustment Factor for that Fund. For example, the relevant terms supplement may specify that, for a particular Fund, a Share Strike Price equal to 95% of the closing price of one share of that Fund on the pricing date, <i>divided by</i> the Share Adjustment Factor for that Fund (<i>i.e.</i>, the Initial Share Price), will be used to calculate the Fund Return of that Fund.</p>
Basket Return:	<p>Unless otherwise specified in the relevant terms supplement:</p> $\frac{\text{Ending Basket Level} - \text{Starting Basket Level (or Basket Strike Level, if applicable)}}{\text{Starting Basket Level (or Basket Strike Level, if applicable)}}$
Starting Basket Level:	<p>Unless otherwise specified in the relevant terms supplement, set equal to 100 on the pricing date, the final Initial Averaging Date, if applicable, or such other relevant date as specified in the relevant terms supplement.</p>
Ending Basket Level:	<p>Unless otherwise specified in the relevant terms supplement, the Basket Closing Level on the Observation Date or such other date as specified in the relevant terms supplement, or the arithmetic average of the Basket Closing Levels on each of the Ending Averaging Dates, if so specified in the relevant terms supplement.</p>
Basket Strike Level:	<p>The relevant terms supplement may specify a level other than the Starting Basket Level, which we refer to as the "Basket Strike Level," to be used for calculating the Basket Return and the amount payable at maturity, if any. The Basket Strike Level, if applicable, may be based on and/or expressed as a percentage of the Basket Closing Level of a specified date, or may be determined without regard to the Basket Closing Level as of a particular date. For example, the relevant terms supplement may specify that a Basket Strike Level equal to 95% of the Starting Basket Level will be used to calculate the Basket Return.</p>
Basket Closing Level:	<p>Unless otherwise specified in the relevant terms supplement, the Basket Closing Level on any relevant day will be calculated as follows:</p> $100 \times [1 + \text{sum of (Component Return of each Component} \times \text{Component Weight of each such Component)}]$
Component Return:	<p>Unless otherwise specified in the relevant terms supplement, with respect to a Component, the Stock Return, the Index Return or the Fund Return, as applicable, of that Component.</p>
Component Weight:	<p>For notes linked to a Basket, with respect to a Component, a fixed percentage or fraction as specified in the relevant terms supplement, <i>provided</i> that the sum of the Component Weight for all Components will equal 100% or 1, as applicable.</p> <p>The relevant terms supplement will specify either (i) the weight of each Component in the Basket, which will be fixed for the term of the notes, or (ii) the manner in which the weight of each Component will be determined. For example, if the relevant terms supplement specifies that a Component is weighted to compose 18% of the value of the Basket, the Component Weight for that Component is 18%. Alternatively, the relevant terms supplement may specify that, for a Basket consisting of two Components, the Component with the greater Component Return on the final Determination Date will make up 70% of the value of the Basket, and the Component with the lesser Component Return on the final Determination Date will make up 30% of the value of the Basket.</p> <p>If the Basket is composed entirely of Reference Stocks, entirely of Indices or entirely of Funds, the relevant terms supplement may refer to the Component Weights as the "Stock Weights," the "Index Weights" or the "Fund Weights," respectively.</p>

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**Key Terms (continued)**

Determination Date(s):	The relevant terms supplement will specify Initial Averaging Dates, Call Dates, Review Dates, Valuation Dates, Observation Dates, Ending Averaging Dates or other relevant dates (each, a "Determination Date"), as applicable. Unless otherwise specified in the relevant terms supplement, Determination Dates are subject to postponement in the event of certain market disruption events and as described under "Payment at Maturity — Postponement of a Determination Date."
Maturity Date:	As specified in the relevant terms supplement. The maturity date of the notes is subject to postponement in the event of certain market disruption events and as described under "Description of Notes — Payment at Maturity."
Other Terms:	Any other terms applicable to the notes will be set forth in the relevant terms supplement.

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We have not authorized anyone to provide any information other than that contained or incorporated by reference in the relevant terms supplement, any related underlying supplement, this product supplement no. 4-I and the accompanying prospectus supplement and prospectus with respect to the notes offered by the relevant terms supplement and with respect to JPMorgan Chase & Co. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. This product supplement no. 4-I, together with the relevant terms supplement, any related underlying supplement and the accompanying prospectus and prospectus supplement, contains the terms of the notes and supersedes all other prior or contemporaneous oral statements as well as any other written materials including preliminary or indicative pricing terms, correspondence, trade ideas, structures for implementation, sample structures, fact sheets, brochures or other educational materials of ours. The information in the relevant terms supplement, any related underlying supplement, this product supplement no. 4-I and the accompanying prospectus supplement and prospectus may only be accurate as of the dates of each of these documents, respectively.

The notes described in the relevant terms supplement and this product supplement no. 4-I are not appropriate for all investors, and involve important legal and tax consequences and investment risks, which should be discussed with your professional advisers. You should be aware that the regulations of the Financial Industry Regulatory Authority, or FINRA, and the laws of certain jurisdictions (including regulations and laws that require brokers to ensure that investments are suitable for their customers) may limit the availability of the notes. The relevant terms supplement, any related underlying supplement, this product supplement no. 4-I and the accompanying prospectus supplement and prospectus do not constitute an offer to sell or a solicitation of an offer to buy the notes in any circumstances in which such offer or solicitation is unlawful.

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

In this product supplement no. 4-I, any related underlying supplement, the relevant terms supplement and the accompanying prospectus supplement and prospectus, “we,” “us” and “our” refer to JPMorgan Chase & Co., unless the context requires otherwise.

## DESCRIPTION OF NOTES

*The following description of the terms of the notes supplements the description of the general terms of the debt securities set forth under the headings "Description of Notes" in the accompanying prospectus supplement and "Description of Debt Securities" in the accompanying prospectus. A separate terms supplement will describe the terms that apply to specific issuances of the notes, including any changes to the terms specified below. A separate underlying supplement or the relevant terms supplement will describe any index or fund to which the notes are linked. Capitalized terms used but not defined in this product supplement no. 4-I have the meanings assigned in the accompanying prospectus supplement, prospectus, the relevant terms supplement and any related underlying supplement. The term "**note**" refers to each \$1,000 principal amount of our Notes Linked to an Index, a Fund or a Basket.*

### General

The notes are senior unsecured obligations of JPMorgan Chase & Co. that are linked to the common stock of a single issuer (the "**Reference Stock**"), a single index (the "**Index**"), a single fund (the "**Fund**") or a basket of common stocks, indices and/or funds (the "**Basket**") as specified in the relevant terms supplement. In this product supplement, we refer to:

- the Reference Stock, the Index, the Fund or the Basket to which the notes are linked as the "**Underlying**";
- a common stock, an index or a fund that is included in a basket as a "**Reference Stock**," an "**Index**" or a "**Fund**," respectively;
- each Reference Stock, Index or Fund to which the notes are linked or that is included in a basket as a "**Component**" and, collectively, as the "**Components**";
- an Index that is designed to track equity securities as an "**Equity Index**,"
- an Index that is designed to track commodities or commodity futures contracts as a "**Commodity Index**";
- a fund that is designed to track a commodity index or primarily invests in commodities or commodity futures contracts as a "**Commodity Fund**"; and
- an index underlying a Fund (or the relevant successor fund), if applicable, as an "**Underlying Index**."

In addition, 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 ("**ADSs**"). If a Reference Stock is an ADS, the term "**issuer**" of such Reference Stock refers to the issuer of the shares underlying the ADS.

The notes are a series of debt securities referred to in the accompanying prospectus supplement and prospectus. The notes will be issued by JPMorgan Chase & Co. under an indenture dated May 25, 2001, as may be amended or supplemented from time to time, between us and Deutsche Bank Trust Company Americas (formerly Bankers Trust Company), as trustee.

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. **Any payment on the notes is subject to the credit risk of JPMorgan Chase & Co.**

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

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

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

The terms of specific issuances of the notes will be described in the relevant terms supplement accompanying this product supplement no. 4-I and any related underlying supplement. The terms described in that document supplement those described in this product supplement and in any related underlying supplement, the accompanying prospectus and prospectus supplement. If the terms described in the relevant terms supplement are inconsistent with those described in this product supplement or in any related underlying supplement, the accompanying prospectus or prospectus supplement, the terms described in the relevant terms supplement will control.

## **Payment at Maturity**

### ***A. Determining the Payment at Maturity***

Your payment at maturity per \$1,000 principal amount note will be linked to the performance of the Underlying, as specified in the relevant terms supplement.

*For notes linked in whole or in part to a Commodity Index, if a commodity hedging disruption event occurs, we may accelerate your notes. See “General Terms of Notes — Additional Index Provisions — A. Consequences of a Commodity Hedging Disruption Event” for additional information.*

If the relevant terms supplement specifies that a knock-out feature applies to the notes, the relevant terms supplement will specify (a) the circumstances that will constitute a “**Knock-Out Event**” and (b) the method by which your payment at maturity per \$1,000 principal amount note will be determined both with respect to whether a Knock-Out Event has occurred and with respect to whether a Knock-Out Event has not occurred. For example, the relevant terms supplement could specify that a Knock-Out Event will occur if the Underlying Value is less than the Initial Underlying Value by more than a specified percentage, which we may refer to in the relevant terms supplement as the “**Knock-Out Buffer Amount**,” on any day during a predetermined period within the term of the notes and that any minimum payment at maturity will not apply if a Knock-Out Event has occurred.

Without limiting the generality of the foregoing, set forth below are descriptions of the payments at maturity that may apply with respect to return notes, return enhanced notes, buffered return enhanced notes, knock-out buffered return enhanced notes, buffered notes, knock-out buffered notes, knock-out notes and review notes. The relevant terms supplement may specify a payment at maturity with respect to any of those notes that is different from the applicable payment at maturity set forth below, and the payment at maturity specified in the relevant terms supplement, and not the payment at maturity set forth below, will apply to those notes. **Any payment on the notes, including any payment at maturity described in the relevant terms supplement or below, is subject to the credit risk of JPMorgan Chase & Co.**

### *1. Return Notes*

Unless otherwise specified in the relevant terms supplement, for return notes, the amount you will receive at maturity will be based on the value of the Ending Underlying Value relative to the Initial Underlying Value, subject to the Adjustment Factor, as described below.

Unless otherwise specified in the relevant terms supplement, your payment at maturity will be calculated as follows:

$$\$1,000 \times (1 + \text{Underlying Return}) \times \text{Adjustment Factor}$$

*For return notes, you will lose some or all of your investment at maturity if the Underlying Return is not sufficient to offset the negative effect of the Adjustment Factor.*

Unless otherwise specified in the relevant terms supplement, the “**Adjustment Factor**” is a percentage that will not be more than 100%, as specified in the relevant terms supplement.

### *2. Return Enhanced Notes*

Unless otherwise specified in the relevant terms supplement, for return enhanced notes, the amount you will receive at maturity will be based on the value of the Ending Underlying Value relative to the Initial Underlying Value and the upside leverage factor as described below.

- If the Ending Underlying Value is greater than the Initial Underlying Value, you will receive at maturity a cash payment per \$1,000 principal amount note that provides you with a return on your investment equal to the Underlying Return multiplied by the upside leverage factor subject, if applicable, to the Maximum Return on the notes. If applicable, the “**Maximum Return**” on the notes is a percentage that we will determine on the pricing date and that will be set forth in the relevant terms supplement. Accordingly, if the relevant terms supplement specifies a Maximum Return on the notes, the appreciation potential of the notes will be limited to the Maximum Return, even if the Underlying Return multiplied by the upside leverage factor is greater than the Maximum Return. Subject to any applicable Maximum Return on the notes, your payment at maturity per \$1,000 principal amount note will be calculated as follows:

$$\$1,000 + (\$1,000 \times \text{Underlying Return} \times \text{upside leverage factor})$$

The “**upside leverage factor**” will be a number set forth in the relevant terms supplement.

- If the Ending Underlying Value is equal to the Initial Underlying Value, you will receive at maturity a cash payment of \$1,000 per \$1,000 principal amount note.
- Your investment will be fully exposed to any decline in the Underlying. If the Ending Underlying Value is less than the Initial Underlying Value, you will lose 1% of the principal amount of your notes for every 1% that the Ending Underlying Value is less than the Initial Underlying Value. Under these circumstances, your payment at maturity per \$1,000 principal amount note will be calculated as follows:

$$\$1,000 + (\$1,000 \times \text{Underlying Return})$$

*For return enhanced notes, you will lose some or all of your investment at maturity if the Ending Underlying Value is less than the Initial Underlying Value.*



### *3. Buffered Return Enhanced Notes and Knock-Out Buffered Return Enhanced Notes*

As described below, unless otherwise specified in the relevant terms supplement, the amount you will receive at maturity will be based on:

- for buffered return enhanced notes, the value of the Ending Underlying Value relative to the Initial Underlying Value, the upside leverage factor, the downside leverage factor, if applicable, and the buffer amount; and
- for knock-out buffered return enhanced notes, the value of the Ending Underlying Value relative to the Initial Underlying Value, the upside leverage factor and the circumstances that constitute a Knock-Out Event.

*Payment at Maturity if the Value of the Underlying Increases.* For buffered return enhanced notes and knock-out buffered return enhanced notes:

- If the Ending Underlying Value is greater than the Initial Underlying Value, you will receive at maturity a cash payment per \$1,000 principal amount note that provides you with a return on your investment equal to the Underlying Return multiplied by the upside leverage factor subject, if applicable, to the Maximum Return on the notes. If applicable, the “**Maximum Return**” on the notes is a percentage that we will determine on the pricing date and that will be set forth in the relevant terms supplement. Accordingly, if the relevant terms supplement specifies a Maximum Return on the notes, the appreciation potential of the notes will be limited to the Maximum Return, even if the Underlying Return multiplied by the upside leverage factor is greater than the Maximum Return. Subject to any applicable Maximum Return on the notes, your payment at maturity per \$1,000 principal amount note will be calculated as follows:

$$\$1,000 + (\$1,000 \times \text{Underlying Return} \times \text{upside leverage factor})$$

The “**upside leverage factor**” will be a number set forth in the relevant terms supplement.

*Payment at Maturity if the Value of the Underlying Does Not Increase.* For buffered return enhanced notes:

- If the Ending Underlying Value is equal to the Initial Underlying Value or is less than the Initial Underlying Value by less than the buffer amount, you will receive the principal amount of your notes at maturity.

The “**buffer amount**” will be an amount set forth in the relevant terms supplement.

- Your investment will be fully exposed to any decline in the Underlying by more than the buffer amount. If the Ending Underlying Value is less than the Initial Underlying Value by more than the buffer amount, for every 1% that the Ending Underlying Value is less than the Initial Underlying Value by more than the buffer amount, you will lose an amount equal to 1% of the principal amount of your notes multiplied by, if applicable, the downside leverage factor and your payment at maturity per \$1,000 principal amount note will be calculated as follows:

$$\$1,000 + [\$1,000 \times (\text{Underlying Return} + \text{buffer amount}) \times \text{downside leverage factor}]$$

If applicable, the “**downside leverage factor**” will be a number set forth in the relevant terms supplement. If no downside leverage factor is specified in the relevant terms supplement and the Ending Underlying Value is less than the Initial Underlying Value by more than the buffer amount, your payment at maturity per \$1,000 principal amount note will be calculated as follows:

$$\$1,000 + [\$1,000 \times (\text{Underlying Return} + \text{buffer amount})]$$

*For buffered return enhanced notes, you will lose some or all of your investment at maturity if the Ending Underlying Value is less than the Initial Underlying Value by more than the buffer amount.*

For knock-out buffered return enhanced notes:

- If the Ending Underlying Value is equal to the Initial Underlying Value or if the Ending Underlying Value is less than the Initial Underlying Value and a Knock-Out Event has not occurred, you will be entitled to a full repayment of your principal at maturity.
- Your investment will be fully exposed to any decline in the Underlying if a Knock-Out Event has occurred. If the Ending Underlying Value is less than the Initial Underlying Value and a Knock-Out Event has occurred, for every 1% that the Ending Underlying Value is less than the Initial Underlying Value, you will lose 1% of the principal amount of your notes. Under these circumstances, your payment at maturity per \$1,000 principal amount note will be calculated as follows:

$$\$1,000 + (\$1,000 \times \text{Underlying Return})$$

*For knock-out buffered return enhanced notes, you will lose some or all of your investment at maturity if the Ending Underlying Value is less than the Initial Underlying Value and a Knock-Out Event has occurred.*

#### *4. Buffered Notes and Knock-Out Buffered Notes*

As described below, unless otherwise specified in the relevant terms supplement, the amount you will receive at maturity will be based on:

- for buffered notes, the value of the Ending Underlying Value relative to the Initial Underlying Value, the downside leverage factor, if applicable, and the buffer amount; and
- for knock-out buffered notes, the value of the Ending Underlying Value relative to the Initial Underlying Value and the circumstances that constitute a Knock-Out Event.

*Payment at Maturity if the Value of the Underlying Increases.* For buffered notes and knock-out buffered notes:

- If the Ending Underlying Value is greater than the Initial Underlying Value, you will receive at maturity a cash payment per \$1,000 principal amount note that provides you with a return on your investment equal to the Underlying Return subject, if applicable, to the Maximum Return on the notes. Accordingly, if the relevant terms supplement specifies a Maximum Return on the notes, the appreciation potential of the notes will be limited to the Maximum Return, even if the Underlying Return is greater than the Maximum Return. Subject to any applicable Maximum Return on the notes, your payment at maturity per \$1,000 principal amount note will be calculated as follows:

$$\$1,000 + (\$1,000 \times \text{Underlying Return})$$

*Payment at Maturity if the Value of the Underlying Does Not Increase.* For buffered notes:

- If the Ending Underlying Value is equal to the Initial Underlying Value or is less than the Initial Underlying Value by less than the buffer amount, you will be entitled to a full repayment of your principal at maturity.

The “**buffer amount**” will be an amount set forth in the relevant terms supplement.

- Your investment will be fully exposed to any decline in the Underlying by more than the buffer amount. If the Ending Underlying Value is less than the Initial Underlying Value by more than the buffer amount, for every 1% that the Ending Underlying Value is less than the Initial Underlying Value by more than the buffer amount, you will lose an amount equal to 1% of the principal amount of your notes multiplied by, if applicable, the downside leverage factor and your payment at maturity per \$1,000 principal amount note will be calculated as follows:

$$\$1,000 + [\$1,000 \times (\text{Underlying Return} + \text{buffer amount}) \times \text{downside leverage factor}]$$

If applicable, the “**downside leverage factor**” will be a number set forth in the relevant terms supplement. If no downside leverage factor is specified in the relevant terms supplement and the Ending Underlying Value is less than the Initial Underlying Value by more than the buffer amount, your payment at maturity per \$1,000 principal amount note will be calculated as follows:

$$\$1,000 + [\$1,000 \times (\text{Underlying Return} + \text{buffer amount})]$$

*For buffered notes, you will lose some or all of your investment at maturity if the Ending Underlying Value is less than the Initial Underlying Value by more than the buffer amount.*

For knock-out buffered notes:

- If the Ending Underlying Value is equal to the Initial Underlying Value or if the Ending Underlying Value is less than the Initial Underlying Value and a Knock-Out Event has not occurred, you will be entitled to a full repayment of your principal at maturity.
- Your investment will be fully exposed to any decline in the Underlying if a Knock-Out Event has occurred. If the Ending Underlying Value is less than the Initial Underlying Value and a Knock-Out Event has occurred, for every 1% that the Ending Underlying Value is less than the Initial Underlying Value, you will lose 1% of the principal amount of your notes. Under these circumstances, your payment at maturity per \$1,000 principal amount note will be calculated as follows:

$$\$1,000 + (\$1,000 \times \text{Underlying Return})$$

*For knock-out buffered notes, you will lose some or all of your investment at maturity if the Ending Underlying Value is less than the Initial Underlying Value and a Knock-Out Event has occurred.*

The relevant terms supplement may refer to buffered notes or knock-out buffered notes as buffered equity notes or knock-out buffered equity notes, respectively.

### *5. Knock-Out Notes*

Unless otherwise specified in the relevant terms supplement, for knock-out notes, the amount you will receive at maturity will be based on the value of the Ending Underlying Value relative to the Initial Underlying Value, whether a Knock-Out Event has occurred, the Contingent Minimum Return and, if applicable, the Maximum Return as described below.

- Unless otherwise specified in the relevant terms supplement, if a Knock-Out Event has not occurred, your payment at maturity will reflect the performance of the Underlying, subject to the Contingent Minimum Return and, if applicable, the Maximum Return. Your payment at maturity per \$1,000 principal amount note will equal \$1,000 *plus* the product of (a) \$1,000 and (b) the greater of (i) the Contingent Minimum Return and (ii) the Underlying Return, subject to the Maximum Return, if applicable.

The “**Contingent Minimum Return**” will be a fixed percentage as specified in the relevant terms supplement.

If applicable, the “**Maximum Return**” will be a fixed percentage that is greater than or equal to the Contingent Minimum Return as specified in the relevant terms supplement. Accordingly, if the relevant terms supplement specifies a Maximum Return, the appreciation potential of the notes will be limited to the Maximum Return even if the Underlying Return is greater than the Maximum Return.

- Unless otherwise specified in the relevant terms supplement, if a Knock-Out Event has occurred, your payment at maturity will reflect the performance of the Underlying, subject to the Maximum Return, if applicable. Your payment at maturity per \$1,000 principal amount note will equal \$1,000 *plus* the product of (a) \$1,000 and (b) the Underlying Return, subject to the Maximum Return, if applicable.

*For knock-out notes, if a Knock-Out Event has occurred, you will lose some or all of your investment at maturity if the Ending Underlying Value is less than the Initial Underlying Value.*

#### *6. Review Notes*

Unless otherwise specified in the relevant terms supplement, for review notes, if the notes have not been automatically called, the amount you will receive at maturity will be based on the value of the Ending Underlying Value relative to the Initial Underlying Value, whether the notes have a buffer or contingent buffer and the amount of any buffer or contingent buffer. **See “— Automatic Call” below for information about the amount you will receive upon an automatic call.**

*Payment at Maturity if the Value of the Underlying Increases.* If the notes have not been automatically called and the Ending Underlying Value is greater than the Initial Underlying Value, you will receive at maturity a cash payment of \$1,000 per \$1,000 principal amount note.

*Payment at Maturity if the Value of the Underlying Does Not Increase.* For review notes without a buffer:

- If the notes have not been automatically called and the Ending Underlying Value is equal to the Initial Underlying Value, you will receive at maturity a cash payment of \$1,000 per \$1,000 principal amount note.
- Your investment will be fully exposed to any decline in the Underlying. If the notes have not been automatically called and the Ending Underlying Value is less than the Initial Underlying Value, you will lose 1% of the principal amount of your notes for every 1% that the Ending Underlying Value is less than the Initial Underlying Value. Under these circumstances, your payment at maturity per \$1,000 principal amount note will be calculated as follows:

$$\$1,000 + (\$1,000 \times \text{Underlying Return})$$

*For review notes without a buffer, if the notes are not automatically called, you will lose some or all of your investment at maturity if the Ending Underlying Value is less than the Initial Underlying Value.*

For review notes with a buffer:

- If the notes have not been automatically called and the Ending Underlying Value is equal to the Initial Underlying Value or is less than the Initial Underlying Value by less than the buffer amount, you will be entitled to a full repayment of your principal at maturity.

The “**buffer amount**” will be an amount set forth in the relevant terms supplement.

- Your investment will be fully exposed to any decline in the Underlying by more than the buffer amount. If the notes have not been automatically called and the Ending Underlying Value is less than the Initial Underlying Value by more than the buffer amount, for every 1% that the Ending Underlying Value is less than the Initial Underlying Value by more than the buffer amount, you will lose an amount equal to 1% of the principal amount of your notes multiplied by, if applicable, the downside leverage factor and your payment at maturity per \$1,000 principal amount note will be calculated as follows:

$$\$1,000 + [\$1,000 \times (\text{Underlying Return} + \text{buffer amount}) \times \text{downside leverage factor}]$$

If applicable, the “**downside leverage factor**” will be a number set forth in the relevant terms supplement. If no downside leverage factor is specified in the relevant terms supplement and the Ending Underlying Value is less than the Initial Underlying Value by more than the buffer amount, your payment at maturity per \$1,000 principal amount note will be calculated as follows:

$$\$1,000 + [\$1,000 \times (\text{Underlying Return} + \text{buffer amount})]$$

*For review notes with a buffer, if the notes are not automatically called, you will lose some or all of your investment at maturity if the Ending Underlying Value is less than the Initial Underlying Value by more than the buffer amount.*

For review notes with a contingent buffer,

- If the notes have not been automatically called and the Ending Underlying Value is equal to the Initial Underlying Value or is less than the Initial Underlying Value by less than the contingent buffer amount, you will be entitled to a full repayment of your principal at maturity.

The “**contingent buffer amount**” will be an amount set forth in the relevant terms supplement.

- Your investment will be fully exposed to any decline in the Underlying if the Underlying declines by more than the buffer amount. If the notes have not been automatically called and the Ending Underlying Value is less than the Initial Underlying Value by more than the buffer amount, for every 1% that the Ending Underlying Value is less than the Initial Underlying Value, you will lose an amount equal to 1% of the principal amount of your notes and your payment at maturity per \$1,000 principal amount note will be calculated as follows:

$$\$1,000 + (\$1,000 \times \text{Underlying Return})$$

*For review notes with a contingent buffer, if the notes are not automatically called, you will lose some or all of your investment at maturity if the Ending Underlying Value is less than the Initial Underlying Value by more than the contingent buffer amount.*

## ***B. Calculating the Underlying Return***

In this product supplement, we refer to:

- the Stock Return, the Index Return, the Fund Return or the Basket Return, as applicable, as the “**Underlying Return**”;
- the Initial Stock Price (or Stock Strike Price, if applicable), the Initial Index Level (or Index Strike Level, if applicable), the Initial Share Price (or Share Strike Price, if applicable) or the Starting Basket Level (or Basket Strike Level, if applicable), as applicable, as the “**Initial Underlying Value**”;

- the Final Stock Price, the Ending Index Level, the Final Share Price or the Ending Basket Level, as applicable, as the “**Ending Underlying Value**”; and
- the closing price of the Reference Stock, the Index closing level, the closing price of the Fund or the Basket Closing Level, as applicable, as the “**Underlying Value**.”

### 1. Stock Return

Unless otherwise specified in the relevant terms supplement, with respect to a Reference Stock, the “**Stock Return**,” as calculated by the calculation agent, is the percentage change in the closing price of one share of that Reference Stock, calculated by comparing the Final Stock Price of that Reference Stock to the Initial Stock Price (or Stock Strike Value, if applicable) of that Reference Stock. The relevant terms supplement will specify the manner in which the Initial Stock Price (or Stock Strike Value, if applicable) and the Final Stock Price will be determined. The Stock Return of a Reference Stock, unless otherwise specified in the relevant terms supplement, is calculated as follows:

$$\text{Stock Return} = \frac{\text{Final Stock Price} - \text{Initial Stock Price (or Stock Strike Price, if applicable)}}{\text{Initial Stock Price (or Stock Strike Price, if applicable)}}$$

Unless otherwise specified in the relevant terms supplement, with respect to a Reference Stock, the “**Initial Stock Price**” is (a)(i) the closing price of one share of that Reference Stock on the pricing date or such other date as specified in the relevant terms supplement, or (ii) the arithmetic average of the closing prices of one share of that Reference Stock on each of the Initial Averaging Dates, if so specified in the relevant terms supplement, *divided by* (b) the Stock Adjustment Factor for that Reference Stock.

Notwithstanding the foregoing, if the relevant terms supplement specifies that the Initial Stock Price of a Reference Stock will be determined based on the arithmetic average of the closing prices of one share of that Reference Stock on each of the Initial Averaging Dates and an adjustment to the Stock Adjustment Factor for that Reference Stock would have become effective in accordance with “General Terms of Notes — Additional Reference Stock Provisions — A. Anti-Dilution Adjustments” on any day (with respect to a Reference Stock, an “**Adjustment Effective Date**”) after the first Initial Averaging Date but on or prior to the final Initial Averaging Date, then the closing price of one share of that Reference Stock on each Initial Averaging Date occurring prior to the applicable Adjustment Effective Date to be used to determine the applicable Initial Stock Price will be deemed to equal that closing price, *divided by* the Stock Adjustment Factor for that Reference Stock, as adjusted (assuming that the Stock Adjustment Factor prior to the applicable adjustment is equal to 1.0). See “General Terms of Notes — Additional Reference Stock Provisions — A. Anti-Dilution Adjustments” and “General Terms of Notes — Additional Reference Stock Provisions — B. Reorganization Events.”

Unless otherwise specified in the relevant terms supplement, with respect to a Reference Stock, the “**Final Stock Price**” means the closing price of one share of that Reference Stock on the Observation Date or such other date as specified in the relevant terms supplement, or, if the relevant terms supplement specifies Ending Averaging Dates, (a) for notes linked to a single Reference Stock, the arithmetic average of the closing prices of one share of that Reference Stock on each of the Ending Averaging Dates, and (b) for notes linked to a Basket (where the Ending Basket Level is based on the weighted Component Returns calculated on each Ending Averaging Date), the closing price of one share of that Reference Stock on the relevant Ending Averaging Date.

Notwithstanding the foregoing, for notes linked to a single Reference Stock, if the relevant terms supplement specifies that the Final Stock Price of a Reference Stock will be determined based on the arithmetic average of the closing prices of one share of that Reference Stock on each of the Ending Averaging Dates and an adjustment to the Stock Adjustment Factor for that Reference Stock

would have become effective in accordance with “General Terms of Notes — Additional Reference Stock Provisions — A. Anti-Dilution Adjustments” after the first Ending Averaging Date but on or prior to the final Ending Averaging Date, then the closing price of one share of that Reference Stock on each Ending Averaging Date occurring prior to the applicable Adjustment Effective Date to be used to determine the applicable Final Stock Price will be deemed to equal that closing price, *divided by* the Stock Adjustment Factor for that Reference Stock, as adjusted (assuming that the Stock Adjustment Factor prior to the applicable adjustment is equal to 1.0). See “General Terms of Notes — Additional Reference Stock Provisions — A. Anti-Dilution Adjustments.”

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 “General Terms of Notes — Additional Reference Stock Provisions — A. Anti-Dilution Adjustments.”

With respect to a Reference Stock, the relevant terms supplement may specify a price other than the Initial Stock Price of that Reference Stock, which we refer to as the “**Stock Strike Price**,” to be used for calculating the Stock Return of that Reference Stock and the amount payable at maturity, if any. The Stock Strike Price, if applicable, for a Reference Stock will be equal to (a) a percentage of the closing price of one share of that Reference Stock as of a specified date or (b) a fixed amount determined without regard to the closing price of one share of that Reference Stock as of a particular date, in each case *divided by* the Stock Adjustment Factor for that Reference Stock. For example, the relevant terms supplement may specify that, for a particular Reference Stock, a Stock Strike Price equal to 95% of the closing price of one share of that Reference Stock on the pricing date, *divided by* the Stock Adjustment Factor for that Reference Stock (*i.e.*, the Initial Stock Price), will be used to calculate the Stock Return of that Reference Stock.

## *2. Index Return*

Unless otherwise specified in the relevant terms supplement, with respect to an Index, the “**Index Return**,” as calculated by the calculation agent, is the percentage change in the Index closing level of that Index, calculated by comparing the Ending Index Level of that Index to the Initial Index Level (or Index Strike Level, if applicable) of that Index. The relevant terms supplement will specify the manner in which the Initial Index Level (or Index Strike Level, if applicable) and the Ending Index Level will be determined. The Index Return of an Index, unless otherwise specified in the relevant terms supplement, is calculated as follows:

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

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

Unless otherwise specified in the relevant terms supplement, with respect to an Index, the “**Ending Index Level**” means the Index closing level of that Index on the Observation Date or such other date as specified in the relevant terms supplement, or, if the relevant terms supplement specifies Ending Averaging Dates, (a) for notes linked to a single Index, the arithmetic average of the Index closing levels of that Index on each of the Ending Averaging Dates, and (b) for notes linked to a Basket (where the Ending Basket Level is based on the weighted Component Returns calculated on each Ending Averaging Date), the Index closing level of that Index on the relevant Ending Averaging Date.

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

### 3. Fund Return

Unless otherwise specified in the relevant terms supplement, with respect to a Fund, the “**Fund Return**,” as calculated by the calculation agent, is the percentage change in the closing price of one share of that Fund, calculated by comparing the Final Share Price of that Fund to the Initial Share Price (or Share Strike Value, if applicable) of that Fund. The relevant terms supplement will specify the manner in which the Initial Share Price (or Share Strike Value, if applicable) and the Final Share Price will be determined. The Fund Return of a Fund, unless otherwise specified in the relevant terms supplement, is calculated as follows:

$$\text{Fund Return} = \frac{\text{Final Share Price} - \text{Initial Share Price (or Share Strike Price, if applicable)}}{\text{Initial Share Price (or Share Strike Price, if applicable)}}$$

Unless otherwise specified in the relevant terms supplement, with respect to a Fund, the “**Initial Share Price**” is (a)(i) the closing price of one share of that Fund on the pricing date or such other date as specified in the relevant terms supplement, or (ii) the arithmetic average of the closing prices of one share of that Fund on each of the Initial Averaging Dates, if so specified in the relevant terms supplement, *divided by* (b) the Share Adjustment Factor for that Fund.

Notwithstanding the foregoing, if the relevant terms supplement specifies that the Initial Share Price of a Fund will be determined based on the arithmetic average of the closing prices of one share of that Fund on each of the Initial Averaging Dates and an adjustment to the Share Adjustment Factor for that Fund would have become effective in accordance with “General Terms of Notes — Additional Fund Provisions — A. Anti-Dilution Adjustments” on any day (with respect to a Fund, an “**Adjustment Effective Date**”) after the first Initial Averaging Date but on or prior to the final Initial Averaging Date, then the closing price of one share of that Fund on each Initial Averaging Date occurring prior to the applicable Adjustment Effective Date to be used to determine the applicable Initial Share Price will be deemed to equal that closing price, *divided by* the Share Adjustment Factor for that Fund, as adjusted (assuming that the Share Adjustment Factor prior to the applicable adjustment is equal to 1.0). See “General Terms of Notes — Additional Fund Provisions — A. Anti-Dilution Adjustments.”

Unless otherwise specified in the relevant terms supplement, with respect to a Fund, the “**Final Share Price**” means the closing price of one share of that Fund on the Observation Date or such other date as specified in the relevant terms supplement, or, if the relevant terms supplement specifies Ending Averaging Dates, (a) for notes linked to a single Fund, the arithmetic average of the closing prices of one share of that Fund on each of the Ending Averaging Dates, and (b) for notes linked to a Basket (where the Ending Basket Level is based on the weighted Component Returns calculated on each Ending Averaging Date), the closing price of one share of that Fund on the relevant Ending Averaging Date.

Notwithstanding the foregoing, for notes linked to a single Fund, if the relevant terms supplement specifies that the Final Share Price of a Fund will be determined based on the arithmetic average of the closing prices of one share of that Fund on each of the Ending Averaging Dates and an adjustment to the Share Adjustment Factor for that Fund would have become



effective in accordance with “General Terms of Notes — Additional Fund Provisions — A. Anti-Dilution Adjustments” after the first Ending Averaging Date but on or prior to the final Ending Averaging Date, then the closing price of one share of that Fund on each Ending Averaging Date occurring prior to the applicable Adjustment Effective Date to be used to determine the applicable Final Share Price will be deemed to equal that closing price, *divided by* the Share Adjustment Factor for that Fund, as adjusted (assuming that the Share Adjustment Factor prior to the applicable adjustment is equal to 1.0). See “General Terms of Notes — Additional Fund Provisions — A. Anti-Dilution Adjustments.”

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 “General Terms of Notes — Additional Fund Provisions — A. Anti-Dilution Adjustments.”

With respect to a Fund, the relevant terms supplement may specify a price other than the Initial Share Price of that Fund, which we refer to as the “**Share Strike Price**,” to be used for calculating the Fund Return of that Fund and the amount payable at maturity, if any. The Share Strike Price, if applicable, for a Fund will be equal to (a) a percentage of the closing price of one share of that Fund as of a specified date or (b) a fixed amount determined without regard to the closing price of one share of that Fund as of a particular date, in each case *divided by* the Share Adjustment Factor for that Fund. For example, the relevant terms supplement may specify that, for a particular Fund, a Share Strike Price equal to 95% of the closing price of one share of that Fund on the pricing date, *divided by* the Share Adjustment Factor for that Fund (*i.e.*, the Initial Share Price), will be used to calculate the Fund Return of that Fund.

#### 4. *Basket Return*

Unless otherwise specified in the relevant terms supplement, the “**Basket Return**,” as calculated by the calculation agent, is the percentage change in the Basket Closing Level, calculated by comparing the Ending Basket Level to the Starting Basket Level (or Basket Strike Level, if applicable). The relevant terms supplement will specify the manner in which the Starting Basket Level (or Basket Strike Level, if applicable) and the Ending Basket Level will be determined. The Basket Return, unless otherwise specified in the relevant terms supplement, is calculated as follows:

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

Unless otherwise specified in the relevant terms supplement, the “**Starting Basket Level**” is set equal to 100 on the pricing date, the final Initial Averaging Date, if applicable, or such other relevant date as specified in the relevant terms supplement.

Unless otherwise specified in the relevant terms supplement, the “**Ending Basket Level**” is the Basket Closing Level on the Observation Date or such other date as specified in the relevant terms supplement, or the arithmetic average of the Basket Closing Levels on each of the Ending Averaging Dates, if so specified in the relevant terms supplement.

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

### ***C. Determining the Value of the Underlying***

#### ***1. The Price of a Reference Stock***

Unless otherwise specified in the relevant terms supplement, the “**closing price**” for 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 the Financial Industry Regulatory Authority (the “**FINRA**”) (the “**OTC Bulletin Board**”), the last reported sale price of the principal trading session on the OTC Bulletin Board on such 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,

in each case subject to the provisions of “— Postponement of a Determination Date” and “General Terms of Notes — Additional Reference Stock Provisions — A. Anti-Dilution Adjustments.”

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 subject to the provisions of “General Terms of Notes — Additional Reference Stock Provisions — A. Anti-Dilution Adjustments.”

Unless otherwise specified in the relevant terms supplement, with respect to a Reference Stock, a **“trading day”** is a day, as determined by the calculation agent, on which trading is generally conducted on (i) the relevant exchange (as defined below) for that Reference Stock and (ii) the exchanges on which futures or options contracts related to that Reference Stock 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.

Unless otherwise specified in the relevant terms supplement, with respect to a Reference Stock or an Underlying Stock, **“relevant exchange”** means the primary exchange or market for trading for that Reference Stock or Underlying Stock.

## *2. The Level of an Index*

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

Unless otherwise specified in the relevant terms supplement, the **“Index 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 the applicable Index) will equal the level at such time for that Index or that successor index, as applicable, as published on the applicable page of Bloomberg, L.P., which we refer to as **“Bloomberg,”** or any successor page, or the Bloomberg page or successor page for any successor index.

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

- (a) 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 (as defined below) for securities underlying that Equity Index or successor index, as applicable, and (ii) the exchanges on which futures or options contracts related to that Equity Index or successor index, if applicable, are traded; and
- (b) with respect to a Commodity Index or any relevant successor index, a day, as determined by the calculation agent, on which that Commodity Index or successor index, as applicable, is published by the index sponsor of that Commodity Index or successor index, as applicable, in accordance with the index rules or methodology that governs that Commodity Index or successor index, as applicable.

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

- (a) with respect to an Equity Index or any relevant successor index, the primary exchange or market of trading for any security (or any combination thereof) then included in that Index or successor index, as applicable; and
- (b) with respect to any commodity futures contract included in a Commodity Index or any relevant successor index, as applicable, the primary exchange or market of trading for that futures contract.

### *3. The Price 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 “General Terms of Notes — Additional Fund Provisions — B. 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 subject to the provisions of “— Postponement of a Determination Date” and “General Terms of Notes — Additional Fund Provisions — B. Discontinuation of a Fund; Alternate Calculation of Closing Price and Trading Price.”

Unless otherwise specified in the relevant terms supplement, the “**trading price**” of one share of a Fund or any 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 such 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 such time during the principal trading session on the OTC Bulletin Board on that day,

in each case subject to the provisions of “General Terms of Notes — Additional Fund Provisions — B. Discontinuation of a Fund; Alternate Calculation of Closing Price and Trading Price.”

Unless otherwise specified in the relevant terms supplement, with respect to a Fund or any relevant successor fund, a “**trading day**” is a day, as determined by the calculation agent, on which trading is generally conducted on (i) the relevant exchange (as defined below) for that Fund or successor fund, as applicable, and (ii) the exchanges on which futures or options contracts related to that Fund or successor fund, as applicable, are traded.

Unless otherwise specified in the relevant terms supplement, “**relevant exchange**” means (a) with respect to a Fund or any successor fund, the primary exchange or market of trading for the shares of that Fund or that successor fund, as applicable, and (b) with respect to the applicable Underlying Index, if any, the primary exchange or market of trading for any security (or any combination thereof) then included in that Underlying Index.

#### *4. The Level of a Basket*

Unless otherwise specified in the relevant terms supplement, the “**Basket Closing Level**” on any relevant day will be calculated as follows:

$$100 \times [1 + \text{sum of (Component Return of each Component} \times \text{Component Weight of each such Component)}]$$

Unless otherwise specified in the relevant terms supplement, with respect to a Component, the “**Component Return**” is the Stock Return, Index Return or the Fund Return, as applicable, of such Component.

For notes linked to a Basket, with respect to a Component, the “**Component Weight**” is a fixed percentage or fraction as specified in the relevant terms supplement, *provided* that the sum of the Component Weight for all Components will equal 100% or 1, as applicable.

The relevant terms supplement will specify either (i) the weight of each Component in the Basket, which will be fixed for the term of the notes, or (ii) the manner in which the weight of each Component will be determined. For example, if the relevant terms supplement specifies that a Component is weighted to compose 18% of the value of the Basket, the Component Weight for that Component is 18%. Alternatively, the relevant terms supplement may specify that, for a Basket consisting of two Components, the Component with the greater Component Return on the final Determination Date will make up 70% of the value of the Basket, and the Component with the lesser Component Return on the final Determination Date will make up 30% of the value of the Basket.

#### *D. Other Terms*

The relevant terms supplement will specify Initial Averaging Dates, Call Dates, Review Dates, Valuation Dates, Observation Dates, Ending Averaging Dates or other relevant dates (each, a “**Determination Date**”), as applicable. Unless otherwise specified in the relevant terms supplement, Determination Dates are subject to postponement in the event of certain market disruption events and as described under “— Postponement of a Determination Date.”

The “**maturity date**” will be specified in the relevant terms supplement and is subject to adjustment as described below. If the scheduled maturity date (as specified in the relevant terms supplement) is not a business day, then the maturity date will be the next succeeding business day following the scheduled maturity date. If, due to a market disruption event or otherwise, the final Determination Date is postponed so that it falls less than three business days prior to the scheduled maturity date, the maturity date will be the third business day following the final Determination Date, as postponed, unless otherwise specified in the relevant terms supplement. We describe market disruption events under “General Terms of Notes — Market Disruption Events.” In addition, the maturity date may be accelerated if there is a commodity hedging disruption event or an event of default. See “General Terms of Notes — Additional Index Provisions — A. Consequences of a Commodity Hedging Disruption Event” and “General Terms of Notes — Payment upon an Event of Default.”

We will irrevocably deposit with DTC no later than the opening of business on the applicable date or dates funds sufficient to make payments of the amount payable, if any, with respect to the notes on 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.

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

The “**calculation agent**” is the agent appointed by us to make certain calculations for the notes, which initially will be J.P. Morgan Securities LLC (“**JPMS**”). See “General Terms of Notes — Calculation Agent” below. JPMS is our affiliate and may have interests adverse to yours. Please see “Risk Factors — Risks Relating to the Notes Generally — 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.”

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

### **Automatic Call**

If the relevant terms supplement specifies that the notes include an automatic call feature, the notes will be automatically called in the circumstances set forth in the relevant terms supplement for a cash payment that will be determined as set forth in the relevant terms supplement.

Unless otherwise specified in the relevant terms supplement, if the notes are automatically called on any day other than the final Determination Date, we will redeem each note and pay the applicable cash payment described in the relevant terms supplement (the “**Call Price**”) on the third business day after the date on which the notes are called, subject to postponement as described below under “Postponement of a Determination Date.” Unless otherwise specified in the relevant terms supplement, if the notes are called on the final Determination Date, we will redeem each note and pay the call price on the maturity date, subject to postponement as described in “Payment at Maturity” above. We refer to the date on which the call price is payable as the “**Call Settlement Date**.”

Without limiting the generality of the foregoing, set forth below is a description of the automatic call feature that may apply with respect to review notes. The relevant terms supplement may specify an automatic call feature with respect to review notes that is different from the automatic call feature set forth below, and the automatic call feature specified in the relevant terms supplement, and not automatic call feature set forth below, will apply to those notes.

Review notes will be automatically called if the Underlying Value on any Review Date is greater than or equal to the applicable value set forth in the relevant terms supplement (the “**Call Level**”) that triggers an automatic call and payment of the applicable Call Price. Unless otherwise specified in the relevant terms supplement, the Call Level for the final Review Date will not be greater than the Initial Underlying Value. The relevant terms supplement may refer to the Call Level as the “**Trigger Price**.”

If the notes are automatically called, for every \$1,000 principal amount note, you will receive \$1,000 plus the Call Price applicable to the Review Date on which the notes are automatically called. The call premium is a percentage that will vary depending on the particular Review Date and will be specified in the relevant terms supplement. The Call Price is equal to \$1,000 multiplied by the call premium. Accordingly, the payment per \$1,000 principal amount note upon an automatic call on a Review Date will be calculated as follows:

$$\$1,000 + (\text{applicable call premium} \times \$1,000)$$

### **Interest Payments**

If the relevant terms supplement specifies that the notes will bear interest, the notes will bear interest at the per annum rate, or such other rate or rates, including rates that reference the performance of the Underlying, as specified in the relevant terms supplement.

Unless otherwise specified in the relevant terms supplement, if the notes do not include an automatic call feature or if the notes are not automatically called, interest will accrue from the issue date of the notes to but excluding the maturity date. Interest will be payable in arrears on each date specified in the relevant terms supplement (each such date, an “**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, unless otherwise specified in the relevant terms supplement.

Unless otherwise specified in the relevant terms supplement, if the notes include an automatic call feature and the notes are automatically called, interest will accrue from the issue date of the notes to but excluding the applicable Call Settlement Date. Interest will be payable in arrears on each Interest Payment Date occurring before the applicable Call Settlement Date and on that Call Settlement Date, to the holders of record at the close of business on the business day prior to that Interest Payment Date or that Call Settlement Date, as applicable, unless otherwise specified in the relevant terms supplement.

Interest on the notes will be calculated based on a 360-day year of twelve 30-day months, unless otherwise specified in the relevant terms supplement. If any day on which a payment of interest or principal is due is not a business day, the payment will be made with the same force and effect on the next succeeding business day, but no additional interest will accrue as a result of the delayed payment, and the next interest payment period, if applicable, will commence as if the payment had not been delayed. If the maturity date, any Interest Payment Date or any Call Settlement Date is adjusted as the result of a market disruption event or otherwise, the payment of interest due on that date will be made on the maturity date or Call Settlement Date as adjusted, with the same force and effect as if that date had not been adjusted, but no additional interest will accrue or be payable as a result of the delayed payment.

## **Postponement of a Determination Date**

### ***A. Notes Linked to a Single Component***

If a Determination Date is not a trading day or if there is a market disruption event on a Determination Date (any such day, a “**Disrupted Day**”), the applicable Determination Date will be postponed to the immediately succeeding business day that is not a Disrupted Day. In no event, however, will any Determination Date be postponed to a date that is after the Final Disrupted Determination Date.

If a Determination Date is or has been postponed to the Final Disrupted Determination Date and the Final Disrupted Determination Date is a Disrupted Day, the calculation agent will determine the closing price of the Reference Stock, the Index closing level or the closing price of the Fund, as applicable, for that Determination Date on the 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 the Final Disrupted Determination Date; or
- (b) for notes linked to an Index, unless otherwise specified in the relevant terms supplement or any relevant underlying supplement, in accordance with the formula for and method of calculating the Index 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:
  - (i) with respect to an Equity Index, 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 the Final Disrupted Determination Date of each security most recently constituting the Index; or

- (ii) with respect to a Commodity Index, the settlement price or fixing level, as applicable (or, if trading in the relevant commodities and/or commodity futures contracts has been materially suspended or materially limited, the calculation agent's good faith estimate of the settlement price or fixing level, as applicable, that would have prevailed but for that suspension or limitation or non-trading day) on the Final Disrupted Determination Date of each commodity and/or commodity futures contract most recently composing that Index, as well as any commodity futures contract required to roll any expiring commodity futures contract in accordance with the method of calculating that Index.

With respect to a Determination Date, unless otherwise specified in the relevant terms supplement or any relevant underlying supplement, the **"Final Disrupted Determination Date"** means the tenth business day after that Determination Date, as originally scheduled.

### ***B. Notes Linked to a Basket***

If a Determination Date is a Disrupted Day for any Component (any Component affected by a Disrupted Day, a **"Disrupted Component"**), the applicable Determination Date will be postponed to the earliest day on which the closing price or Index closing level, as applicable, (the **"Component Value"**) of each Component has been established, as described below:

- (a) for each Component that is not a Disrupted Component (an **"Unaffected Component"**), the Component Value on the postponed Determination Date will be deemed to be the Component Value on the originally scheduled Determination Date; and
- (b) for each Disrupted Component, the Component Value on the postponed Determination Date will be deemed to be the Component Value on the first business day immediately following the originally scheduled Determination Date that is not a Disrupted Day for that Disrupted Component.

Accordingly, if a Determination Date is postponed as described above, the calculation agent may reference the Component Values of the Components from different business days when calculating the Basket Closing Level or making other determinations with respect to that Determination Date, as postponed.

For example, assume that the notes are linked to a Basket consisting of three Components, Component A, Component B and Component C, and that:

- (a) Business Day 1, a scheduled Determination Date, is not a Disrupted Day for Component A but is a Disrupted Day for Components B and C;
- (b) Business Day 2 is not a Disrupted Day for Component B but is a Disrupted Day for Component C; and
- (c) Business Day 3 is not a Disrupted Day for Component C.

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

In no event, however, will any Determination Date be postponed to a date that is after the Final Disrupted Determination Date. If a Determination Date is or has been postponed to the Final Disrupted Determination Date and on that day, the Component Value for any Disrupted Component has not been established in accordance with the first paragraph above (a **"Final Disrupted Component"**), the Component Value for that Determination Date will be determined by the calculation agent on the Final Disrupted Determination Date and will be deemed to be:



- (a) for each Unaffected Component, the Component Value on the originally scheduled Determination Date;
- (b) for each Disrupted Component that is not a Final Disrupted Component, the Component Value determined in the manner described in the first paragraph above;
- (c) for each Final Disrupted Component 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 the Final Disrupted Determination Date;
- (d) for each Final Disrupted Component that is an Index, unless otherwise specified in the relevant terms supplement or any relevant underlying supplement, the Index closing level of that Index determined by the calculation agent in accordance with the formula for and method of calculating the Index closing level of this Index last in effect prior to the commencement of the market disruption event (or prior to the non-trading day), using:
  - (i) with respect to an Equity Index, 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 the Final Disrupted Determination Date of each security most recently constituting that Index; or
  - (ii) with respect to a Commodity Index, the settlement price or fixing level, as applicable (or, if trading in the relevant commodities and/or commodity futures contracts has been materially suspended or materially limited, the calculation agent's good faith estimate of the settlement price or fixing level, as applicable, that would have prevailed but for that suspension or limitation or non-trading day) on the Final Disrupted Determination Date of each commodity and/or commodity futures contract most recently composing that Index, as well as any commodity futures contract required to roll any expiring commodity futures contract in accordance with the method of calculating that Index.

## 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, any Index, any Fund or any of the securities, commodities, futures contracts or other assets or financial 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 before you decide that an investment in the notes is suitable for you.*

### Risks Relating to the Notes Generally

**The notes differ from conventional securities and may not pay interest or guarantee the return of your investment.**

The notes differ from conventional securities and may not pay interest and may not return any of your investment. The amount payable at maturity or, if applicable, upon automatic call will be determined pursuant to the terms described in the relevant terms supplement. The relevant terms supplement will specify the circumstances in which you may lose some or all of your investment at maturity or, if applicable, upon automatic call. In addition, unless otherwise specified in the relevant terms supplement, you will lose some or all of your investment in the notes at maturity:

- for return notes, if the Ending Underlying Value is not greater than the Initial Underlying Value by a percentage sufficient to offset the negative effect of the Adjustment Factor, which will reduce your return, or if the Ending Underlying Value is less than the Initial Underlying Value;
- for return enhanced notes, if the Ending Underlying Value is less than the Initial Underlying Value;
- for buffered return enhanced notes and buffered notes, if the Ending Underlying Value is less than the Initial Underlying Value by more than the buffer amount;
- for knock-out notes, knock-out buffered return enhanced notes and knock-out buffered notes, if the Ending Underlying Value is less than the Initial Underlying Value and a Knock-Out Event has occurred;
- for review notes without a buffer, if the notes are not automatically called and the Ending Underlying Value is less than the Initial Underlying Value;
- for review notes with a buffer, if the notes are not automatically called and the Ending Underlying Value is less than the Initial Underlying Value by more than the buffer amount; and
- for review notes with a contingent buffer, if the notes are not automatically called and the Ending Underlying Value is less than the Initial Underlying Value by more than the contingent buffer amount.

For all other notes, the relevant terms supplement will specify the circumstances in which you may lose some or all of your investment at maturity.

**If the relevant terms supplement specifies that a Maximum Return applies, the appreciation potential of the notes will be limited to the Maximum Return.**

Any applicable Maximum Return will be a percentage that we will determine on the pricing date and that will be set forth in the relevant terms supplement. Accordingly, if the relevant term supplement specifies a Maximum Return for the notes, the appreciation potential of the notes will be limited to that Maximum Return even if the Underlying Return (multiplied by, if applicable, the upside leverage factor) is greater than that Maximum Return.

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

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

**Our offering of the notes does not constitute an expression of our view about, or a recommendation of, any Reference Stock, any Index, any Fund or the securities, commodities, futures contracts or other assets or financial 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, any Index, any Fund or the securities, commodities, futures contracts or other assets or financial 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 Reference Stock, any Index, any Fund or the securities, commodities, futures contracts or other assets or financial measures underlying any Index or Fund, 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 Reference Stocks, Indices or Funds and the securities, commodities and commodity futures underlying one or more Indices or Funds 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 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 financial measures underlying one or more Indices or Funds. We may also adjust our hedge by, among other things, purchasing or selling 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 financial measures underlying one or more Indices or Funds 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. We cannot give you any assurances that our hedging will not negatively affect the value of the Underlying or the performance of the notes. See "Use of Proceeds and Hedging" below for additional information about our hedging activities.

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

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

JPMS and other affiliates of ours also trade the Reference Stocks, the Funds, the securities, commodities, futures contracts or other assets underlying the Indices and the Funds and other financial instruments related to the Reference Stocks, the Indices, the Funds and the securities, commodities, futures contracts or other assets or financial measures underlying the Indices and Funds on a regular basis (taking long or short positions or both), for their accounts, for other accounts under their management and to facilitate transactions, including block transactions, on behalf of customers. While we cannot predict an outcome, any of these hedging activities or other trading activities of ours could potentially increase the Underlying Value on the pricing date or any Initial Averaging Dates, as applicable, and/or decrease the Underlying Value on any other Determination Date, which could adversely affect your payment at maturity, or, if applicable, upon automatic call or the amount of interest you may receive over the term of the notes.

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 equity 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. In the course of this business, we or our affiliates may acquire nonpublic information about the underlying companies, and we will not disclose any such information to you. In addition, we or one or more of our affiliates may publish research reports or otherwise express views about the underlying companies. Any prospective purchaser of notes should undertake an independent investigation of each of the underlying companies as in its judgment is appropriate to make an informed decision with respect to an investment in the notes. We do not make any representation or warranty to any purchaser of notes with respect to any matters whatsoever relating to our business with the underlying companies.

Additionally, we or one of our affiliates may serve as issuer, agent or underwriter for issuances of other securities or financial instruments with returns linked or related to changes in the level or price, as applicable, of a Reference Stock, an Index or a Fund or the securities, commodities, futures contracts or other assets or financial 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.

We or one of our affiliates may currently or from time to time engage in trading activities related to the currencies in which the equity securities underlying a foreign Index or a foreign Fund are denominated. If currency exchange rate calculations are involved in the calculation of the Index closing levels of a foreign Index or the net asset values of a foreign Fund, these trading activities could potentially affect the exchange rates with respect to the currencies in which the equity securities underlying that foreign Index or foreign Fund are denominated, the Index closing levels of that foreign Index or the closing prices of that foreign Fund and, accordingly, the value of the notes. A “**foreign Index**” or a “**foreign Fund**” is one that is composed primarily of securities issues by non-U.S. companies.

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

In the course of our business, we or our affiliates may acquire nonpublic information about one or more Commodity Indices or the commodities or commodity futures contracts underlying one or more Commodity Indices, and we will not disclose any such information to you. In addition, one or more of our affiliates may publish research reports or otherwise express views about one or more Commodity Indices or the commodities or commodity futures contracts underlying one or more Commodity Indices. Any prospective purchaser of notes should undertake an independent investigation of any relevant Commodity Index and the commodities or commodity futures contracts underlying any relevant Commodity Index as in its judgment is appropriate to make an informed decision with respect to an investment in the notes.

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

JPMS, one of our affiliates, will act as the calculation agent. The calculation agent will determine, among other things, any Initial Stock Price (or Stock Strike Price, if applicable), any Initial Index Level (or Index Strike Level, if applicable), any Initial Share Price (or Share Strike Price, if applicable), the Starting Basket Level (or Basket Strike Level, if applicable), if applicable, any Final Stock Price, any Ending Index Level, any Final Share Price, the Ending Basket Level, if applicable, any Stock Return, any Index Return, any Fund Return, the Basket Return, if applicable, any Stock Adjustment Factor, any Share Adjustment Factor and anti-dilution adjustments, any closing price of any Reference Stock, Index closing level, closing price of any Fund or Basket Closing Level on each Determination Date and the payment, if any, on any Interest Payment Date and at maturity or, if applicable, upon automatic call, as well as whether a Knock-Out Event has occurred, if applicable. In addition, the calculation agent will determine, among other things:

- whether a market disruption event has occurred;
- adjustments to any Stock Adjustment Factor or Share Adjustment Factor and any adjustments as the result of a Reorganization Event;
- whether to select a Successor Reference Stock and, if applicable, which common stock to select if an ADS serving as a Reference Stock is delisted or is no longer admitted to trading on a U.S. securities exchange or included in the OTC Bulletin Board, or if the ADS facility between the issuer of the applicable Underlying Stock and the ADS depositary is terminated;
- whether to select a Successor Foreign Reference Stock if a non-U.S. equity security (other than an ADS) serving as the Reference Stock is delisted or is no longer admitted to trading on a securities exchange or if such Reference Stock is nationalized;
- whether an Index has been discontinued, whether the method of calculating an Index has changed in a material respect or whether an Index has been otherwise modified so that it does not, in the opinion of the calculation agent, fairly represent the level of that Index had those changes or modifications not been made and, if applicable, which index to select as a successor index;

- whether a Fund has been delisted, liquidated or otherwise terminated, a Fund or its Underlying Index, if applicable, has been changed in a material respect or a Fund or its Underlying Index, if applicable, has been otherwise modified so that it does not, in the opinion of the calculation agent, fairly represent the price of that Fund had those changes or modifications not been made and, if applicable, which exchange-traded fund to select as a successor fund; and
- the amount payable to you in the event of an early acceleration of the notes due to a commodity hedging disruption event.

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.

**JPMS and its affiliates may have published research, expressed opinions or provided recommendations that are inconsistent with investing in or holding the notes, and may do so in the future. Any such research, opinions or recommendations could affect the value of any relevant Component, and, therefore, the market value of the notes.**

JPMS and its affiliates publish research from time to time on underlying companies, financial markets and other matters that may influence the value of the notes, or express opinions or provide recommendations that are inconsistent with purchasing or holding the notes. JPMS and its affiliates may have published or may publish research or other opinions that call into question the investment view implicit in an investment in 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 Component to which the notes are linked.

**For return notes, even if the Ending Underlying Value is greater than the Initial Underlying Value, you may receive less than the principal amount of your notes due to the Adjustment Factor.**

For return notes, because the Adjustment Factor reduces the Underlying Return, if the Ending Underlying Value is not greater than the Initial Underlying Value by a percentage sufficient to offset the negative effect of the Index Adjustment Factor, you will lose some or all of your investment in the notes at maturity or, if applicable, upon automatic call, if any.

**For return notes, the Adjustment Factor will magnify any negative Underlying Return.**

For return notes, because the Adjustment Factor will be a percentage that is less than 100%, unless otherwise specified in the relevant terms supplement, its effect on the calculation of your payment at maturity is to reduce any positive Underlying Return and to magnify any negative Underlying Return. If the Underlying Return is negative, for each 1% that the Ending Underlying Value is less than the Initial Underlying Value, you will lose more than 1% of your investment in the notes, *provided* that the payment at maturity will not be less than zero.

**If the relevant terms supplement specifies that a contingent buffer or a knock-out buffer applies, the benefit provided by such contingent buffer or knock-out buffer may terminate during the term of the notes.**

If the relevant terms supplement specifies that a contingent buffer applies, you will at maturity be fully exposed to any depreciation of the Underlying if the Ending Underlying Value is less than the Initial Underlying Value by more than the contingent buffer amount. If the relevant terms supplement specifies that a knock-out buffer applies, you will at maturity be fully exposed to any depreciation of the Underlying if a Knock-Out Event has occurred. Under either of these circumstances, you will lose 1% of the principal amount of your investment for every 1% that the Ending Underlying Value is less than the Initial Underlying Value. If these notes had provided a

buffer feature that was not contingent or not subject to a Knock-Out Event, under the same scenario, the amount you would have received at maturity would have been increased by the contingent buffer amount or the Knock-Out Buffer Amount, as applicable. As a result, your investment in the notes may not perform as well as an investment in a security with a return that includes a buffer feature that is not contingent and not subject to a Knock-Out Event.

**If so specified in the relevant terms supplement, the notes will be subject to automatic call prior to maturity and the corresponding reinvestment risk.**

If the relevant terms supplement specifies that the notes include an automatic call feature, the term of the notes may be limited by the automatic call feature of the notes. The notes will be automatically called prior to the maturity date under the circumstances set forth in the relevant terms supplement. Because of this automatic call feature, the term of your investment in the notes may be limited to a period that is shorter than the original term of the notes. If the notes pay interest and the notes are automatically called, the holding period over which you would receive interest payments could be significantly shorter than the full term of the notes. There is no guarantee that you would be able to reinvest the proceeds from an investment in the notes at a comparable return for a similar level of risk in the event the notes are automatically called prior to the maturity date.

**The Ending Underlying Value may be less than the Underlying Value at other times during the term of the notes.**

Because the Ending Underlying Value is calculated based on the Underlying Value on one or more Determination Dates during the term of the notes, the value of the Underlying at various other times during the term of the notes could be higher than the Ending Underlying Value. This difference could be particularly large if there is a significant increase in the value of the Underlying before and/or after the Determination Date(s), if there is a significant decrease in the value of the Underlying around the time of the Determination Date(s) or if there is significant volatility in the value of the Underlying during the term of the notes (especially on dates near the Determination Date(s)). For example, when the Determination Date of the notes is near the end of the term of the notes, if the value of the Underlying increases or remains relatively constant during the initial term of the notes and then decreases below the Initial Underlying Value, the Ending Underlying Value 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 payment at maturity than you would have received if you had invested directly in any Reference Stock, any Index, any Fund, the securities, commodities, futures contracts or other assets or financial measures underlying any Index or Fund or contracts relating to any Reference Stock, Index or Fund for which there is an active secondary market.

**The Initial Stock Price, Initial Index Level or Initial Share Price, as applicable, of any Component may be determined after the issue date of the notes.**

If so specified in the relevant terms supplement, the Initial Stock Price, Initial Index Level or Initial Share Price, as applicable, of any Component may be determined based on the arithmetic average of the Component Values on the Initial Averaging Dates specified in that relevant terms supplement. One or more of the Initial Averaging Dates specified may occur on or following the issue date of the notes; as a result, the Initial Stock Price, Initial Index Level or Initial Share Price, as applicable, of any Component may not be determined, and you may therefore not know the value of that Initial Stock Price, Initial Index Level or Initial Share Price, as applicable, until after the issue date. Similarly, the global note certificate representing the notes, which will be deposited with DTC on the issue date as described under "General Terms of Notes — Book-Entry Only Issuance — The Depository Trust Company," will not set forth that Initial Stock Price, Initial Index Level or Initial Share Price, as applicable. If there are any increases in the Component Values on the Initial Averaging Dates that occur after the issue date and those increases result in the Initial Underlying Value being higher than the Underlying Value on the issue date, your payment at maturity or, if applicable, upon automatic call may be adversely affected.

**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 the Underlying has appreciated since the pricing date. The potential returns described in the relevant terms supplement assume that your notes are held to maturity unless automatically called prior to maturity, if applicable.

**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.

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

While the payment at maturity or, if applicable, upon automatic call, if any, will be based on the full principal amount of your notes as described in the relevant terms supplement, the original issue price of the notes includes each agent's commission and the estimated cost of hedging our obligations under the notes. An agent's commission or the estimated cost (see "Use of Proceeds and Hedging") includes the profit our affiliates expect to realize in consideration for assuming the risks inherent in providing such hedge. As a result, assuming no change in market conditions or any other relevant factors, the price, if any, at which JPMS will be willing to purchase notes from you in secondary market transactions, if at all, will likely be lower than the original issue price. In addition, any of those prices may differ from values determined by pricing models used by JPMS, as a result of this compensation or other transaction costs.

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

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

- the actual and expected frequency and magnitude of changes in any Component Value (*i.e.*, volatility);
- 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 and the market value of options on the Underlying and therefore affect the market value of the notes);



- if applicable, whether a Knock-Out Event has occurred or is expected to occur;
- 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 upon which the futures contracts that compose any Commodity Index or Commodity Fund or the exchange-traded futures contracts on such commodities;
- 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 financial measures underlying an Index or a Fund;
- economic, financial, political, regulatory and judicial events that affect a Reference Stock, the equity securities underlying an Equity Index or a Fund (other than a Commodity 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 a Basket, changes in correlation (the extent to which the value of the Components increase or decrease to the same degree at the same time) between the Components;
- 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 foreign Index or a foreign Fund are traded, and, if a foreign Index or a foreign Fund is calculated in one currency and the equity securities underlying that foreign Index or foreign Fund are traded in one or more other currencies, the correlation between those rates and the value of that foreign Index or foreign Fund; and
- our creditworthiness, including actual or anticipated downgrades in our credit ratings.

Some or all of these factors will influence the price you will receive if you choose to sell your notes prior to maturity. The impact of any of the factors set forth above may enhance or offset some or all of any change resulting from another factor or factors. You may have to sell your notes at a substantial discount from the principal amount.

**If the Component Value of a Component changes, the market value of your notes may not change in the same manner.**

Owning the notes is not the same as owning any Reference Stock or Fund or the securities, commodities, futures contracts or other assets or financial measures included in any Index. Accordingly, changes in the Component Value of a Component may not result in a comparable change in the market value of the notes. If the Component Value of any Component on any day has increased, the value of the notes may not increase comparably, if at all. It is also possible for Component Value of a Component to increase moderately while the value of the notes declines.

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

Investing in the notes is not equivalent to investing in any Reference Stock, any Index, any Fund, the securities, commodities, futures contracts or other assets or financial measures underlying any Index or Fund or exchange-traded or over-the-counter instruments based on any Reference Stock, any Index, any Fund, the securities, commodities, futures contracts or other assets or financial measures underlying any Index or Fund. As an investor in the notes, you will not have any ownership interests or rights in any Reference Stock, any Index, any Fund, the securities, commodities, futures contracts or other assets or financial measures underlying any Index or Fund. If the notes are linked to ADSs representing non-U.S. equity securities issued through depositary arrangements, you will not have the rights of owners of such ADSs or the applicable Underlying Stocks.

**Your return on the notes will not reflect dividends or other distributions on any Reference Stock or on the equity securities underlying any Equity Index that is not a total return index or any Fund.**

Your return on the notes will not reflect the return you would realize if you actually owned any Reference Stock, the equity securities underlying any Equity Index that is not a total return index or any Fund and received the dividends or other distributions paid on those equity securities. This is because the calculation agent will calculate the amount payable to you at maturity of the notes by reference to the Ending Underlying Value. The Ending Underlying Value will reflect the prices of any relevant Reference Stock, the equity securities underlying any relevant Equity Index that is not a total return index or any relevant Fund on the Determination Date(s) without taking into consideration the value of dividends or other distributions paid on those equity securities.

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

If the notes are linked to a single Reference Stock, Index or Fund or to 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 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, we may accelerate your 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, 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, in our sole and absolute discretion, accelerate the payment on your notes and pay you an amount determined in good faith and in a commercially reasonable manner by the calculation agent. If a commodity hedging disruption event occurs and we decide to exercise our right to accelerate the payment on your notes, your investment may result in a loss and you may not be able to reinvest the proceeds in a comparable investment. See "General Terms of Notes — Additional Index Provisions — A. 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 lead to the early acceleration of your notes" below.

**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 properly determining any Component Value on any Determination Date and determining whether a Knock-Out Event has occurred, if applicable, or calculating the amount, if any, that we will pay you at maturity or, if applicable, upon automatic call or on any Interest Payment Date. 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 the maturity date will be postponed and your return will be adversely affected. See "General Terms of Notes — Market Disruption Events." Moreover, if any Determination Date is postponed to the last possible day and the Component Value of any Component is not available on that day because of a market disruption event or if such day is not a trading day, the calculation agent will nevertheless determine the Component Value of that Component on such last possible day. See "Description of Notes — Postponement of a Determination Date" for more information.

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

There is no direct legal authority as to the proper U.S. federal income tax treatment of the notes, and we do not intend to request a ruling from the Internal Revenue Service (the "IRS") regarding the notes. The IRS might not accept, and a court might not uphold, the treatment of the notes as open transactions that are not debt instruments, as described in "Material U.S. Federal Income Tax Consequences." If the IRS were successful in asserting an alternative treatment for the notes, the timing and/or character of income on the notes could be affected materially and adversely. In addition, in 2007 Treasury and the IRS released a notice requesting comments on the U.S. federal income tax treatment of "prepaid forward contracts" and similar instruments, which may include the notes. The notice focuses in particular on whether to require holders of these instruments to accrue income over the term of their investment. It also asks for comments on a number of related topics, including the character of income or loss with respect to these instruments; the relevance of factors such as the nature of the underlying property to which the instruments are linked; the degree, if any, to which income (including any mandated accruals) realized by Non-U.S. Holders should be subject to withholding tax; and whether these instruments are or should be subject to the "constructive ownership" regime, which very generally can operate to recharacterize certain long-term capital gain as ordinary income and impose an interest charge. While the notice requests comments on appropriate transition rules and effective dates, any Treasury regulations or other guidance promulgated after consideration of these issues could materially and adversely affect the tax consequences of an investment in the notes, possibly with retroactive effect. Both U.S. and Non-U.S. Holders should review carefully the section entitled "Material U.S. Federal Income Tax Consequences" in this product supplement no. 4-I and consult their tax advisers regarding the U.S. federal income tax consequences of an investment in the notes, including possible alternative treatments and the issues presented by this notice.

**Historical performance of any Component should not be taken as an indication of the future performance of such Component during the terms of the notes.**

The actual performance of any Component over the term of the notes, as well as the amount payable at maturity or, if applicable, upon automatic call or on any Interest Payment Date may bear little relation to the historical performance of that Component. The value of any Component will be determined by the trading prices of the relevant Reference Stock, the trading prices of the equity securities underlying the relevant Index or the trading prices of the relevant Fund, as applicable. As a result, it is impossible to predict whether the value of any Component will rise or fall.

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

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

### **Risks Relating to a Basket**

#### **The Components may not be equally weighted.**

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

#### **The Component Weights may be determined on a date other than the pricing date.**

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

#### **Changes in the value of the Components may offset each other.**

Price movements in the Components may not correlate with each other. At a time when the value of one or more of the Components increases, the value of the other Components may not increase as much or may even decline. Therefore, in calculating the Ending Basket Level, increases in the value of one or more of the Components may be moderated, or more than offset, by lesser increases or declines in the value of the other Component or Components, particularly if the Component or Components that appreciate are of relatively low weight in the Basket.

#### **Movements in the Components may be highly correlated.**

High correlation of movements in the Components during periods of negative returns among the Components could have an adverse effect on your return on your investment at maturity or, if applicable, upon automatic call. However, the movements in the Components may become uncorrelated in the future. Accordingly, at a time when the value of one or more of the Components increases, the value of the other Components may not increase as much or may even decline. See “— Changes in the value of the Components may offset each other” above.

### **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. Consequently, we have no control of the actions of the issuer of any Reference Stock, including any corporate actions of the

type that would require the calculation agent to adjust the payment to you at maturity or, if applicable, upon early automatic call. 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.

In addition, as we are not affiliated with the issuer of any Reference Stock, we do not assume any responsibility for the adequacy of the information about any Reference Stock or its issuer contained in any terms supplement or in any Reference Stock issuer's publicly available filings. We are not responsible for any issuer's public disclosure of information on itself or any Reference Stock, whether contained in Securities and Exchange Commission, which we refer to as the SEC, filings or otherwise. As an investor in the notes, you should make your own investigation into any relevant Reference Stock.

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

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

**If a Reference Stock is an ADS, fluctuations in exchange rates will affect your investment.**

There are significant risks related to 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. The ADSs, which are quoted and traded in U.S. dollars, may trade differently from the applicable Underlying Stocks. In recent years, the rates of exchange between the U.S. dollar and some other currencies have been highly volatile and this volatility may continue in the future. These risks generally depend on economic and political events over which we have no control. Fluctuations in any particular exchange rate that have occurred in the past are not necessarily indicative, however, of fluctuations that may occur during the term of the notes. Changes in the exchange rate between the U.S. dollar and a foreign currency may affect the U.S. dollar equivalent of the price of the applicable Underlying Stock on non-U.S. securities markets and, as a result, may affect the market price of the applicable ADS, which may consequently 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 government 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, the Stock Return for that Reference Stock will not be adjusted for changes in exchange rates that might affect that Reference Stock.**

The notes are denominated in U.S. dollars, and the amount payable on the notes at maturity will not be adjusted for changes in the exchange rate between the U.S. dollar and the foreign currency in which a non-U.S. equity security serving as a Reference Stock is denominated. Changes in exchange rates, however, may reflect changes in various non-U.S. economies that in turn may affect the applicable Stock Return. The amount we pay in respect of the notes on the maturity date will be determined solely in accordance with the procedures described in “Description of Notes — Payment at Maturity.”

**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 such 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, 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 decrease, which may adversely affect your payment at maturity or, if applicable, upon automatic call.

**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 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 depositary, 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 the amount you receive at maturity 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 such 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 "General Terms of Notes — Additional Reference Stock Provisions — B. 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 with 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. In the event 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 "General Terms of Notes — Additional Reference Stock Provisions — C. Delisting of a Reference Stock or Nationalization of a Reference Stock Issuer." You should read the section of this product supplement called "General Terms of Notes — Additional Reference Stock Provisions — C. 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 and the ADS depositary 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 its principal executive office 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, is 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 are 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 “General Terms of Notes — Additional Reference Stock Provisions — D. 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 diluting 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 “General Terms of Notes — Additional Reference Stock Provisions — A. 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, such 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 the public information provided on the issuer of a Reference Stock is accurate or complete.**

All disclosures contained in the relevant terms supplement regarding the issuer of a Reference Stock will be derived from publicly available documents and other publicly available information. We have not participated, and will not participate, in the preparation of such documents or made any due diligence inquiry with respect to the issuer of a Reference Stock in connection with the



offering of the notes. We do not make any representation that such publicly available documents or any other publicly available information regarding the issuer of a Reference Stock is accurate or complete, and are not responsible for public disclosure of information by the issuer of a Reference Stock, whether contained in filings with the SEC or otherwise. Furthermore, we 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 public filings of the issuer of a Reference Stock or the value of the Reference Stocks will have been publicly disclosed. Subsequent disclosure of any of those events or the disclosure of or failure to disclose material future events concerning the issuer of a Reference Stocks could affect the amount you will receive at maturity or, if applicable, upon automatic call and, therefore, the market value of the notes. Any prospective purchaser of the notes should undertake an independent investigation of the issuer of any relevant 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 such 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 financial 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 financial measures included in an Index may affect that Index, as a newly added security, commodity, futures contract or other asset or financial 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 related underlying supplement or the relevant terms supplement for additional information.

**For notes linked to an Equity Index, unless otherwise specified in the relevant terms supplement or any related underlying supplement, to our knowledge, we are not currently affiliated with any other company the equity securities of which are included in an Index.**

For notes linked to an Equity Index, unless otherwise specified in the relevant terms supplement or any related underlying supplement, to our knowledge, we are not currently affiliated with any issuers the equity securities of which are included in an Index. As a result, we will have no ability to control the actions of the issuers of those equity securities, including actions that could affect the value of the equity securities underlying an Index or your notes. Unless otherwise specified in the relevant terms supplement or any relevant underlying supplement, none of the money you pay us will go to any Index Sponsor or any of the issuers of the equity securities included in any Index, and none of those issuers will be involved in the offering of the notes in any way. Neither those issuers nor we will have any obligation to consider your interests as a holder of the notes in taking any corporate actions that might affect the value of your notes. See any related 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 we become affiliated with any issuer of equity securities that 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 such issuer that might affect the value of your notes.

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

For notes linked in whole or in part to a foreign Index, the notes will be subject to risks associated with foreign Indices. See “— Risks Relating to a Foreign Index or a Foreign 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 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 and the 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 financial measures underlying the Fund; substitutions of its Underlying Index, if applicable; and manner in which changes affecting an Underlying Index, if applicable, are reflected in the Fund, could affect the market price of the shares of such Fund and, therefore, affect the amount payable on the notes at maturity, if any, and the value of the notes before maturity. The 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 financial 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, the amount payable on the notes at maturity and the value of the notes before maturity.

### **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 NYSE Arca, Inc. (“**NYSE Arca**”) and a number of similar products have been traded on NYSE Arca or other 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 adversely affect the market prices of the shares of a Fund and, consequently, the value of the notes. See any applicable Fund description in the relevant terms supplement or any relevant 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 such Fund. See “General Terms of Notes — Additional Fund Provisions — A. 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 relevant 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 financial 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 financial 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 financial 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 the 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 financial measures of a Fund may be unavailable in the secondary market due to other extraordinary circumstances. Corporate actions with respect to any 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 NYSE Arca 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 directly in any Fund or any relevant Underlying Index or in the securities, commodities, futures contracts or other assets or financial measures held by any Fund or included in any relevant Underlying Index, and will not be the same as investing in a debt security with a payment at maturity linked to the performance of any relevant Underlying Index.

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

For notes linked in whole or in part to a foreign Fund, the notes will be subject to risks associated with foreign funds. See “— Risks Relating to a Foreign Index or a Foreign 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.

**For notes linked in whole or in part to a Fund that primarily invests in debt securities, the notes will be subject to risks associated with bond funds.**

For notes linked in whole or in part to a Fund that primarily invests in debt securities, the notes will be subject to risks associated with bond funds. See the relevant term sheet or any relevant underlying supplement for risk factors relating to any relevant Fund that holds debt securities.

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

**For notes linked in whole or in part to a foreign Index or a foreign 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 foreign Index or foreign Fund, the amount payable on the notes at maturity will not be adjusted for changes in exchange rates that might affect that foreign Index or foreign Fund.**

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

**For notes linked in whole or in part to a foreign Index or a foreign 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 foreign Index or foreign Fund, the notes will be subject to currency exchange risk.**

Because the prices of the non-U.S. securities underlying the applicable foreign Index or foreign Fund are converted into U.S. dollars for the purposes of calculating the value of that foreign Index or foreign 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 foreign Index or foreign Fund trade. An investor’s net exposure will depend on the extent to which such currencies strengthen or weaken against the U.S. dollar and the relative weight of the non-U.S. securities underlying that foreign Index or foreign Fund denominated in each applicable currency. If, taking into account the weighting, the U.S. dollar strengthens against those currencies, the value of that foreign Index or foreign Fund will be adversely affected and the payment at maturity of the notes may be reduced.

Of particular importance to potential currency exchange risk are:

- existing and expected rates of inflation;
- existing and expected interest rate levels;
- the balance of payments;
- political, civil or military unrest; 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 foreign Index or a foreign 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 foreign Index or foreign Fund, changes in the volatility of exchange rates and the correlation between those rates and the values of that foreign Index or foreign 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 foreign Index or foreign Fund are denominated refers to a foreign exchange spot rate that measures the relative values of two currencies — the particular currency in which an equity security composing that foreign Index or foreign Fund is denominated and the U.S. dollar. This exchange rate reflects the amount of the particular currency in which an equity security composing a foreign Index or foreign 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 equity 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 foreign Index or foreign Fund are denominated refers to the size and frequency of changes in that exchange rate.

Because the applicable foreign Index or foreign Fund is calculated, in part, by converting the closing prices of the non-U.S. securities underlying that foreign Index or foreign 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 foreign Index or foreign Fund are denominated and the value of that foreign Index or foreign Fund refers to the relationship between the percentage changes in that exchange rate and the percentage changes in the value of that foreign Index or foreign 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 foreign Index or foreign Fund are denominated and the percentage changes in the value of that foreign Index or foreign Fund could affect the value of the notes.

**For notes linked in whole or in part to a foreign Index or a foreign 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, the securities that compose a foreign Index or foreign 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, 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 such 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 foreign Index or foreign Fund composed of securities traded in one or more emerging market countries.

Some or all of these factors may influence the Index closing level for a foreign Index or the closing price for a foreign 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 an Index or the price of a Fund may decrease, which may adversely affect your payment at maturity or, if applicable, upon automatic call.

### **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 lead to the early acceleration of your 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 Commodity Futures Trading Commission, commonly referred to as the "CFTC," and the exchanges on which such 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 fluctuations in futures contract prices that may occur during a single five-minute trading period. These limits could adversely affect the market prices of relevant futures contracts and forward contracts. The regulation of commodity transactions in the U.S. is subject to ongoing modification by government 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 Act, which was enacted on July 21, 2010, requires the CFTC to establish limits on the amount of positions, other than bona fide hedge positions, that may be held by any person in futures contracts, options on futures contracts and other related derivatives, such as swaps, that are economically equivalent to those contracts. The Dodd-Frank Act also requires the CFTC to establish limits for each month, including related hedge exemption positions, on the aggregate number or amount of positions in contracts based upon the same underlying commodity, as defined by the CFTC, that may be held by any person, including any group or class of traders. In addition, designated contract markets and swap execution facilities, as defined in the Dodd-Frank Act, are required 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.

Pursuant to the Dodd-Frank Act requirements, on October 18, 2011 the CFTC adopted final rules to establish position limits that will apply to any one of 28 futures and options contracts and that are traded on U.S. futures exchanges and to futures, options and swaps that are economically equivalent to those contracts, as described in the rules. The limits will apply to a person's combined position across those related products. The limits cover 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 rules also narrow the existing exemption for hedge positions. The rules may interfere with our ability to enter into or maintain hedge positions to hedge our obligations under 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, in our sole and absolute discretion, accelerate your notes. See "— Risks Relating to the Notes Generally — If a commodity hedging disruption event occurs, we may accelerate your notes" above.

**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.

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

The net proceeds to be received by us from the sale of the notes will not be used to purchase or sell any commodity futures contracts or options on futures contracts for your benefit. An investment in the notes thus neither constitutes an investment in futures contracts, options on futures contracts nor 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 be registered with and regulated by the CFTC as a commodity pool operator, or qualify for an exemption from the registration requirement. Because the notes will not be interests in a commodity pool, the notes will not be regulated by the CFTC as a commodity pool, we will not be registered with the CFTC as a commodity pool operator and you will not benefit from the CFTC's or any non-U.S. regulatory authority's regulatory protections afforded to persons who invest in regulated commodity pools.

**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 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 adversely affect the level of any Commodity Index or the price of any Commodity Fund and, therefore, the value of your notes.

**An increase 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 increases the amount of collateral required to be posted to hold positions in commodity futures contracts underlying any Commodity Index or Commodity Fund, market participants who are unwilling or unable to post additional collateral may liquidate their positions, which may cause the level of that Commodity Index or the price of that Commodity Fund, as applicable, to decline significantly. As a result, the value of the notes may be adversely affected.

**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 aberrational 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 your payment at maturity or, if applicable, upon automatic call.



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

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

Some 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 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 such futures contracts.

**Higher 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 the payment at maturity or, if applicable, upon automatic call, if any, on your 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 these 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.” Moreover, many commodities have historically exhibited contango markets. The presence of contango in the commodity markets could adversely affect the level of a Commodity Index or the price of a Commodity Fund and, accordingly, the amount payable at maturity.

**Prices for the physical commodities upon which the futures contracts underlying a Commodity Index or a Commodity Fund are based may change unpredictably and affect the value of the notes in unanticipated ways.**

A decrease 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. The prices of such 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 political and economic events, changes in interest and exchange rates, speculation and trading activities in commodities and related contracts, general weather conditions, and trade, fiscal, monetary and exchange control policies. Many commodities are also highly cyclical. These factors, some of which are specific to the market for each such commodity, as discussed below, may cause the value of the different commodities upon which the futures contracts underlying a Commodity Index or a Commodity Fund are based, as well as the futures contracts themselves, to move in inconsistent directions at inconsistent rates. This, in turn, will affect the value of the notes linked to a Commodity Index or a Commodity Fund. It is not possible to predict the aggregate effect of all or any combination of these factors. A Commodity Index or a Commodity Fund each

provide 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. The relevant terms supplement or any relevant 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 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 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 subject to dislocation than 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 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, general weather conditions, 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 and platinum, 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. Gold prices in particular are subject to volatile price movements over short periods of time and are affected by numerous factors, including macroeconomic factors, such as the structure of and confidence in the global monetary system, expectations regarding the future rate of inflation, the relative strength of, and confidence in, the U.S. dollar (the currency in which the price of gold is usually quoted), interest rates, gold borrowing and lending rates and global or regional economic, financial, political, regulatory, judicial or other events. Gold prices may be affected by industry factors, such as industrial and jewelry demand as well as lending, sales and purchases of gold by the official sector, including central banks and other governmental agencies and multilateral institutions that hold gold. Additionally, gold prices may be affected by levels of gold production, production costs and short-term changes in supply and demand due to trading activities in the gold market.

Silver prices are also subject to fluctuation and may be affected by numerous factors. These include general economic trends, technical developments, substitution issues and regulation, as well as specific factors including industrial and jewelry demand, expectations with respect to the rate of inflation, the relative strength of the U.S. dollar (the currency in which the price of silver is generally quoted) and other currencies, interest rates, central bank sales, forward sales by producers, global or regional political or economic events and production costs and disruptions in major silver producing countries such as the United Mexican States and the Republic of Peru. The demand for and supply of silver affect silver prices, but not necessarily in the same manner as supply and demand affect the prices of other commodities. The supply of silver consists of a combination of new mine production and existing stocks of bullion and fabricated silver held by governments, public and private financial institutions, industrial organizations and private individuals. In addition, the price of silver has on occasion been subject to very rapid short-term changes due to speculative activities. From time-to-time, above-ground inventories of silver may also influence the silver commodities market.

Platinum prices are primarily affected by the global demand for and supply of platinum. However, since the platinum supply is very limited, any disruptions in platinum supply tend to have an exaggerated effect on the price of platinum. Key factors that may influence prices are the policies in or political stability of the most important producing countries, in particular, Russia and South Africa (which together account for over 90% of production), the size and availability of the Russian platinum stockpiles and the economic situation of the main consuming countries. Platinum is used in a variety of industries, primarily the automotive industry. Demand for platinum from the automotive industry, which uses platinum as a catalytic converter, accounts for approximately 80% of the industrial use of platinum. Platinum is also used in the chemical industry, the electronics industry and the dental industry. The primary non-industrial use of platinum is jewelry, which accounts for approximately 40% of the overall demand for platinum.

**A separate underlying supplement or the relevant terms supplement may provide additional risk factors relating to any Component 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 original issue price of the notes includes each agent's commissions (as shown on the cover page of the relevant terms supplement) paid with respect to the notes and the estimated cost of hedging our obligations under the notes. We may have hedged our obligations under the notes through certain affiliates or unaffiliated counterparties.

If so specified in the relevant terms supplement, each agent's commission will include the projected profit that our affiliates expect to realize in consideration for assuming the risks inherent in hedging our obligations under the notes. If the relevant terms supplement does not specify that such projected profit is included in each agent's commission, the original issue price of the notes will include the reimbursement of certain issuance costs and the estimated cost of hedging our obligations under the notes. Under these circumstances, the estimated cost of hedging will include the projected profit, which will not exceed \$50.00 per \$1,000 principal amount note. 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 could result in a loss. See also "Use of Proceeds" in the accompanying prospectus.

On or prior to the date of the relevant terms supplement, we, through our affiliates or others, expect to hedge some or all of our anticipated exposure in connection with the notes. In addition, from time to time after we issue the notes, we, through our affiliates or others, may enter into additional hedging transactions and close out or unwind those we have entered into, in connection with the notes and possibly in connection with our or our affiliates' exposure to one or more Reference Stocks, Indices or Funds or the securities, commodities, futures contracts or other assets or financial measures underlying one or more Indices or Funds. 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 financial measures underlying one or more Indices or Funds, 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 financial measures underlying one or more Indices or Funds. From time to time, prior to maturity of the notes, we may pursue a dynamic hedging strategy that may involve taking long or short positions in the instruments described above.

While we cannot predict an outcome, any of these hedging activities or other trading activities of ours could potentially increase the Underlying Value on the pricing date or any Initial Averaging Dates, as applicable, and/or decrease the Underlying Value on any other Determination Date, which could adversely affect your payment at maturity or, if applicable, upon automatic call or the amount of interest you may receive over the term of the notes. 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 the Notes Generally — 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 financial measures underlying one or more Indices or Funds. No note holder will have any rights or interest in our hedging activity or any positions that we or any unaffiliated counterparties may take in connection with our hedging activity.

## THE COMPONENTS

### 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. We take no responsibility for the accuracy or completeness of that information.

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 such 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. We will derive any and all disclosures contained in the relevant terms supplement regarding the issuer of any Reference Stock from the publicly available documents described above. In connection with the offering of the notes, we have not participated, and will not participate, in the preparation of such documents or made any due diligence inquiry with respect to the issuer of any Reference Stock. We do not make any representation that such publicly available documents are, or any other publicly available information regarding the issuer of any Reference Stock is, accurate or complete. Furthermore, we cannot give any assurance that all events occurring prior to the date hereof (including events that would affect the accuracy or completeness of the publicly available documents described in the preceding paragraph) that would affect the closing prices of any Reference Stock (and therefore any Final Stock Price) 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 payment at maturity with respect to the notes.**

### Indices and Funds

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

### Conflicts of Interest

See the relevant terms supplement, any relevant underlying supplement and "Risk Factors — Risks Relating to the Notes Generally — 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" for information about economic interests with respect to any Component that we or our affiliates make may have that are adverse to your interests.

### Historical performance of the Components

We will provide historical price or level information on any Component in the relevant terms supplement. You should not take any of those historical prices or levels as an indication of future performance. **Neither we nor any of our affiliates makes any representation to you as to the performance of any Component.**

## GENERAL TERMS OF NOTES

### Calculation Agent

J.P. Morgan Securities LLC, one of our affiliates, will act as the calculation agent. The calculation agent will determine, among other things, any Initial Stock Price (or Stock Strike Price, if applicable), any Initial Index Level (or Index Strike Level, if applicable), any Initial Share Price (or Share Strike Price, if applicable), the Starting Basket Level (or Basket Strike Level, if applicable), if applicable, any Final Stock Price, any Ending Index Level, any Final Share Price, the Ending Basket Level, if applicable, any Stock Return, any Index Return, any Fund Return, the Basket Return, if applicable, any Stock Adjustment Factor, any Share Adjustment Factor and anti-dilution adjustments, any closing price of any Reference Stock, Index closing level, closing price of any Fund or Basket Closing Level on each Determination Date and the payment, if any, on any Interest Payment Date and at maturity or, if applicable, upon automatic call, as well as whether a Knock-Out Event has occurred, if applicable. In addition, the calculation agent will determine, among other things:

- whether a market disruption event has occurred;
- adjustments to any Stock Adjustment Factor or Share Adjustment Factor and any adjustments as the result of a Reorganization Event;
- whether to select a Successor Reference Stock and, if applicable, which common stock to select if an ADS serving as a Reference Stock is delisted or is no longer admitted to trading on a U.S. securities exchange 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;
- whether to select a Successor Foreign Reference Stock if a non-U.S. equity security (other than an ADS) serving as the Reference Stock is delisted or is no longer admitted to trading on a securities exchange or if such Reference Stock is nationalized;
- whether an Index has been discontinued, whether the method of calculating an Index has changed in a material respect or whether an Index has been otherwise modified so that it does not, in the opinion of the calculation agent, fairly represent the level of that Index had those changes or modifications not been made and, if applicable, which index to select as a successor index;
- whether a Fund has been delisted, liquidated or otherwise terminated, a Fund or its Underlying Index, if applicable, has been changed in a material respect or a Fund or its Underlying Index, if applicable, has been otherwise modified so that it does not, in the opinion of the calculation agent, fairly represent the price of that Fund had those changes or modifications not been made and, if applicable, which exchange-traded fund to select as a successor fund; and
- the amount payable to you in the event of an early acceleration of the notes due to a commodity hedging disruption event.

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. 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 provide written notice to the trustee at its New York office, on which notice the trustee may conclusively rely, of the amount, if any, to be paid at maturity or upon automatic call, if applicable, and on each Interest Payment Date, if applicable, on or prior to 11:00 a.m., New York City time, on the business day preceding the maturity date, the applicable Call Settlement Date or such Interest Payment Date, as applicable.

All calculations with respect to any Initial Stock Price (or Stock Strike Level, if applicable), any Initial Index Level (or Index Strike Level, if applicable), any Initial Share Price (or Share Strike Level, if applicable), the Starting Basket Level (or Basket Strike Level, if applicable), if applicable, any Final Stock Price, any Ending Index Level, any Final Share Price, the Ending Basket Level, if applicable, any Stock Return, any Index Return, any Fund Return, the Basket Return, if applicable, any closing price of any Reference Stock, any Index closing level, any closing price of any Fund and any Basket Closing Level 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); all dollar amounts related to determination of any payment on the notes per \$1,000 principal amount 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 paid, if any, on the aggregate principal amount of notes per holder will be rounded to the nearest cent, with one-half cent rounded upward.

## **Market Disruption Events**

Certain events may prevent the calculation agent from determining any Component Value on any Determination Date, determining whether a Knock-Out Event has occurred or calculating the amount, if any, that we will pay you at maturity or, if applicable, upon automatic call or on any Interest Payment Date. These events may include disruptions or suspensions of trading on the markets as a whole.

### ***A. 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 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 in 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.

#### ***B. 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 relevant 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 (as defined below) 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 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) 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 the 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 the relevant successor index) has occurred, unless otherwise specified in the relevant terms supplement:

- a limitation on the hours or number of days of trading will not constitute a market disruption event if it results from an announced change in the regular business hours of the relevant exchange, or the primary exchange or market for trading in futures or options contracts related to 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 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.

### ***C. 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 relevant underlying supplement, means:

- a material limitation, suspension, or disruption of trading in any commodity futures contract included in that Commodity Index (or that successor index) that results in failure by the relevant exchange on which that commodity futures contract is traded to report the official settlement price for that commodity futures contract;

- the official settlement price of any commodity futures contract included in that Commodity Index (or that successor index) is a “limit price,” meaning that the official settlement price of that commodity futures contract for a day has increased or decreased from the previous day’s official settlement price by the maximum amount permitted under the rules of the relevant exchange on which that commodity futures contract is traded; or
- a failure by the relevant exchange or other price source to announce or publish the official settlement price of any commodity futures contract included in that Commodity 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.

#### ***D. 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 relevant 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 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 half-hour 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 the shares of that Fund (or that successor fund), if available, during the half-hour period preceding the close of the principal trading session in that exchange or market;
- if applicable, the occurrence or existence of a suspension, absence or material limitation of trading of securities, commodities, futures contracts or other assets or financial measures then constituting 20% or more of the level of the applicable Underlying Index on the relevant exchanges for those securities for more than two hours of trading during, or during the 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) for more than two hours of trading during, or during the 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 the relevant successor fund) exists at any time, unless otherwise specified in the relevant terms supplement, if trading in a security, commodity, futures contract or other asset or financial 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 financial measure to the level of the applicable Underlying Index, if any, will be based on a comparison of (x) the portion of the level of the applicable Underlying Index, if any, attributable to that security, commodity, futures contract or other asset or financial measure relative to (y) 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 the 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 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 that 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.

## **Additional Reference Stock Provisions**

### ***A. 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 diluting 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 diluting 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 such taxes under an applicable income tax treaty, if available.

If an ADS is serving as a Reference Stock, no adjustment to the applicable ADS price or the applicable Stock Adjustment Factor, including those described below, will be made if (1) holders of those ADSs are not eligible to participate in any of the transactions described below or (2) (and to the extent that) the calculation agent determines in its sole discretion that the issuer or the depository for those ADSs has adjusted the number of shares of the applicable Underlying Stock represented by each ADS so that the ADS price 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 herein (which may include ignoring such provision, if appropriate) will be made to reflect that change.

JPMS, as calculation agent, will be solely responsible for the determination and calculation of any adjustments to the Stock Adjustment Factors 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.

With respect to a Reference Stock, anti-dilution adjustments will be calculated as follows:

*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.

*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 one share 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 closing price of the distributed property on that ex-dividend date, as determined by the calculation agent.

“**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 one share 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.

#### *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 (a) the date the exercise price of those rights or warrants is determined and (b) the ex-dividend date, then the applicable Stock Adjustment Factor will be adjusted on the ex-dividend date for that issuance so that the new Stock Adjustment Factor will equal the prior Stock Adjustment Factor for that Reference Stock *plus* the product of:

- the prior Stock Adjustment Factor for that Reference Stock, and
- 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 a value of the Reference Stock equal to the closing price of one share of the applicable Reference Stock on the trading day immediately preceding the ex-dividend date for that issuance *minus* the cash value of the warrants or rights.

The cash value of the warrants or rights will equal the closing price of one share of the applicable Reference Stock on the ex-dividend date *minus* the exercise price per share of those rights or warrants.

“**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.



## ***B. Reorganization Events***

If, prior to 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 Initial Stock Price (or Stock Strike Price, if applicable), the closing price and, if applicable, the trading price 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 Initial Stock Price (or Stock Strike Price, if applicable), the closing price and the trading price of that Reference Stock as the calculation agent determines in good faith to be appropriate to account for that reorganization event. 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 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 Initial Stock Price (or Stock Strike Price, if applicable), the closing price and, if applicable, the trading price 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 to the Initial Stock Price (or Stock Strike Price, if applicable) for a Reference Stock resulting from a Reorganization Event upon written request by any investor in the notes.

### ***The Exchange Property***

"**Exchange Property**," with respect to a Reference Stock that is subject to a Reorganization Event, will consist of any 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, the 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, 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, Exchange Property will be deemed to include the kind and amount of cash and other property received by offerees who elect to receive cash.

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 Amex LLC or The NASDAQ Stock Market.

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

On any relevant day, the "**closing price**" or the "**trading price**" of the Exchange Property means the sum of:

- (a) the product of:
  - (i) the closing price or trading price, respectively, of one share of any Exchange Traded Securities composing the Exchange Property on that day; and
  - (ii) the quantity of applicable Exchange Traded Securities received for each share of the applicable Reference Stock; and
- (b) 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.

*Adjustment to the Initial Stock Price (or Stock Strike Price, if applicable) 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, the Initial Stock Price (or Stock Strike Price, if applicable) of that Reference Stock will equal the Initial Stock Price (or Stock Strike Price, if applicable) of that Reference Stock as of the trading day immediately preceding that effective date, subject to adjustment as described below:

- (a) with respect to each Exchange Traded Security composing the Exchange Property, the portion of the Initial Stock Price (or Stock Strike Price, if applicable) equal to the Initial Stock Price (or Stock Strike Price, if applicable), multiplied by:
  - (i) the closing price of one share of that Exchange Traded Security on the effective date of that Reorganization Event multiplied by the quantity of applicable Exchange Traded Security received for each share of the applicable Reference Stock, divided by

- (ii) the closing price of the Exchange Property on the effective date of that Reorganization Event,

will be subject to the anti-dilution adjustments set forth in this product supplement with respect to that Exchange Traded Security and the stock adjustment factor with respect to that portion of the Initial Stock Price (or Stock Strike Price, if applicable) will be set equal to 1.0 as of that effective date; and

- (b) no further adjustments as a result of anti-dilution adjustments of the type set forth in this product supplement will be made to the remaining portion of the Initial Stock Price (or Stock Strike Price, if applicable).

#### *Adjustment to the Trading Price and Closing Price 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 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 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.

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

If a non-U.S. equity security serving as a Reference Stock (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 a non-U.S. equity security serving as a 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 of that Original Foreign Reference Stock on the trading day immediately prior to the Change Date to be the closing price and the trading price of that Original Foreign Reference Stock on each day and (ii) deem the Stock Adjustment Factor of that Original Foreign Reference Stock on the trading day immediately prior to the Change Date to be Stock Adjustment Factor of that Original Foreign Reference Stock on each day.

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 be deemed to 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 Stock Price (or Stock Strike Price, if applicable) for that Successor Foreign Reference Stock will be equal to the Initial Stock Price (or Stock Strike Price, if applicable) of the Original Foreign Reference Stock as of the trading day immediately preceding the Change Date, divided by the Stock Adjustment Factor for that Successor Foreign Reference Stock 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 **"— A. 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 “— A. Anti-Dilution Adjustments.”

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

#### ***D. 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 be deemed to 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 Stock Price (or Stock Strike Price, if applicable) for that Successor Reference Stock will be equal to the Initial Stock Price (or Stock Strike Price, if applicable) of the Original Reference Stock as of the trading day immediately preceding the ADS Change Date, *divided by* the Stock Adjustment Factor for that Successor Reference Stock 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 “— A. 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, 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; *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 “— A. Anti-Dilution Adjustments.”

The calculation agent will provide information as to any Successor Reference Stock (including its Initial Stock Price (or Stock Strike Price, 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 “— D. 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 “— A. Anti-Dilution Adjustments.” On and after the ADS Change Date, the closing price of the applicable Reference Stock on any relevant day and the trading price at any time on any relevant day will be expressed in U.S. dollars by converting the closing price or trading price, as applicable, 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 foreign 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.

## **Additional Index Provisions**

### ***A. Consequences of a Commodity Hedging Disruption Event***

Unless otherwise specified in the relevant terms supplement or any relevant 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 accelerate the payment on the notes by providing, or causing the calculation agent to provide, written notice of our election to exercise this right to the trustee at its New York office, on which notice the trustee may conclusively rely, as promptly as possible and in no event later than the business day immediately following the day on which the commodity hedging disruption event occurred. The amount due and payable per \$1,000 principal amount note upon that early acceleration will be determined on the date on which we deliver notice of the acceleration by the calculation agent in good faith and in a commercially reasonable manner and will be payable on the fifth business day following the day the calculation agent delivers notice of the acceleration. For the avoidance of doubt, under these circumstances, the maturity date will be accelerated to the fifth business day following the delivery by the calculation agent of the notice of acceleration. We will provide, 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 of the cash amount due with respect to the notes as promptly as possible and in no event later than two business days prior to the date on which that payment is due. For the avoidance of doubt, the determination set forth above is only applicable to the amount due with respect to acceleration as a result of a commodity hedging disruption event.

A “**commodity hedging disruption event**,” unless otherwise specified in the relevant terms supplement or any relevant 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 lead to the early acceleration of your notes” for more information.

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

Unless otherwise specified in the relevant terms supplement or any relevant 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 herein as a “**successor index**”), then (a) the Index closing level of that Index on any Determination Date or any other relevant date on which the Index 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 Index level, if applicable, of that Index at any time on any Determination Date or any other relevant date on which the Index level of that Index is to be determined will be determined by reference to the level of that successor index as 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 the holders of the notes.

Unless otherwise specified in the relevant terms supplement or any relevant 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 Index 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 such 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 Index closing level for that Index for that Determination Date or that other relevant date on that date and (b) the Index level, if applicable, at any time on any relevant day will be deemed to equal the Index closing level on that day, as determined by the calculation agent. Unless otherwise specified in the relevant terms supplement or any relevant underlying supplement, the Index closing level of that Index will be computed by the calculation agent 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:

- (a) with respect to an Equity Index, 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; or
- (b) with respect to a Commodity Index, the settlement price or fixing level, as applicable (or, if trading in the relevant commodities and/or commodity futures contracts has been materially suspended or materially limited, the calculation agent’s good faith estimate of the settlement price or fixing level, as applicable, that would have prevailed but for that suspension or limitation) at the close of the principal trading session on that date of each

commodity and/or commodity futures contract most recently composing that Index or successor index, as applicable, as well as any commodity futures contract required to roll any expiring commodity 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 New York City on each date on which the Index closing level or Index 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 Index closing level or Index 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).

## **Additional Fund Provisions**

### ***A. Anti-Dilution Adjustments***

The Share Adjustment Factor for a Fund (or the 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 the 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 the 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 the 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 the relevant successor fund) on any relevant day during the term of the notes.

With respect to a Fund (or the relevant successor fund), anti-dilution adjustments will be calculated as follows:

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

If the shares of a Fund (or the 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 the 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 the 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 one share 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 the 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 closing price of the distributed property on that ex-dividend date.

“**Ex-dividend date**,” with respect to a dividend or other distribution for a Fund (or the 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 the 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 one share 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 the 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 the 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 the 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).

The calculation agent will be solely responsible for the determination and calculation of any adjustments to the Share Adjustment Factor 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 the relevant successor fund) upon written request by any investor in the notes.

### ***B. 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 herein)) 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 herein 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 the holders 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 New York City 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.

### **Events of Default**

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

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

Unless otherwise specified in the relevant terms supplement, in case an event of default with respect to the notes shall have occurred and be continuing, if the notes do not include an automatic call feature, the amount declared due and payable per \$1,000 principal amount 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 \$1,000 principal amount note as described in the

relevant terms supplement under the caption "Payment at Maturity," calculated as if the date of acceleration were (a) the final Determination Date, (b) if applicable, the final day on which a Knock-Out Event may occur and (c) the Final Disrupted Determination Date, which amount will include any accrued and unpaid interest on the notes.

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, if the notes include an automatic call feature, the amount declared due and payable per \$1,000 principal amount note upon any acceleration of the notes will be determined by the calculation agent and will be (1) if (a) the date of acceleration is a day on which the notes may be called and an automatic call would have been triggered on the date of acceleration or (b) the date of acceleration is not a day on which the notes may be called, but an automatic call would have been triggered on the date of acceleration if the date of acceleration were the next succeeding date on which the notes may be called, an amount in cash equal to the amount payable upon an automatic call per \$1,000 principal amount note as described in the relevant terms supplement under the caption "Automatic Call," calculated as if the date of acceleration were that date on which the notes may be called, or (2) in all other circumstances, an amount in cash equal to the amount payable at maturity per \$1,000 principal amount note as described in the relevant terms supplement under the caption "Payment at Maturity," calculated as if the date of acceleration were (i) the final Determination Date, (ii) if applicable, the final day on which a Knock-Out Event may occur and (iii) the Final Disrupted Determination Date.

If the Ending Underlying Value 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.

Unless otherwise specified in the relevant terms supplement, upon any acceleration of the notes, if the notes pay interest, any interest will be calculated on the basis of a 360-day year of twelve 30-day months and the actual number of days elapsed from and including the previous Interest Payment Date for which interest was paid.

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 of the cash amount due with respect to the notes as promptly as possible and in no event later than two business days after the date of acceleration.

## **Modification**

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

## **Defeasance**

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

## **Listing**

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

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

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

## MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES

The following is a discussion of the material U.S. federal income tax consequences of the ownership and disposition of the notes. It applies to you only if you are an initial holder 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 all aspects of U.S. federal income and estate taxation that may be relevant to you in light of your particular circumstances or if you are a holder 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" or conversion transaction, or who has entered into a "constructive sale" with respect to a note;
- a U.S. Holder (as defined below) whose functional currency is not the U.S. dollar;
- a trader in securities who elects to apply a mark-to-market method of tax accounting; or
- a partnership or other entity classified as a partnership for U.S. federal income tax purposes.

This 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 of this product supplement, may affect the tax consequences described herein. The effects of any applicable state, local or foreign tax laws are not discussed. **You should consult your tax adviser concerning the application of U.S. federal income and estate tax laws to your particular situation (including the possibility of alternative treatments of the notes), as well as any tax consequences arising under the laws of any state, local or foreign jurisdictions.**

### Tax Treatment of the Notes

The tax consequences of an investment in the notes are unclear. There is no direct legal authority as to the proper U.S. federal income tax treatment of the notes, and we do not intend to request a ruling from the IRS regarding the notes. Unless otherwise indicated in the relevant terms supplement, insofar as we have tax reporting responsibilities with respect to your notes, we intend to treat them as "open transactions" that are not debt instruments for U.S. federal income tax purposes.

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 of the notes described above, we generally expect that counsel will be able to opine that the following are the material tax consequences of owning and disposing of the notes if the treatment of the notes described above is respected, as well as material tax consequences that may apply if it is not respected. The following discussion assumes this treatment is respected, except where otherwise indicated. The relevant terms supplement may indicate other issues applicable to a particular offering of notes.

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

### **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, or other entity taxable as 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.

*Tax Treatment as Open Transactions That Are Not Debt Instruments.* Under this treatment, you should not recognize taxable income or loss over the term of the notes prior to maturity, other than pursuant to a sale, exchange or redemption. Upon a sale or exchange of a note (including upon an automatic call or redemption at maturity), you should recognize capital gain or loss equal to the difference between the amount realized on the sale or exchange and your tax basis in the note, which should equal the amount you paid to acquire the note. Subject to the discussion below concerning the potential application of the “constructive ownership” rules under Section 1260 of the Code, this gain or loss should be long-term capital gain or loss if you have held the note for more than one year at that time. The deductibility of capital losses is subject to limitations. Depending on the nature of the Underlying, the IRS might assert that a “deemed” taxable exchange has occurred under certain circumstances. The relevant terms supplement may contain additional disclosure regarding this risk.

*Potential Application of the Constructive Ownership Rules.* If a “pass-thru entity” (such as a Fund) is an underlying asset or a basket component, the notes could be treated as “constructive ownership transactions” within the meaning of Section 1260 of the Code, in which case the tax consequences of a sale or exchange of the notes could be affected materially and adversely. If a note were treated in whole or in part as a constructive ownership transaction, all or a portion of any long-term capital gain you would otherwise recognize on a sale or exchange of the note would be recharacterized as ordinary income to the extent such gain exceeded the “net underlying long-term capital gain.” Under Section 1260, the net underlying long-term capital gain is generally the net long-term capital gain a taxpayer would have recognized by investing in the underlying pass-thru entity at the inception of the constructive ownership transaction and selling that investment on the date the constructive ownership transaction is closed (*i.e.*, at maturity or earlier disposition). If Section 1260 were to apply to a note, it is unclear how the net underlying long-term capital gain would be computed. It is possible, for instance, where a Fund is the sole underlying asset, that the net underlying long-term capital gain could equal the amount of long-term capital gain you would have recognized if on the issue date you had invested the amount you paid to acquire the note in shares of the Fund and sold those shares for their fair market value on the date your note is sold or exchanged. Unless otherwise established by clear and convincing evidence, the net underlying long-term capital gain is treated as zero. Any long-term capital gain recharacterized as ordinary income under Section 1260 would be treated as accruing at a constant rate over the period you held the note, and you would be subject to an interest charge in respect of the deemed tax liability on the income treated as accruing in prior tax years. Unless otherwise indicated in the relevant terms supplement, due to the lack of governing authority and the fact-sensitive nature of the analysis under Section 1260, we do not expect that counsel would be able to opine as to whether or how these rules would apply to your notes. You should consult your tax adviser regarding the potential application of the constructive ownership rules.

*Uncertainties Regarding Tax Treatment as Open Transactions That Are Not Debt Instruments.* If the notes are treated as open transactions that are not debt instruments, due to the lack of controlling authority there remain significant additional uncertainties regarding the tax consequences of your ownership and disposition of the notes. For instance, you might be required to include amounts in income during the term of your notes and/or to treat all or a portion of the gain or loss on the sale or exchange of your notes as ordinary income or loss or as short-term capital gain or loss, without regard to how long you held your notes. In addition, in 2007 Treasury and the IRS released a notice requesting comments on the U.S. federal income tax treatment of “prepaid forward contracts” and similar instruments, which may include the notes. The notice focuses in particular on whether to require holders of these instruments to accrue income over the term of their investment. It also asks for comments on a number of related topics, including the character of income or loss with respect to these instruments; the relevance of factors such as the nature of the underlying property to which the instruments are linked; and whether these instruments are or should be subject to the “constructive ownership” regime described above. While the notice requests comments on appropriate transition rules and effective dates, any Treasury regulations or other guidance promulgated after consideration of these issues could materially and adversely affect the tax consequences of an investment in the notes, possibly with retroactive effect.

*Tax Consequences if Treated as Debt Instruments.* If the notes are treated as debt instruments, your tax consequences will be governed by Treasury regulations relating to the taxation of “contingent payment debt instruments” if the term of the notes from issue to maturity (including the last possible date that the notes could be outstanding) is more than one year. In this event, regardless of whether you are an accrual-method or cash-method taxpayer, (i) in each year that you hold your notes, you will be required to accrue into income original issue discount on your notes at our “comparable yield” for similar noncontingent debt, determined at the time of the issuance of the notes (even though you will not receive any cash with respect to the notes prior to maturity) and (ii) any income recognized upon a sale or exchange of your notes generally will be treated as interest income. Additionally, if you recognize a loss above certain thresholds, you might be required to file a disclosure statement with the IRS.

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

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

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

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

If you are a Non-U.S. Holder of a note and if the treatment of the notes as “open transactions” that are not debt instruments is respected, any income or gain from the note should not be subject to U.S. federal income or withholding tax unless it is effectively connected with your conduct of a U.S. trade or business. However, among the issues addressed in the notice described above in “—Tax Consequences to U.S. Holders—Uncertainties Regarding Tax Treatment as Open Transactions That Are Not Debt Instruments” is the degree, if any, to which income with respect to instruments described therein, which may include the notes, should be subject to U.S. withholding tax. Any Treasury regulations or other guidance promulgated after consideration of these issues could materially and adversely affect the withholding tax consequences of an investment in the notes, possibly with retroactive effect.



If the notes are treated as debt instruments, any income or gain from a note will be exempt from U.S. federal income tax (including withholding tax) if you provide a properly completed IRS Form W-8BEN and these amounts are not effectively connected with your conduct of a U.S. trade or business.

If you are engaged in a U.S. trade or business, and if income or gain from a note is effectively connected with your conduct of that trade or business, although exempt from the withholding tax discussed above, you generally will be taxed in the same manner as a U.S. Holder. You will not be subject to withholding 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 the ownership and disposition of notes, including the possible imposition of a 30% branch profits tax if you are a corporation.

### ***Recent Legislation***

Recent legislation generally imposes a withholding tax of 30% on payments to certain foreign entities (including financial intermediaries) with respect to certain financial instruments issued after March 18, 2012, unless various U.S. information reporting and due diligence requirements (that are in addition to, and potentially significantly more onerous than, the requirement to deliver an IRS Form W-8BEN) have been satisfied. Pursuant to published guidance from Treasury and the IRS, this legislation will apply to payments of interest made after December 31, 2013 and to payments of gross proceeds of the sales of certain financial instruments made after December 31, 2014. Accordingly, if the notes are treated as debt instruments, as described above in “—Tax Consequences to U.S. Holders—Tax Consequences if Treated as Debt Instruments,” these rules will apply to sales or exchanges after December 31, 2014 of notes issued after March 18, 2012.

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

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

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

You may be subject to information reporting. 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.

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

## PLAN OF DISTRIBUTION (CONFLICTS OF INTEREST)

Under the terms and subject to the conditions contained in the Master Agency Agreement entered into between JPMorgan Chase & Co. and J.P. Morgan Securities LLC, as agent (an “**Agent**” or “**JPMS**”), and certain other agents that 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 the Agent received, a commission as set forth in the relevant terms supplement. An Agent will allow a concession to other dealers, or we may pay other fees, in the amount set forth on the cover page of the relevant terms supplement.

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

Our affiliates, including JPMS, may use this product supplement no. 4-I, any related underlying supplement and the accompanying 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 such offer or sale; accordingly, the Agents or a dealer may change the public offering price, concession and discount after the offering has been completed.

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. 4-I, any related underlying supplement or the accompanying prospectus supplement, prospectus or terms supplement, other than in the United States, where action for that purpose is required. No offers, sales or deliveries of the notes, or distribution of this product supplement no. 4-I, any related underlying supplement or the accompanying prospectus supplement, prospectus or terms supplement or any other offering material relating to the notes, may be made in or from any jurisdiction except in circumstances which will result in compliance with any applicable laws and regulations and will not impose any obligations on us, the Agents or any dealer.

Each Agent has represented and agreed 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**

We own, directly or indirectly, all of the outstanding equity securities of JPMS. The net proceeds received from the sale of the notes will be used, in part, by JPMS or 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 seek offers to buy, the notes only in jurisdictions where offers and sales are permitted. None of the accompanying prospectus supplement and prospectus, this product supplement no. 4-I, any related underlying supplement and the terms supplement (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. 17,811, as amended (the "Argentine Public Offering Law").

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

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

## **The Bahamas**

The notes will not be offered or sold in or into The Bahamas except in circumstances that do not constitute a “public offering” according to the Securities Industry Act, 1999. The offer of the notes, directly or indirectly, in or from within The Bahamas may only be made by an entity or person who is licensed as a Broker Dealer by the Securities Commission of The Bahamas. Persons deemed “resident” in The Bahamas pursuant to the Exchange Control Regulations, 1956 must receive the prior approval of the Central Bank of The Bahamas prior to accepting an offer to purchase any notes.

## **Bermuda**

The Disclosure Documents have not been and will not be registered or filed with any regulatory authority in Bermuda. The offering of the notes pursuant to the Disclosure Documents to persons resident in Bermuda is not prohibited, *provided* we are not thereby carrying on business in Bermuda.

## **Brazil**

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

## **British Virgin Islands**

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

## **Cayman Islands**

The Disclosure Documents and the notes have not been and will not be registered under the laws and regulations of the Cayman Islands, nor has any regulatory authority in the Cayman Islands passed comment upon or approved the accuracy or adequacy of the Disclosure Documents. The notes will not be offered or sold, directly or indirectly, in the Cayman Islands.

## **Chile**

The Agents, we and the notes have not been and will not be registered with the *Superintendencia de Valores y Seguros de Chile* (Chilean Securities and Insurance Commission) pursuant to *Ley No. 18,045 de Mercado de Valores* (the “Chilean Securities Act”), as amended, of the Republic of Chile and, accordingly, the notes will not be offered or sold within Chile or to, or for the account of benefit of, persons in Chile, except in circumstances that will not result in a public offering and/or securities intermediation in Chile within the meaning of the Chilean Securities Act.

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

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

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

## Colombia

The notes have not been and will not be registered in the National Securities Registry of Colombia (*Registro Nacional de Valores y Emisores*) kept by the Colombian Financial Superintendency (*Superintendencia Financiera de Colombia*) or in the Colombian Stock Exchange (*Bolsa de Valores de Colombia*). Therefore, the notes will not be marketed, offered, sold or distributed in Colombia or to Colombian residents in any manner that would be characterized as a public offering, as such is defined in article 1.2.1.1 of Resolution 400, issued on May 22, 1995 by the Securities Superintendency General Commission (*Sala General de la Superintendencia de Valores*), as amended from time to time.

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

Therefore, the notes should not be marketed within Colombian territory or to Colombian residents, by any given means, that may be considered as being addressed to an indeterminate number of persons or to more than ninety-nine (99) persons, including but not limited to:

- (i) any written material or other means of communication, such as subscription lists, bulletins, pamphlets or advertisements;
- (ii) any offer or sale of the notes at offices or branches open to the public;
- (iii) use of any oral or written advertisements, letters, announcements, notices or any other means of communication that may be perceived to be addressed to an indeterminate number of persons for the purpose of marketing and/or offering the notes; or
- (iv) use (a) non-solicited emails or (b) email distribution lists to market the notes.

The Disclosure Documents are for your sole and exclusive use, including any of your shareholders, administrators or employees, as applicable. You acknowledge the Colombian laws and regulations (specifically foreign exchange and tax regulations) applicable to any transaction or investment consummated pursuant thereto and represent that you are the sole liable party for full compliance with those laws and regulations.

## **El Salvador**

The notes may not be offered to the general public in El Salvador, and according to Article 2 of the *Ley de Mercado de Valores* (Securities Market Law) of the Republic of El Salvador, Legislative Decree number 809 dated 16 February 1994, published on the *Diario Oficial* (Official Gazette) number 73-BIS, Number 323, dated 21 April 1994, and in compliance with the aforementioned regulation, each Agent has represented and agreed that it will not make an invitation for subscription or purchase of the notes to indeterminate individuals, nor will it make known any Disclosure Document 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 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 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, 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 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:

- (i) at any time to any legal entity that is a qualified investor as defined in the Prospectus Directive;
- (ii) 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
- (iii) 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.

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

## Hong Kong

Each Agent has represented and agreed that:

- (i) it 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) 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 Ordinance (Cap. 32) of Hong Kong or that do not constitute an offer to the public within the meaning of that Ordinance; and
- (ii) 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.

## Jersey

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

## Mexico

The notes have not been and will not be registered with the Mexican National Registry of Securities maintained by the Mexican National Banking and Securities Commission nor with the Mexican Stock Exchange and therefore, may not be offered or sold publicly in the United Mexican States. The Disclosure Documents may not be publicly distributed in the United Mexican States. The notes may be privately placed in Mexico among institutional and qualified investors, pursuant to the private placement exemption set forth in Article 8 of the Mexican Securities Market Law.

## The Netherlands

Each Agent has represented and agreed that with effect from and including January 1, 2012, it will not make an offer of notes that are the subject of the offering contemplated by the Disclosure Documents to the public in The Netherlands in reliance on Article 3(2) of the Prospectus Directive if and to the extent article 5:20(5) of the Dutch Financial Supervision Act (Wet op het financieel toezicht, the "DFSA") will be applied, unless such offer is made exclusively to qualified investors in The Netherlands as defined in the Prospectus Directive, *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. For the purposes of this provision, the expressions (i) an "offer of 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."

## Panama

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



## Peru

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

## Singapore

None of the Disclosure Documents has been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, the Disclosure Documents and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the notes may not be circulated or distributed, nor may the notes be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore (the “SFA”), (ii) to a relevant person pursuant to Section 275(1) of the SFA, or to any person pursuant to Section 275(1A) of the SFA, 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: (1) 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; (2) where no consideration is or will be given for the transfer; (3) where the transfer is by operation of law; or (4) as specified in Section 276(7) of the SFA.

## Switzerland

The Disclosure Documents are not intended to constitute an offer or solicitation to purchase or invest in the notes described therein. The notes may not be publicly offered, sold or advertised, directly or indirectly, in, into or from Switzerland and will not be listed on the SIX Swiss Exchange or on any other exchange or regulated trading facility in Switzerland. Neither the Disclosure Documents nor any other offering or marketing material relating to the notes constitutes a prospectus as such term is understood pursuant to article 652a or article 1156 of the Swiss Code of Obligations or the Swiss Collective Investment Scheme Act, and neither the Disclosure Documents nor any other offering or marketing material relating to the notes may be publicly distributed or otherwise made publicly available in Switzerland.

Neither the Disclosure Documents nor any other offering or marketing material relating to us, the offering or the notes have been or will be filed with or approved by any Swiss regulatory authority. The notes are not subject to the supervision by any Swiss regulatory authority, *e.g.*, the Swiss Financial Markets Supervisory Authority (FINMA), and investors in the notes will not benefit from protection or supervision by any such authority.

## United Kingdom

Each Agent has represented and agreed that:

- (a) in relation to any notes that have a maturity of less than one year, (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 where the issue of the notes would otherwise constitute a contravention of Section 19 of the Financial Services and Markets Act 2000 (the "FSMA") by the Issuer;
- (b) it has only communicated or caused to be communicated and will only communicate or cause to be communicated an invitation or inducement to engage in investment activity (within the meaning of Section 21 of the FSMA) received by it in connection with the issue or sale of the notes in circumstances in which Section 21(1) of the FSMA does not apply to us; and
- (c) it has complied and will comply with all applicable provisions of the FSMA with respect to anything done by it in relation to the notes in, from or otherwise involving the United Kingdom.

## Uruguay

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

## Venezuela

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

## BENEFIT PLAN INVESTOR CONSIDERATIONS

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

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