

**Product supplement no. MS-2-I**

To prospectus dated November 14, 2011 and  
prospectus supplement dated November 14, 2011

Registration Statement No. 333-177923

Dated November 14, 2011

Rule 424(b)(2)

# JPMORGAN CHASE & CO.

## Range Accrual Notes

### General

- JPMorgan Chase & Co. may offer and sell range accrual notes from time to time. This product supplement no. MS-2-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, preliminary terms document, pricing 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, preliminary terms documents, pricing sheets and pricing supplements generally as terms supplements. A separate underlying supplement or the relevant terms supplement will describe any interest rate or equity index not described in this product supplement and to which the notes are linked. If the terms described in the relevant terms supplement are inconsistent with those described herein or in any related 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.**
- The interest we will pay on the notes, except to the extent an Initial Interest Rate or a Substitute Interest Rate applies, is linked to the U.S. Dollar Constant Maturity Swap ("USD CMS") Rate, the Euro Constant Maturity Swap ("EUR CMS") Rate, LIBOR, the Constant Maturity U.S. Treasury ("CMT") Rate, the SIFMA Municipal Swap Index and/or an Index, as described below.
- If so specified in the relevant terms supplement, at our option, we may redeem the notes, in whole or in part, on any of the specified Redemption Dates.
- If so specified in the relevant terms supplement, at our option, on any Substitute Interest Reset Date specified in the relevant terms supplement, we may elect to have the interest rate on the notes for each Interest Payment Period commencing after such Substitute Interest Reset Date determined by reference to a Substitute Interest Rate as described below.
- For important information about tax consequences, see "Material U.S. Federal Income Tax Consequences" beginning on page PS-37.
- Minimum denominations of \$1,000 and integral multiples thereof, unless otherwise specified in the relevant terms supplement
- The notes will not be listed on any securities exchange unless otherwise specified in the relevant terms supplement.

### Key Terms

Components:	In this product supplement, we refer to each rate or Index to which the notes are linked as a "Component," and collectively, the "Components."
Maturity Date:	As specified in the relevant terms supplement; <i>provided</i> that the maturity date will not be less than one year and one day (counting for this purpose the issue date but not the maturity date) after the issue date. 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."
Payment at Maturity:	Unless otherwise specified in the relevant terms supplement, if the notes have not been redeemed (if applicable), at maturity you will receive a cash payment for each \$1,000 principal amount note equal to \$1,000 <i>plus</i> any accrued and unpaid interest.
Payment upon Redemption (if applicable):	If so specified in the relevant terms supplement, at our option, we may redeem the notes, in whole or in part, on any of the specified Redemption Dates. Unless otherwise specified in the relevant terms supplement, if the notes are redeemed you will receive on the applicable Redemption Date a cash payment equal to \$1,000 for each \$1,000 principal amount note redeemed. Any accrued and unpaid interest on notes redeemed will be paid to the person who is the holder of record of such notes at the close of business on the date one (1) business day prior to the applicable Redemption Date.
Redemption Date(s) (if applicable):	As specified in the relevant terms supplement. Any Redemption Date is subject to postponement as described under "Description of Notes — Payment upon Redemption."
Interest:	Unless otherwise specified in the relevant terms supplement, with respect to each Interest Payment Period, for each \$1,000 principal amount note, the interest payment will be calculated as follows: $\$1,000 \times \text{Interest Rate} \times \text{Day Count Convention}$
Interest Rate:	Unless otherwise specified in the relevant terms supplement: (a) subject to the exercise of the Substitute Interest Rate Option, if applicable, (1) if the relevant terms supplement specifies an Initial Interest Rate and does not further specify that the Excess Interest Balance is applicable, with respect to each Initial Interest Payment Period, the Initial Interest Rate, and with respect to each Interest Payment Period other than an Initial Interest Payment Period, a rate per annum equal to the product of (1) the Interest Factor and (2) the Variable Days <i>divided by</i> the Actual Days, <i>provided</i> that such rate may not exceed the Maximum Rate (if applicable as specified in the relevant terms supplement); or (2) if the relevant terms supplement does not specify an Initial Interest Rate and does not further specify that the Excess Interest Balance is applicable, with respect to each Interest Payment Period, a rate per annum equal to the product of (1) the Interest Factor and (2) the Variable Days <i>divided by</i> the Actual Days, <i>provided</i> that such rate may not exceed the Maximum Rate (if applicable as specified in the relevant terms supplement); or (3) if the relevant terms supplement specifies an Initial Interest Rate and further specifies that the Excess Interest Balance is applicable both to the Initial Interest Payment Period(s) and to Interest Payment Periods following the Initial Interest Payment Period(s), (i) with respect to each such Initial Interest Payment Period, a rate per annum equal to the sum of (a) the Initial Interest Rate and (b) the Excess Interest Balance, if any, for the related Initial Interest Payment Period; <i>provided</i> that such rate may not exceed the Maximum Rate and (ii) with respect to each

subsequent Interest Payment Period, a rate per annum equal to the sum of (a) the product of (1) the Interest Factor and (2) the Variable Days *divided by* the Actual Days, and (b) the Excess Interest Balance, if any, for the related Interest Payment Period, *provided* that such rate may not exceed the Maximum Rate; or

- (4) if the relevant terms supplement specifies an Initial Interest Rate and further specifies that the Excess Interest Balance is applicable with respect only to Interest Payment Periods following the Initial Interest Payment Period(s), (i) with respect to each such Initial Interest Payment Period, a rate per annum equal to the Initial Interest Rate and (ii) with respect to each subsequent Interest Payment Period, a rate per annum equal to the sum of (a) the product of (1) the Interest Factor and (2) the Variable Days *divided by* the Actual Days, and (b) the Excess Interest Balance, if any, for the related Interest Payment Period, *provided* that such rate may not exceed the Maximum Rate; or
- (5) if the relevant terms supplement does not specify an Initial Interest Rate and further specifies that the Excess Interest Balance is applicable, with respect to each Interest Payment Period, a rate per annum equal to the sum of (a) the product of (1) the Interest Factor and (2) the Variable Days *divided by* the Actual Days and (b) the Excess Interest Balance, if any, for the related Interest Payment Period, *provided* that such rate may not exceed the Maximum Rate; or
- (b) if the relevant terms supplement specifies the Substitute Interest Rate Option is applicable and we exercise such Substitute Interest Rate Option on any Substitute Interest Reset Date, with respect to each Substitute Interest Payment Period, the Substitute Interest Rate, *provided* that such rate may not exceed the Maximum Rate (if applicable as specified in the relevant terms supplement). For the avoidance of doubt, the Excess Interest Balance will not apply to any Substitute Interest Payment Period.

Unless otherwise specified in the relevant terms supplement, the Interest Rate for each Interest Payment Period (other than an Initial Interest Payment Period or a Substitute Interest Payment Period, if applicable) will be calculated as follows:

$$\text{Interest Factor} \times \frac{\text{Variable Days}}{\text{Actual Days}}, \text{ where}$$

“Variable Days” is the number of calendar days during the relevant Interest Payment Period on which the Accrual Provision is satisfied; and

“Actual Days” is the actual number of calendar days in the relevant Interest Payment Period.

Initial Interest Rate (if applicable):	With respect to any Initial Interest Payment Period, a rate per annum (or, if more than one Initial Interest Payment Period is specified, a rate per annum for each such Initial Interest Payment Period) as specified in the relevant terms supplement, which may be a fixed rate or a floating rate linked to a rate specified in the relevant terms supplement and, if so specified in the relevant terms supplement, multiplied by a Leverage Factor and/or plus or minus a spread. If the Initial Interest Rate is specified as a fixed rate in the relevant terms supplement, such Initial Interest Rate may increase or decrease from one Initial Interest Payment Period to another. If the Initial Interest Rate is determined by reference to a floating rate, for purposes of the determination of the Initial Interest Rate for an Initial Interest Payment Period, that floating rate will be reset on each Initial Interest Reset Date, as specified in the relevant terms supplement. For example, the relevant terms supplement may specify that the Initial Interest Rate on the notes will be (1) 5.00% for the first Initial Interest Payment Period, (2) 5.25% for the second Initial Interest Payment Period and (3) 6.00% for each subsequent Initial Interest Payment Period. Alternatively, for example, the relevant terms supplement may specify that the Initial Interest Rate for each Initial Interest Payment Period will be equal to the sum of (1) the LIBOR Reference Rate with a Designated Maturity of three months on the applicable Initial Interest Reset Date plus (2) a spread of 4.00%. For the avoidance of doubt, the Initial Interest Rate may be one or more rates per annum that can be fixed or floating (multiplied by a Leverage Factor and/or plus or minus a spread, if applicable), and each such rate per annum may be specified with respect to an Initial Interest Payment Period. In addition, an Initial Interest Rate may change from one Initial Interest Payment Period to another from one fixed or floating rate to another fixed or floating rate (in each case, multiplied by a Leverage Factor and/or plus or minus a spread, if applicable).
Initial Interest Payment Period(s) (if applicable):	The Interest Payment Period(s) as specified in the relevant terms supplement to which the Initial Interest Rate is applicable, subject to the Maximum Rate if so specified in the relevant terms supplement
Initial Interest Reset Date(s) (if applicable):	For each applicable Initial Interest Payment Period, a date as specified in the relevant terms supplement that is a specified number of days prior to the first day of such Initial Interest Payment Period
Interest Factor:	For each Interest Payment Period (other than the Initial Interest Payment Period(s) or any Substitute Interest Payment Period), a rate per annum as specified in the relevant terms supplement, which may be a fixed rate or a floating rate linked to a rate specified in the relevant terms supplement and, if so specified in the relevant terms supplement, multiplied by a Leverage Factor and/or plus or minus a spread. If the Interest Factor is specified as a fixed rate in the relevant terms supplement, such Interest Factor may increase or decrease from one Interest Payment Period to another. If the Interest Factor is determined by reference to a floating rate (if applicable), for purposes of the determination of the Interest Factor for an Interest Payment Period, that floating rate will be reset on each Interest Factor Reset Date. For example, the relevant terms supplement may specify that the Interest Factor on the notes will be (1) 9.00% for the first Interest Payment Period, (2) 9.25% for the second Interest Payment Period and (3) 10.00% for each subsequent Interest Payment Period. Alternatively, for example, the relevant terms supplement may specify that the Interest Factor for each Interest Payment Period will be equal to the sum of (1) the LIBOR Reference Rate with a Designated Maturity of three months on the applicable Interest Factor Reset Date plus (2) a spread of 4.00%. For the avoidance of doubt, the Interest Factor may be one or more rates per annum that can be fixed or floating (multiplied by a Leverage Factor and/or plus or minus a spread, if applicable), and each such rate per annum may be specified with respect to certain Interest Payment Period(s). In addition, the Interest Factor may change from one Interest Payment Period to another from one fixed or floating rate to another fixed or floating rate (in each case, multiplied by a Leverage Factor and/or plus or minus a spread, if applicable).
Maximum Rate (if	For each Interest Payment Period (including the Initial Interest Payment Period(s), if applicable, and any Substitute Interest

applicable):	Payment Period, unless otherwise specified in the relevant terms supplement), a rate specified in the relevant terms supplement, multiplied by a Leverage Factor and/or plus or minus a spread, which may be (1) a fixed rate, (2) a floating rate linked to a rate specified in the relevant terms supplement or (3) a combination of (1) and (2). For example, the relevant terms supplement may specify that the Maximum Rate for each Interest Payment Period will be equal to the lesser of (1) 9.00% and (2) the product of (a) 2.0 and (b) the sum of (i) the LIBOR Reference Rate with a Designated Maturity of three months on the applicable Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date and (ii) 0.25%. If the Maximum Rate is determined in whole or in part by reference to a floating rate (if applicable), for purposes of the determination of the Maximum Rate for an Interest Payment Period, that floating rate will be reset on each Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date, as applicable.
Minimum Rate (if applicable):	Unless otherwise specified in the relevant terms supplement, 0.00%
Excess Interest Balance (if applicable):	Unless otherwise specified in the relevant terms supplement, for each Interest Payment Period (including the Initial Interest Payment Period(s), if applicable, unless otherwise specified in the relevant terms supplement, but excluding any Substitute Interest Payment Period), (1) the sum of the Excess Interest Rates for all prior Interest Payment Periods <i>minus</i> (2) the total Excess Interest Balance (expressed as a percentage) paid on the Interest Payment Dates for all prior Interest Payment Periods
Excess Interest Rate (if applicable):	Unless otherwise specified in the relevant terms supplement, (a) for each Initial Interest Payment Period, if applicable, (1) the applicable Initial Interest Rate <i>minus</i> (2) the Maximum Rate for that Initial Interest Payment Period, and (b) for each Interest Payment Period (other than the Initial Interest Payment Period(s), if applicable, or any Substitute Interest Payment Period, if applicable), (1) the product of (i) the Interest Factor and (ii) the Variable Days <i>divided by</i> the Actual Days for that Interest Payment Period <i>minus</i> (2) the Maximum Rate for that Interest Payment Period. Notwithstanding the foregoing, in no event will the Excess Interest Rate for any Interest Payment Period be less than the Minimum Rate.
Leverage Factor (if applicable):	As specified in the relevant terms supplement
Interest Factor Reset Date(s) (if applicable):	For each applicable Interest Payment Period, a date as specified in the relevant terms supplement that is a specified number of days prior to the first day of such Interest Payment Period
Interest Payment Period:	Unless otherwise specified in the relevant terms supplement, the period beginning on and including the issue date of the notes and ending on but excluding the first Interest Payment Date or, if the notes are subject to redemption and have been redeemed prior to the first Interest Payment Date, ending on but excluding the Redemption Date (as defined below), as applicable and each successive period beginning on and including an Interest Payment Date and ending on but excluding the next succeeding Interest Payment Date or, if the notes are subject to redemption and have been redeemed prior to such next succeeding Interest Payment Date, ending on but excluding the Redemption Date. The relevant terms supplement may specify that the Interest Payment Period is "Monthly," "Quarterly" or "Semi-annual," which means that the Interest Payment Period refers to a calendar month, a three-month period or a six-month period, respectively.
Interest Payment Dates:	As specified in the relevant terms supplement, but at least once every twelve months
Day-Count Convention:	Unless otherwise specified in the relevant terms supplement, "Day-Count Convention" means the number of days in the Interest Payment Period / 360, where the number of days is calculated on the basis of a year of 360 days with twelve months of thirty days each (which we may refer to in the relevant terms supplement as a "30/360" Day-Count Convention).
Substitute Interest Rate Option (if applicable):	If so specified in the relevant terms supplement, at our option, on any Substitute Interest Reset Date, we may elect to have the Interest Rate for each Interest Payment Period commencing after such Substitute Interest Reset Date (other than any Initial Interest Payment Period, if applicable) calculated by reference to the applicable Substitute Interest Rate. We refer to this option as the "Substitute Interest Rate Option" and each Interest Payment Period subject to the Substitute Interest Rate as a "Substitute Interest Payment Period." The Substitute Interest Rate Option may only be exercised once during the term of the notes.
Substitute Interest Reset Date(s) (if applicable):	As specified in the relevant terms supplement, each of which will be a specified number of days prior to the first day of an Interest Payment Period
Substitute Interest Rate (if applicable):	With respect to each Substitute Interest Payment Period, a rate per annum for each such Substitute Interest Payment Period as specified in the relevant terms supplement, which may be a fixed rate or a floating rate linked to a rate specified in the relevant terms supplement and, if so specified in the relevant terms supplement, multiplied by a Leverage Factor and/or plus or minus a spread. If the Substitute Interest Rate is specified as a fixed rate in the relevant terms supplement, such Substitute Interest Rate may increase or decrease from one Substitute Interest Payment Period to another. If the Substitute Interest Rate is determined by reference to a floating rate, for purposes of the determination of the Substitute Interest Rate for a Substitute Interest Payment Period, that floating rate will be reset on each Substitute Interest Reset Date, as specified in the relevant terms supplement. For example, the relevant terms supplement may specify that the Substitute Interest Rate on the notes will be (1) 5.00% for the first Substitute Interest Payment Period, (2) 5.25% for the second Substitute Interest Payment Period and (3) 6.00% for each subsequent Substitute Interest Payment Period. Alternatively, for example, the relevant terms supplement may specify that the Substitute Interest Rate for each Substitute Interest Payment Period will be equal to the sum of (1) the LIBOR Reference Rate with a Designated Maturity of three months on the applicable Substitute Interest Reset Date plus (2) a spread of 4.00%. For the avoidance of doubt, the Substitute Interest Rate may be one or more rates per annum that can be fixed or floating (multiplied by a Leverage Factor and/or plus or minus a spread, if applicable), and each such rate per annum may be specified with respect to a specific Substitute Interest Payment Period. In addition, a Substitute Interest Rate may change from one Substitute Interest Payment Period to another from one fixed or floating rate to another fixed or floating rate (in each case, multiplied by a Leverage Factor and/or plus or minus a spread, if applicable).
Accrual Provision:	Unless otherwise specified in the relevant terms supplement, the Accrual Provision will be deemed satisfied on each calendar day during an Interest Payment Period (other than the Initial Interest Payment Period(s), if applicable, or any Substitute Interest Payment Period, if applicable) on which one or a combination of the following (as specified in the relevant terms supplement) occurs: (i) the USD CMS Provision is satisfied; (ii) the EUR CMS Provision is satisfied; (iii) the LIBOR Provision is satisfied; (iv) the CMT Provision is satisfied; (v) the SIFMA/LIBOR Provision is satisfied; or (vi) the Index Provision is satisfied, in each case, on such calendar day. The relevant terms supplement may refer to any calendar day

on which the Accrual Provision is satisfied as an “Accrual Day.”

USD CMS Provision:	Unless otherwise specified in the relevant terms supplement, the USD CMS Provision will be deemed satisfied on each calendar day during an Interest Payment Period (other than the Initial Interest Payment Period(s), if applicable, or any Substitute Interest Payment Period, if applicable) on which, as specified in the relevant terms supplement, the applicable USD CMS Reference Rate of a Designated Maturity or the difference between two USD CMS Reference Rates with different Designated Maturities (which we refer to as the “USD CMS Spread”) is equal to or greater than the low end of a range and equal to or less than the high end of such range (which we refer to as the “USD CMS Range”), or equal to, less than or greater than a specified percentage (which we refer to as the “USD CMS Strike”), which may be equal to, less than or greater than (as specified in the relevant terms supplement) 0%, in each case, as determined on the applicable USD CMS Determination Date.
EUR CMS Provision:	Unless otherwise specified in the relevant terms supplement, the EUR CMS Provision will be deemed satisfied on each calendar day during an Interest Payment Period (other than the Initial Interest Payment Period(s), if applicable, or any Substitute Interest Payment Period, if applicable) on which, as specified in the relevant terms supplement, the applicable EUR CMS Reference Rate of a Designated Maturity or the difference between two EUR CMS Reference Rates with different Designated Maturities (which we refer to as the “EUR CMS Spread”) is equal to or greater than the low end of a range and equal to or less than the high end of such range (which we refer to as the “EUR CMS Range”), or equal to, less than or greater than a specified percentage (which we refer to as the “EUR CMS Strike”), which may be equal to, less than or greater than (as specified in the relevant terms supplement) 0%, in each case, as determined on the applicable EUR CMS Determination Date.
LIBOR Provision:	Unless otherwise specified in the relevant terms supplement, the LIBOR Provision will be deemed satisfied on each calendar day during an Interest Payment Period (other than the Initial Interest Payment Period(s), if applicable, or any Substitute Interest Payment Period, if applicable) on which, as specified in the relevant terms supplement, the applicable LIBOR Reference Rate of a Designated Maturity or the difference between two LIBOR Reference Rates with different Designated Maturities (which we refer to as the “LIBOR Spread”) is equal to or greater than the low end of a range and equal to or less than the high end of such range (which we refer to as the “LIBOR Range”), or equal to, less than or greater than a specified percentage (which we refer to as the “LIBOR Strike”), which may be equal to, less than or greater than (as specified in the relevant terms supplement) 0%, in each case, on the applicable LIBOR Determination Date.
CMT Provision:	Unless otherwise specified in the relevant terms supplement, the CMT Provision will be deemed satisfied on each calendar day during an Interest Payment Period (other than the Initial Interest Payment Period(s), if applicable, or any Substitute Interest Payment Period, if applicable) on which, as specified in the relevant terms supplement, the applicable CMT Reference Rate of a Designated Maturity or the difference between two CMT Reference Rates with different Designated Maturities (which we refer to as the “CMT Spread”) is equal to or greater than the low end of a range and equal to or less than the high end of such range (which we refer to as the “CMT Range”), or equal to, less than or greater than a specified percentage (which we refer to as the “CMT Strike”), which may be equal to, less than or greater than (as specified in the relevant terms supplement) 0%, in each case, on the applicable CMT Determination Date.
SIFMA/LIBOR Provision:	Unless otherwise specified in the relevant terms supplement, the SIFMA/LIBOR Provision will be deemed satisfied on each calendar day during an Interest Payment Period (other than the Initial Interest Payment Period(s), if applicable, or any Substitute Interest Payment Period, if applicable) on which the Average SIFMA/Average LIBOR Ratio on the applicable SIFMA/LIBOR Determination Date is less than or equal to the Specified SIFMA/LIBOR Percentage. Notwithstanding the preceding sentence, if, with respect to notes for which the SIFMA/LIBOR Provision is applicable, Average LIBOR on any SIFMA/LIBOR Determination Date is less than or equal to the Specified Average LIBOR Reference Rate, then the SIFMA/LIBOR Provision will be deemed satisfied for each calendar day in the calendar week immediately following the calendar week in which such SIFMA/LIBOR Determination Date occurs.
Index Provision:	Unless otherwise specified in the relevant terms supplement, the Index Provision will be deemed satisfied on each calendar day during an Interest Payment Period (other than the Initial Interest Payment Period(s), if applicable, or any Substitute Interest Payment Period, if applicable) on which, as specified in the relevant terms supplement, the Index Closing Value is equal to or greater than the low end of a range and equal to or less than the high end of such range (which we refer to as the “Index Range”) or equal to, less than or greater than a specified level of the Index (which we refer to as the “Index Reference Level”), which may be equal to, less than or greater than (as specified in the relevant terms supplement) 0%, in each case, on the applicable Index Determination Date.
USD CMS Reference Rate:	Unless otherwise specified in the relevant terms supplement, for each USD CMS Determination Date (and, if applicable, any Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date), the USD CMS Reference Rate refers to the rate for U.S. Dollar swaps with the Designated Maturities specified in the relevant terms supplement that appears on Reuters page “ISDAFIX1” (or any successor page) at approximately 11:00 a.m., New York City time, on such USD CMS Determination Date (or, if applicable, such Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date), as determined by the calculation agent. If on such USD CMS Determination Date (or, if applicable, such Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date) the applicable USD CMS Reference Rate cannot be determined by reference to Reuters page “ISDAFIX1” (or any successor page), then the calculation agent will determine the applicable USD CMS Reference Rate in accordance with the procedures set forth below under “Description of Notes — Interest — The Underlying Rates and Levels — USD CMS Reference Rate.”
EUR CMS Reference Rate:	Unless otherwise specified in the relevant terms supplement, for each EUR CMS Determination Date (and, if applicable, any Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date), the EUR CMS Reference Rate refers to the annual swap rate for euro swap transactions with the Designated Maturities, specified in the relevant terms supplement that appears on Reuters page “ISDAFIX2” (or any successor page) under the heading “EURIBOR BASIS—EUR” and above the caption “11:00 AM Frankfurt” at approximately 11:00 a.m., Frankfurt time, on such EUR CMS Determination Date (or, if applicable, such Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date), as determined by the calculation agent. If on such EUR CMS Determination Date (or, if applicable, such Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date) the applicable EUR CMS Reference Rate cannot be determined by reference to Reuters page “ISDAFIX2” (or any successor page), then the calculation agent will determine the applicable EUR CMS Reference Rate in accordance with the procedures set forth below under “Description of Notes — Interest — The Underlying Rates and Levels — EUR CMS Reference Rate.”
USD CMS Determination	For each calendar day in an Interest Payment Period to which the applicable USD CMS Provision applies, as specified in the relevant terms supplement, or, if not specified in the relevant terms supplement, the second U.S. Government

Date:	Securities Business Day prior to such calendar day; <i>provided, however</i> , that if such calendar day is not a U.S. Government Securities Business Day, the USD CMS Determination Date will be the third U.S. Government Securities Business Day immediately preceding such calendar day. For example, if the applicable calendar day was a Saturday or Sunday, the USD CMS Determination Date would be the Wednesday preceding such calendar day ( <i>i.e.</i> , the third U.S. Government Securities Business Day immediately preceding such calendar day), assuming Wednesday, Thursday and Friday were each a U.S. Government Securities Business Day. Notwithstanding the foregoing, if the relevant terms supplement specifies that a Cutoff applies, for each calendar day in the Cutoff, the USD CMS Determination Date will be the U.S. Government Securities Business Day immediately preceding the first day of the Cutoff, unless otherwise specified in the relevant terms supplement.
EUR CMS Determination Date:	For each calendar day in an Interest Payment Period to which the applicable EUR CMS Provision applies, as specified in the relevant terms supplement, or, if not specified in the relevant terms supplement, the second TARGET Settlement Day prior to such calendar day; <i>provided, however</i> , that if such calendar day is not a TARGET Settlement Day, the EUR CMS Determination Date will be the third TARGET Settlement Day immediately preceding such calendar day. For example, if the applicable calendar day was a Saturday or Sunday, the EUR CMS Determination Date would be the Wednesday preceding such calendar day ( <i>i.e.</i> , the third TARGET Settlement Day immediately preceding such calendar day), assuming Wednesday, Thursday and Friday were each a TARGET Settlement Day. Notwithstanding the foregoing, if the relevant terms supplement specifies that a Cutoff applies, for each calendar day in the Cutoff, the EUR CMS Determination Date will be the TARGET Settlement Day immediately preceding the first day of the Cutoff, unless otherwise specified in the relevant terms supplement.
U.S. Government Securities Business Day:	Any day, unless otherwise specified in the relevant terms supplement, other than a Saturday, Sunday or a day on which the Securities Industry and Financial Markets Association ("SIFMA") recommends that the fixed income departments of its members be closed for the entire day for purposes of trading in U.S. government securities.
TARGET Settlement Day:	Any day, unless otherwise specified in the relevant terms supplement, on which the Trans-European Automated Real-time Gross settlement Express Transfer system ("TARGET2") is open.
LIBOR Reference Rate:	Unless otherwise specified in the relevant terms supplement, for each LIBOR Determination Date or SIFMA/LIBOR Determination Date (and, if applicable, any Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date), the LIBOR Reference Rate refers to the London Interbank Offered Rate for deposits in U.S. dollars with the Designated Maturity specified in the relevant terms supplement that appears on Reuters page "LIBOR01" (or any successor page) at approximately 11:00 a.m., London time, on such LIBOR Determination Date or SIFMA/LIBOR Determination Date (or if applicable, such Initial Interest Date, Substitute Interest Reset Date or Interest Factor Reset Date), or if such SIFMA/LIBOR Determination, if applicable, is not a London Banking Day, on the London Banking Day immediately preceding such SIFMA/LIBOR Determination Date, as determined by the calculation agent. If on such LIBOR Determination Date or SIFMA/LIBOR Determination Date (or if applicable, such Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date) the applicable LIBOR Reference Rate cannot be determined by reference to Reuters page "LIBOR01" (or any successor page), then the calculation agent will determine the applicable LIBOR Reference Rate in accordance with the procedures set forth below under "Description of Notes — Interest — The Underlying Rates and Levels — LIBOR Reference Rate."
London Banking Day:	Any day, unless otherwise specified in the relevant terms supplement, other than a day on which banking institutions in London are authorized or required by law, regulation or executive order to close.
LIBOR Determination Date:	For each calendar day in an Interest Payment Period to which the applicable LIBOR Provision applies, as specified in the relevant terms supplement, or, if not specified in the relevant terms supplement, the second London Banking Day prior to such calendar day; <i>provided, however</i> , that if such calendar day is not a London Banking Day, the LIBOR Determination Date will be the third London Banking Day immediately preceding such calendar day. For example, if the applicable calendar day was a Saturday or Sunday, the LIBOR Determination Date would be the Wednesday preceding such calendar day ( <i>i.e.</i> , the third London Banking Day immediately preceding such calendar day), assuming Wednesday, Thursday and Friday were each a London Banking Day. Notwithstanding the foregoing, if the relevant terms supplement specifies that a Cutoff applies, for each calendar day in the Cutoff, the LIBOR Determination Date will be the London Banking Day immediately preceding the first day of the Cutoff, unless otherwise specified in the relevant terms supplement.
CMT Reference Rate:	Unless otherwise specified in the relevant terms supplement, for each CMT Determination Date (and, if applicable, any Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date), the CMT Reference Rate refers to the yield for United States Treasury securities at "constant maturity" with the Designated Maturity specified in the relevant terms supplement as set forth in H.15(519) under the caption "Treasury constant maturities," as such yield is displayed on the Reuters page "FRBCMT" (or any successor page) on such CMT Determination Date (or, if applicable, such Initial Interest Date, Substitute Interest Reset Date or Interest Factor Reset Date), as determined by the calculation agent. If on such CMT Determination Date (or, if applicable, such Initial Interest Date, Substitute Interest Reset Date or Interest Factor Reset Date) the applicable CMT Reference Rate cannot be determined by reference to Reuters page "FRBCMT" (or any successor page), then the calculation agent will determine the applicable CMT Reference Rate in accordance with the procedures set forth below under "Description of Notes — Interest — The Underlying Rates and Levels — CMT Reference Rate."
CMT Determination Date:	For each calendar day in an Interest Payment Period to which the applicable CMT Provision applies, as specified in the relevant terms supplement, or, if not specified in the relevant terms supplement, the second U.S. Government Securities Business Day prior to such calendar day; <i>provided, however</i> , that if such calendar day is not a U.S. Government Securities Business Day, the CMT Determination Date will be the third U.S. Government Securities Business Day immediately preceding such calendar day. For example, if the applicable calendar day was a Saturday or Sunday, the CMT Determination Date would be the Wednesday preceding such calendar day ( <i>i.e.</i> , the third U.S. Government Securities Business Day immediately preceding such calendar day), assuming Wednesday, Thursday and Friday were each a U.S. Government Securities Business Day. Notwithstanding the foregoing, if the relevant terms supplement specifies that a Cutoff applies, for each calendar day in the Cutoff, the CMT Determination Date will be the U.S. Government Securities Business Day immediately preceding the first day of the Cutoff, unless otherwise specified in the relevant terms supplement.
USD CMS Range (if applicable):	As specified in the relevant terms supplement
USD CMS Spread (if applicable):	As specified in the relevant terms supplement

USD CMS Strike (if applicable):	As specified in the relevant terms supplement
EUR CMS Range (if applicable):	As specified in the relevant terms supplement
EUR CMS Spread (if applicable):	As specified in the relevant terms supplement
EUR CMS Strike (if applicable):	As specified in the relevant terms supplement
LIBOR Range (if applicable):	As specified in the relevant terms supplement
LIBOR Spread (if applicable):	As specified in the relevant terms supplement
LIBOR Strike (if applicable):	As specified in the relevant terms supplement
CMT Range (if applicable):	As specified in the relevant terms supplement
CMT Spread (if applicable):	As specified in the relevant terms supplement
CMT Strike (if applicable):	As specified in the relevant terms supplement
Index Range (if applicable):	As specified in the relevant terms supplement
Index Reference Level (if applicable):	As specified in the relevant terms supplement
Cutoff (if applicable):	As specified in the relevant terms supplement. For example, the relevant terms supplement may specify that the Cutoff will be the period commencing on the sixth business day prior to each Interest Payment Date and ending on the business day prior to such Interest Payment Date.
Average SIFMA/Average LIBOR Ratio:	Unless otherwise specified in the relevant terms supplement, for each SIFMA/LIBOR Determination Date to which the applicable SIFMA/LIBOR Provision relates, the ratio of the Average SIFMA Level to Average LIBOR, expressed as a percentage, on such SIFMA/LIBOR Determination Date, as determined by the calculation agent.
Average SIFMA Level:	Unless otherwise specified in the relevant terms supplement, on any SIFMA/LIBOR Determination Date, the daily weighted average of the Index levels of the SIFMA Municipal Swap Index for each calendar day in the SIFMA/LIBOR Averaging Period. For the purposes of calculating the Average SIFMA Level, the Index level of the SIFMA Municipal Swap Index for each calendar day in the SIFMA/LIBOR Averaging Period will be based on the Index level of the SIFMA Municipal Swap Index on the SIFMA/LIBOR Determination Date, or, if such SIFMA/LIBOR Determination Date is not a U.S. Government Securities Business Day, based on the Index level of the SIFMA Municipal Swap Index on the U.S. Government Business Day immediately preceding such SIFMA/LIBOR Determination Date. The Index level of the SIFMA Municipal Swap Index is reset weekly on each SIFMA/LIBOR Determination Date; however, the average calculation is measured daily for each calendar day in the SIFMA/LIBOR Averaging Period. If on such SIFMA/LIBOR Determination Date the applicable Average SIFMA Level cannot be determined by reference to the SIFMA Municipal Swap Index (or any successor thereto), then the calculation agent will determine the applicable Average SIFMA Level in accordance with the procedures set forth below under "SIFMA Municipal Swap Index."
Average LIBOR:	Unless otherwise specified in the relevant terms supplement, on any SIFMA/LIBOR Determination Date, the daily weighted average of the applicable LIBOR Reference Rates for each calendar day in the SIFMA/LIBOR Averaging Period. For the purposes of calculating the Average LIBOR, the determination of the applicable LIBOR Reference Rate for each calendar day in the SIFMA/LIBOR Averaging Period will be based on such LIBOR Reference Rate on the SIFMA/LIBOR Determination Date, or, if such SIFMA/LIBOR Determination Date is not a London Banking Day, based on the LIBOR Reference Rate on the London Banking Day immediately preceding such SIFMA/LIBOR Determination Date. The applicable LIBOR Reference Rate will be reset weekly on each SIFMA/LIBOR Determination Date; however, the average calculation is measured daily for each calendar day in the SIFMA/LIBOR Averaging Period.
SIFMA Municipal Swap Index:	The Securities Industry and Financial Markets Association Municipal Swap Index, or the SIFMA Municipal Swap Index, was created by the SIFMA and produced by Municipal Market Data, or MMD, a Thomson Financial Services company. The SIFMA Municipal Swap Index is a seven-day high-grade market index composed of tax-exempt variable-rate demand obligations, or VRDOs, from MMD's database of VRDO issues. The Index level of the SIFMA Municipal Swap Index is calculated on a weekly basis, and released to subscribers on Thursday. See "SIFMA Municipal Swap Index."
SIFMA/LIBOR Determination Date:	For each calendar day in the applicable Interest Payment Period or the applicable SIFMA/LIBOR Averaging Period, as specified in the relevant terms supplement, or, if not specified in the relevant terms supplement, the immediately preceding Thursday. Notwithstanding the foregoing, if the relevant terms supplement specifies that a Cutoff applies, for each calendar day in the Cutoff, the SIFMA/LIBOR Determination Date will be the Thursday immediately preceding the first day of the Cutoff, unless otherwise specified in the relevant terms supplement.
SIFMA/LIBOR Averaging Period:	As specified in the relevant terms supplement
Specified SIFMA/LIBOR Percentage:	As specified in the relevant terms supplement
Specified Average LIBOR Reference Rate:	As specified in the relevant terms supplement
Designated Maturity:	The applicable maturity, as specified in the relevant terms supplement, to be used in determining the USD CMS Reference Rate, EUR CMS Reference Rate, LIBOR Reference Rate or CMT Reference Rate, as applicable. For example, the relevant terms supplement may specify that the applicable USD CMS Reference Rates will be the 30-Year USD CMS Reference Rate and the 10-Year USD CMS Reference Rate, or that the applicable EUR CMS Reference Rates will be the 30-Year

EUR CMS Reference Rate and the 10-Year EUR CMS Reference Rate, or that the applicable LIBOR Reference Rate will be three-month LIBOR, or that the applicable CMT Reference Rate will be the 10-Year CMT Reference Rate.

Index: As specified in the relevant terms supplement

Index Closing Value: Unless otherwise specified in the relevant terms supplement, with respect to an Index, the "Index Closing Value" on any trading day will equal the official closing level of such Index or any successor equity index thereto (as described under "General Terms of Notes — Discontinuation of an Index; Alteration of Method of Calculation") published following the regular official weekday close of trading on that trading day. If a market disruption event exists with respect to an Index on any Index Determination Date, the Index Closing Value on the immediately preceding Index Determination Date for which no market disruption event occurs or is continuing will be the Index Closing Value for such disrupted Index Determination Date (and will also be the Index Closing Value for the originally scheduled Index Determination Date). In certain circumstances, the "Index Closing Value" for an Index will be based on the alternative calculation of such Index described under "General Terms of Notes — Discontinuation of an Index; Alteration of Method of Calculation."

Index Determination Date: For each calendar day in an Interest Payment Period to which the applicable Index Provision applies, as specified in the relevant terms supplement, or, if not specified in the relevant terms supplement, the second trading day prior to such calendar day; *provided, however*, that if such calendar day is not a trading day, the Index Determination Date will be the third trading day immediately preceding such calendar day. For example, if the applicable calendar day was a Saturday or Sunday, the Index Determination Date would be the Wednesday preceding such calendar day (*i.e.*, the third trading day immediately preceding such calendar day), assuming Wednesday, Thursday and Friday were each a trading day. Notwithstanding the foregoing, if the relevant terms supplement specifies that a Cutoff applies, for each calendar day in the Cutoff, the Index Determination Date will be the trading day immediately preceding the first day of the Cutoff, unless otherwise specified in the relevant terms supplement.

**Investing in the notes involves a number of risks. See "Risk Factors" beginning on page PS-16.**

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. MS-2-I, the accompanying prospectus supplement and prospectus, or any related 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

November 14, 2011

## TABLE OF CONTENTS

	<u>Page</u>
Description of Notes .....	PS-1
Risk Factors.....	PS-16
Use of Proceeds and Hedging.....	PS-28
U.S. Dollar Constant Maturity Swap Rates .....	PS-29
EURO Constant Maturity Swap Rates .....	PS-29
Constant Maturity U.S. Treasury Rates.....	PS-29
SIFMA Municipal Swap Index.....	PS-30
Other Components .....	PS-32
General Terms of Notes .....	PS-33
Material U.S. Federal Income Tax Consequences.....	PS-37
Plan of Distribution (Conflicts of Interest) .....	PS-41
Notice to Investors .....	PS-43
Benefit Plan Investor Considerations .....	PS-50

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. MS-2-I and the accompanying prospectus supplement and prospectus with respect to the notes offered by the relevant terms supplement, any related underlying supplement and this product supplement no. MS-2-I and with respect to JPMorgan Chase & Co. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. This product supplement no. MS-2-I, together with the relevant terms 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, other free writing prospectuses, fact sheets, information appearing on websites, brochures or other educational materials of ours. The information in the relevant terms supplement, any related underlying supplement, this product supplement no. MS-2-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. MS-2-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. MS-2-I and the accompanying prospectus supplement and prospectus do not constitute an offer to sell or a solicitation of an offer to buy the notes in any circumstances in which such offer or solicitation is unlawful.

In this product supplement no. MS-2-I, the relevant terms supplement, any related underlying 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 an Interest Rate or equity index not described in this product supplement and to which the notes are linked. Capitalized terms used but not defined in this product supplement no. MS-2-I have the meanings assigned in the accompanying prospectus supplement and prospectus, the relevant terms supplement and any related underlying supplement. The term “note” refers to each \$1,000 principal amount of our Range Accrual Notes.*

### General

The Range Accrual Notes are senior unsecured obligations of JPMorgan Chase & Co. that are linked to the U.S. Dollar Constant Maturity Swap (which we refer to as “USD CMS”) Rate, the Euro Constant Maturity Swap (which we refer to as “EUR CMS”) Rate, LIBOR, the Constant Maturity U.S. Treasury (which we refer to as “CMT”) Rate, the Securities Industry and Financial Markets Association Municipal Swap Index (which we refer to as the “SIFMA Municipal Swap Index”) and/or an Index specified in the relevant terms supplement (which we refer to as the “Index”). The notes are a series of debt securities referred to in the accompanying prospectus supplement, prospectus and the relevant terms supplement, as well as any related underlying supplement. The notes will be issued by JPMorgan Chase & Co. under an indenture dated May 25, 2001, as may be amended or supplemented from time to time, between us and Deutsche Bank Trust Company Americas (formerly Bankers Trust Company), as trustee.

### **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. MS-2-I and any related underlying supplement. The terms described in that document supplement those described herein and in any related underlying supplement and in the accompanying prospectus and prospectus supplement. If the terms described in the relevant terms supplement are inconsistent with those described herein or in any related underlying supplement or in the accompanying prospectus or prospectus supplement, the terms described in the relevant terms supplement will control.

### Payment at Maturity

The maturity date for the notes will be set forth in the relevant terms supplement; *provided* that the maturity date will not be less than one year and one day (counting, for this purpose, either the issue date or the last possible date that the notes could be outstanding, but not both) after the issue date. If the scheduled maturity date is not a business day, then the maturity date will be the next succeeding business day following such scheduled maturity date, and the payment of principal and any accrued and unpaid interest will be made with the same force and effect

on such next succeeding business day, *provided* that any interest payable on the maturity date, as postponed, will accrue to but excluding the maturity date, as postponed.

Unless otherwise specified in the relevant terms supplement, if the notes have not been redeemed (if applicable), at maturity you will receive a cash payment for each \$1,000 principal amount note of \$1,000 *plus* any accrued and unpaid interest up to but excluding the maturity date.

### **Payment upon Redemption**

If so specified in the relevant terms supplement, at our option, we may redeem the notes, in whole or in part, on any of the specified Redemption Dates. Unless otherwise specified in the relevant terms supplement, if the notes are redeemed, you will receive on the applicable Redemption Date a cash payment equal to \$1,000 for each \$1,000 stated principal amount note redeemed. Any accrued and unpaid interest on notes redeemed will be paid to the person who is the holder of record of such notes at the close of business one (1) business day prior to the applicable Redemption Date.

The Redemption Date(s), if applicable, will be specified in the relevant terms supplement, and any such date is subject to adjustment as described below. If a Redemption Date is not a business day, the payment due on such Redemption Date will be made with the same force and effect on the next succeeding business day, *provided* that any interest payable on such Redemption Date, as postponed, will accrue to but excluding such Redemption Date, as postponed.

Unless otherwise specified in the relevant terms supplement, to redeem the notes, we will mail a notice of redemption to DTC, as holder of the global notes, by first-class mail, postage prepaid, at least 5 business days and not more than 15 business days prior to the applicable Redemption Date. In case the notes are to be redeemed in part, the notice of redemption will state the portion of the principal amount of the notes to be redeemed. If less than all of the notes are to be redeemed, the trustee will select, in such manner as it deems appropriate and fair, the notes to be redeemed. Notes may be redeemed in part only in multiples equal to the authorized denomination for the notes, which, unless otherwise specified in the relevant terms supplement, will be \$1,000.

If notice of redemption has been given as provided above, the notes that are subject to redemption will become due and payable on the Redemption Date at the applicable redemption price *plus* accrued and unpaid interest, and interest on such notes will cease to accrue from and after the Redemption Date, and holders of such notes will have no rights in respect of such notes except the right to receive the redemption price and accrued and unpaid interest on the Redemption Date.

### **Interest**

#### ***General Terms Relating to Interest***

The notes will bear interest from the issue date of the notes to but excluding the maturity date. The amount of interest payable on the notes on each Interest Payment Date will be linked to the USD CMS Reference Rate, the EUR CMS Reference Rate, LIBOR, the CMT, the SIFMA Municipal Swap Index and/or an Index, except to the extent the relevant terms supplement specifies an Initial Interest Rate or if we exercise the Substitute Interest Rate Option, if applicable.

Unless otherwise specified in the relevant terms supplement, with respect to each Interest Payment Period, for each \$1,000 stated principal amount note, the interest payment will be calculated as follows:

$$\$1,000 \times \text{Interest Rate} \times \text{Day-Count Convention}$$

Unless otherwise specified in the relevant terms supplement, with respect to each Interest Payment Period, the notes will bear interest at a rate per annum, which we refer to as the "Interest Rate," determined as follows:

- (a) subject to the exercise of the Substitute Interest Rate Option, if applicable,

- (1) if the relevant terms supplement specifies an Initial Interest Rate and does not further specify that the Excess Interest Balance is applicable, with respect to each Initial Interest Payment Period, the Initial Interest Rate, and with respect to each Interest Payment Period other than an Initial Interest Payment Period, a rate per annum equal to the product of (1) the Interest Factor and (2) the Variable Days divided by the Actual Days, *provided* that such rate may not exceed the Maximum Rate (if applicable as specified in the relevant terms supplement); or
  - (2) if the relevant terms supplement does not specify an Initial Interest Rate and does not further specify that the Excess Interest Balance is applicable, with respect to each Interest Payment Period, a rate per annum equal to the product of (1) the Interest Factor and (2) the Variable Days divided by the Actual Days, *provided* that such rate may not exceed the Maximum Rate (if applicable as specified in the relevant terms supplement); or
  - (3) if the relevant terms supplement specifies an Initial Interest Rate and further specifies that the Excess Interest Balance is applicable both to the Initial Interest Payment Period(s) and to Interest Payment Periods following the Initial Interest Payment Period(s), (i) with respect to each such Initial Interest Payment Period, a rate per annum equal to the sum of (a) the Initial Interest Rate and (b) the Excess Interest Balance, if any, for the related Initial Interest Payment Period; *provided* that such rate may not exceed the Maximum Rate and (ii) with respect to each subsequent Interest Payment Period, a rate per annum equal to the sum of (a) the product of (1) the Interest Factor and (2) the Variable Days divided by the Actual Days, and (b) the Excess Interest Balance, if any, for the related Interest Payment Period, *provided* that such rate may not exceed the Maximum Rate; or
  - (4) if the relevant terms supplement specifies an Initial Interest Rate and further specifies that the Excess Interest Balance is applicable with respect only to Interest Payment Periods following the Initial Interest Payment Period(s), (i) with respect to each such Initial Interest Payment Period, a rate per annum equal to the Initial Interest Rate and (ii) with respect to each subsequent Interest Payment Period, a rate per annum equal to the sum of (a) the product of (1) the Interest Factor and (2) the Variable Days divided by the Actual Days, and (b) the Excess Interest Balance, if any, for the related Interest Payment Period, *provided* that such rate may not exceed the Maximum Rate; or
  - (5) if the relevant terms supplement does not specify an Initial Interest Rate and further specifies that the Excess Interest Balance is applicable, with respect to each Interest Payment Period, a rate per annum equal to the sum of (a) the product of (1) the Interest Factor and (2) the Variable Days divided by the Actual Days and (b) the Excess Interest Balance, if any, for the related Interest Payment Period, *provided* that such rate may not exceed the Maximum Rate; or
- (b) if the relevant terms supplement specifies the Substitute Interest Rate Option is applicable and we exercise such Substitute Interest Rate Option on any Substitute Interest Reset Date, with respect to each Substitute Interest Payment Period, the Substitute Interest Rate, *provided* that such rate may not exceed the Maximum Rate (if applicable as specified in the relevant terms supplement). For the avoidance of doubt, the Excess Interest Balance will not apply to any Substitute Interest Payment Period.

Unless otherwise specified in the relevant terms supplement, the Interest Rate for each Interest Payment Period (other than an Initial Interest Payment Period or a Substitute Interest Payment Period, if applicable) will be calculated as follows:

$$\text{Interest Factor} \times \frac{\text{Variable Days}}{\text{Actual Days}}, \text{ where}$$

“Variable Days” is the number of calendar days during the relevant Interest Payment Period on which the Accrual Provision is satisfied and “Actual Days” is the actual number of calendar days in the relevant Interest Payment Period.

With respect to any Initial Interest Payment Period, the “Initial Interest Rate,” if applicable, will be a rate per annum (or, if more than one Initial Interest Payment Period is specified, a rate per annum for each such Initial Interest Payment Period) as specified in the relevant terms supplement, which may be a fixed rate or a floating rate linked to a rate specified in the relevant terms supplement and, if so specified in the relevant terms supplement, multiplied by a Leverage Factor and/or plus or minus a spread. If the Initial Interest Rate is specified as a fixed rate in the relevant terms supplement, such Initial Interest Rate may increase or decrease from one Initial Interest Payment Period to another. If the Initial Interest Rate is determined by reference to a floating rate, for purposes of the determination of the Initial Interest Rate for an Initial Interest Payment Period, that floating rate will be reset on each Initial Interest Reset Date, as specified in the relevant terms supplement. For example, the relevant terms supplement may specify that the Initial Interest Rate on the notes will be (1) 5.00% for the first Initial Interest Payment Period, (2) 5.25% for the second Initial Interest Payment Period and (3) 6.00% for each subsequent Initial Interest Payment Period. Alternatively, for example, the relevant terms supplement may specify that the Initial Interest Rate for each Initial Interest Payment Period will be equal to the sum of (1) the LIBOR Reference Rate with a Designated Maturity of three months on the applicable Initial Interest Reset Date plus (2) a spread of 4.00%. For the avoidance of doubt, the Initial Interest Rate may be one or more rates per annum that can be fixed or floating (multiplied by a Leverage Factor and/or plus or minus a spread, if applicable), and each such rate per annum may be specified with respect to an Initial Interest Payment Period. In addition, an Initial Interest Rate may change from one Initial Interest Payment Period to another from one fixed or floating rate to another fixed or floating rate (in each case, multiplied by a Leverage Factor and/or plus or minus a spread, if applicable).

The “Initial Interest Payment Period(s),” if applicable, will be the Interest Payment Period(s) as specified in the relevant terms supplement to which the Initial Interest Rate is applicable, subject to the Maximum Rate if so specified in the relevant terms supplement.

The “Initial Interest Reset Date,” if applicable, for each applicable Initial Interest Payment Period will be a date as specified in the relevant terms supplement that is a specified number of days prior to the first day of such Initial Interest Payment Period.

For each Interest Payment Period (other than the Initial Interest Payment Period(s) or any Substitute Interest Payment Period), the “Interest Factor” will be a rate per annum as specified in the relevant terms supplement, which may be a fixed rate or a floating rate linked to a rate specified in the relevant terms supplement and, if so specified in the relevant terms supplement, multiplied by a Leverage Factor and/or plus or minus a spread. If the Interest Factor is specified as a fixed rate in the relevant terms supplement, such Interest Factor may increase or decrease from one Interest Payment Period to another. If the Interest Factor is determined by reference to a floating rate (if applicable), for purposes of the determination of the Interest Factor for an Interest Payment Period, that floating rate will be reset on each Interest Factor Reset Date. For example, the relevant terms supplement may specify that the Interest Factor on the notes will be (1) 9.00% for the first Interest Payment Period, (2) 9.25% for the second Interest Payment Period and (3) 10.00% for each subsequent Interest Payment Period. Alternatively, for example, the relevant terms supplement may specify that the Interest Factor for each Interest Payment Period will be equal to the sum of (1) the LIBOR Reference Rate with a Designated Maturity of three months on the applicable Interest Factor Reset Date plus (2) a spread of 4.00%. For the avoidance of doubt, the Interest Factor may be one or more rates per annum that can be fixed or floating (multiplied by a Leverage Factor and/or plus or minus a spread, if applicable), and each such rate per annum may be specified with respect to certain Interest Payment Period(s). In addition, the Interest Factor may change from one Interest Payment Period to another from one fixed or floating rate to another fixed or floating rate (in each case, multiplied by a Leverage Factor and/or plus or minus a spread, if applicable).

For each Interest Payment Period (including the Initial Interest Payment Period(s), if applicable, and any Substitute Interest Payment Period, unless otherwise specified in the relevant terms supplement), the “Maximum Rate” will be a rate specified in the relevant terms supplement, multiplied by a Leverage Factor and/or plus or minus a spread, which may be (1) a fixed rate, (2) a floating rate linked to a rate specified in the relevant terms supplement or (3) a combination of (1) and (2). For example, the relevant terms supplement may specify that the Maximum Rate for each Interest Payment Period will be equal to the lesser of (1) 9.00% and (2) the product of (a) 2.0 and (b) the sum of (i) the LIBOR Reference Rate with a Designated Maturity of three months on the applicable Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date and (ii) 0.25%. If the Maximum Rate is

determined in whole or in part by reference to a floating rate (if applicable), for purposes of the determination of the Maximum Rate for an Interest Payment Period, that floating rate will be reset on each Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date, as applicable.

The “Minimum Rate” will be 0.00% per annum, unless otherwise specified in the relevant terms supplement.

Unless otherwise specified in the relevant terms supplement, for each Interest Payment Period (including the Initial Interest Payment Period(s), if applicable, unless otherwise specified in the relevant terms supplement, but excluding any Substitute Interest Payment Period), the “Excess Interest Balance” will be equal to (1) the sum of the Excess Interest Rates for all prior Interest Payment Periods *minus* (2) the total Excess Interest Balance (expressed as a percentage) paid on the Interest Payment Dates for all prior Interest Payment Periods. For the avoidance of doubt, the Excess Interest Balance for the first Interest Payment Period after the final Initial Interest Payment Period will be zero.

Unless otherwise specified in the relevant terms supplement, the “Excess Interest Rate” will be equal to (a) for each Initial Interest Payment Period, if applicable, (1) the applicable Initial Interest Rate *minus* (2) the Maximum Rate for that Initial Interest Payment Period, and (b) for each Interest Payment Period (other than the Initial Interest Payment Period(s), if applicable, or any Substitute Interest Payment Period, if applicable), (1) the product of (i) the Interest Factor and (ii) the Variable Days divided by the Actual Days for that Interest Payment Period *minus* (2) the Maximum Rate for that Interest Payment Period. Notwithstanding the foregoing, in no event will the Excess Interest Rate for any Interest Payment Period be less than the Minimum Rate.

The “Leverage Factor,” if applicable, will be as specified in the relevant terms supplement.

The “Interest Factor Reset Date,” if applicable, for each applicable Interest Payment Period will be a date as specified in the relevant terms supplement that is a specified number of days prior to the first day of such Interest Payment Period.

If the notes are not subject to redemption by us, or are subject to redemption by us, but have not been redeemed, interest will accrue from the issue date of the notes to but excluding the maturity date. Interest will be paid in arrears on each Interest Payment Date and on the maturity date, to the holders of record at the close of business on the date one (1) business day prior to that Interest Payment Date, unless otherwise specified in the relevant terms supplement. If the maturity date is adjusted due to a non-business day, the payment of interest due on the maturity date will be made on the maturity date, as adjusted, with the same force and effect as if the maturity date had not been adjusted, *provided* that any interest payable on the maturity date, as postponed, will accrue to but excluding the maturity date, as postponed.

If the notes are subject to redemption and have been redeemed, interest will accrue from the issue date of the notes to but excluding the applicable Redemption Date. Interest will be paid in arrears on each Interest Payment Date occurring before the Redemption Date and on such Redemption Date to the holders of record at the close of business one (1) business day prior to that Interest Payment Date or the Redemption Date, as applicable, unless otherwise specified in the relevant terms supplement. If the applicable Redemption Date is adjusted due to a non-business day, the payment of interest due on such Redemption Date will be made on the Redemption Date, as adjusted, with the same force and effect as if such Redemption Date had not been adjusted, *provided* that any interest payable on such Redemption Date, as postponed, will accrue to but excluding such Redemption Date, as postponed.

Unless otherwise specified in the relevant terms supplement, an “Interest Payment Period” is the period beginning on and including the issue date of the notes and ending on but excluding the first Interest Payment Date, or, if the notes are subject to redemption by us and have been redeemed prior to the first Interest Payment Date, ending on but excluding the applicable Redemption Date, and each successive period beginning on and including an Interest Payment Date and ending on but excluding the next succeeding Interest Payment Date or, if the notes are subject to redemption by us and have been redeemed prior to such next succeeding Interest Payment Date, ending on but excluding the applicable Redemption Date. The relevant terms supplement may specify that the Interest Payment Period is “Monthly,” “Quarterly” or “Semi-annual,” which means that the Interest Payment Period refers to a calendar month, a three-month period or a six-month period, respectively.

An “Interest Payment Date” will be as specified in the relevant terms supplement, *provided* that no Interest Payment Date will be more than twelve months after the immediately prior Interest Payment Date or issue date of the notes, as applicable. If any day on which a payment of interest is due is not a business day, the payment will be made with the same force and effect on the next succeeding business day, *provided* that any interest payable on such Interest Payment Date, as postponed, will accrue to but excluding such Interest Payment Date, as postponed, and the next Interest Payment Period, if applicable, will commence on such Interest Payment Date, as postponed.

Unless otherwise specified in the relevant terms supplement, “Day-Count Convention” means the number of days in the Interest Payment Period / 360, where the number of days is calculated on the basis of a year of 360 days with twelve months of thirty days each (which we may refer to in the relevant terms supplement as a “30/360” Day-Count Convention).

### ***Substitute Interest Rate Option***

If so specified in the relevant terms supplement, at our option, on any Substitute Interest Reset Date, we may elect to have the Interest Rate for each Interest Payment Period commencing after such Substitute Interest Reset Date (other than any Initial Interest Payment Period, if applicable) calculated by reference to the applicable Substitute Interest Rate. We refer to this option as the “Substitute Interest Rate Option” and each Interest Payment Period subject to the Substitute Interest Rate as a “Substitute Interest Payment Period.” The Substitute Interest Rate Option may only be exercised once during the term of the notes.

The “Substitute Interest Reset Date(s),” if applicable, will be specified in the relevant terms supplement, each of which will be a specified number of days prior to the first day of an Interest Payment Period.

With respect to each Substitute Interest Payment Period, the “Substitute Interest Rate” will be a rate per annum for each such Substitute Interest Payment Period as specified in the relevant terms supplement, which may be a fixed rate or a floating rate linked to a rate specified in the relevant terms supplement and, if so specified in the relevant terms supplement, multiplied by a Leverage Factor and/or plus or minus a spread. If the Substitute Interest Rate is specified as a fixed rate in the relevant terms supplement, such Substitute Interest Rate may increase or decrease from one Substitute Interest Payment Period to another. If the Substitute Interest Rate is determined by reference to a floating rate, for purposes of the determination of the Substitute Interest Rate for a Substitute Interest Payment Period, that floating rate will be reset on each Substitute Interest Reset Date, as specified in the relevant terms supplement. For example, the relevant terms supplement may specify that the Substitute Interest Rate on the notes will be (1) 5.00% for the first Substitute Interest Payment Period, (2) 5.25% for the second Substitute Interest Payment Period and (3) 6.00% for each subsequent Substitute Interest Payment Period. Alternatively, for example, the relevant terms supplement may specify that the Substitute Interest Rate for each Substitute Interest Payment Period will be equal to the sum of (1) the LIBOR Reference Rate with a Designated Maturity of three months on the applicable Substitute Interest Reset Date plus (2) a spread of 4.00%. For the avoidance of doubt, the Substitute Interest Rate may be one or more rates per annum that can be fixed or floating (multiplied by a Leverage Factor and/or plus or minus a spread, if applicable), and each such rate per annum may be specified with respect to a specific Substitute Interest Payment Period. In addition, a Substitute Interest Rate may change from one Substitute Interest Payment Period to another from one fixed or floating rate to another fixed or floating rate (in each case, multiplied by a Leverage Factor and/or plus or minus a spread, if applicable).

Unless otherwise specified in the relevant terms supplement, to exercise the Substitute Interest Rate Option, we will mail a notice of exercise to DTC, as holder of the global notes, by first-class mail, postage prepaid, at least 5 business days and not more than 15 business days prior to the applicable Substitute Interest Reset Date.

### ***The Accrual Provisions***

Unless otherwise specified in the relevant terms supplement, the Accrual Provision will be deemed satisfied on each calendar day during an Interest Payment Period (other than the Initial Interest Payment Period(s), if applicable, or any Substitute Interest Payment Period, if applicable) on which one or a combination of the following (as specified in the relevant terms supplement) occurs: (i) the USD CMS Provision is satisfied; (ii) the EUR CMS Provision is satisfied; (iii) the LIBOR Provision is satisfied; (iv) the CMT Provision is satisfied; (v) the SIFMA/LIBOR Provision is satisfied; or (vi) the Index Provision is satisfied, in each case, on such calendar day. The relevant terms supplement may refer to any calendar day on which the Accrual Provision is satisfied as an “Accrual Day.”

Unless otherwise specified in the relevant terms supplement, the USD CMS Provision will be deemed satisfied on each calendar day during an Interest Payment Period (other than the Initial Interest Payment Period(s), if applicable, or any Substitute Interest Payment Period, if applicable) on which, as specified in the relevant terms supplement, the applicable USD CMS Reference Rate of a Designated Maturity or the difference between two USD CMS Reference Rates with different Designated Maturities (which we refer to as the “USD CMS Spread”) is equal to or greater than the low end of a range and equal to or less than the high end of such range (which we refer to as the “USD CMS Range”), or equal to, less than or greater than a specified percentage (which we refer to as the “USD CMS Strike”), which may be equal to, less than or greater than (as specified in the relevant terms supplement) 0%, in each case, as determined on the applicable USD CMS Determination Date.

Unless otherwise specified in the relevant terms supplement, the EUR CMS Provision will be deemed satisfied on each calendar day during an Interest Payment Period (other than the Initial Interest Payment Period(s), if applicable, or any Substitute Interest Payment Period, if applicable) on which, as specified in the relevant terms supplement, the applicable EUR CMS Reference Rate of a Designated Maturity or the difference between two EUR CMS Reference Rates with different Designated Maturities (which we refer to as the “EUR CMS Spread”) is equal to or greater than the low end of a range and equal to or less than the high end of such range (which we refer to as the “EUR CMS Range”), or equal to, less than or greater than a specified percentage (which we refer to as the “EUR CMS Strike”), which may be equal to, less than or greater than (as specified in the relevant terms supplement) 0%, in each case, as determined on the applicable EUR CMS Determination Date.

Unless otherwise specified in the relevant terms supplement, the LIBOR Provision will be deemed satisfied on each calendar day during an Interest Payment Period (other than the Initial Interest Payment Period(s), if applicable, or any Substitute Interest Payment Period, if applicable) on which, as specified in the relevant terms supplement, the applicable LIBOR Reference Rate of a Designated Maturity or the difference between two LIBOR Reference Rates with different Designated Maturities (which we refer to as the “LIBOR Spread”) is equal to or greater than the low end of a range and equal to or less than the high end of such range (which we refer to as the “LIBOR Range”), or equal to, less than or greater than a specified percentage (which we refer to as the “LIBOR Strike”), which may be equal to, less than or greater than (as specified in the relevant terms supplement) 0%, in each case, on the applicable LIBOR Determination Date.

Unless otherwise specified in the relevant terms supplement, the CMT Provision will be deemed satisfied on each calendar day during an Interest Payment Period (other than the Initial Interest Payment Period(s), if applicable, or any Substitute Interest Payment Period, if applicable) on which, as specified in the relevant terms supplement, the applicable CMT Reference Rate of a Designated Maturity or the difference between two CMT Reference Rates with different Designated Maturities (which we refer to as the “CMT Spread”) is equal to or greater than the low end of a range and equal to or less than the high end of such range (which we refer to as the “CMT Range”), or equal to, less than or greater than a specified percentage (which we refer to as the “CMT Strike”), which may be equal to, less than or greater than (as specified in the relevant terms supplement) 0%, in each case, on the applicable CMT Determination Date.

Unless otherwise specified in the relevant terms supplement, the SIFMA/LIBOR Provision will be deemed satisfied on each calendar day during an Interest Payment Period (other than the Initial Interest Payment Period(s), if applicable, or any Substitute Interest Payment Period, if applicable) on which the Average SIFMA/Average LIBOR Ratio on the applicable SIFMA/LIBOR Determination Date is less than or equal to the Specified SIFMA/LIBOR Percentage. Notwithstanding the preceding sentence, if, with respect to notes for which the SIFMA/LIBOR Provision is applicable, Average LIBOR on any SIFMA/LIBOR Determination Date is less than or equal to the Specified Average LIBOR Reference Rate, then the SIFMA/LIBOR Provision will be deemed satisfied for each calendar day in the calendar week immediately following the calendar week in which such SIFMA/LIBOR Determination Date occurs.

Unless otherwise specified in the relevant terms supplement, the Index Provision will be deemed satisfied on each calendar day during an Interest Payment Period (other than the Initial Interest Payment Period(s), if applicable, or any Substitute Interest Payment Period, if applicable) on which, as specified in the relevant terms supplement, the Index Closing Value is equal to or greater than the low end of a range and equal to or less than the high end of such range (which we refer to as the “Index Range”) or equal to or less than the high end of such range (which we refer to as the “Index Reference Level”), which may be equal to, less than or greater than (as specified in the relevant terms supplement) 0%, in each case, on the applicable Equity Determination Date.

The “USD CMS Range,” if applicable, will be a range of per annum rates within which the applicable USD CMS Reference Rate may satisfy the USD CMS Provision, as specified in the relevant terms supplement.

The “USD CMS Spread,” if applicable, will be a spread between USD CMS Reference Rates, as specified in the relevant terms supplement.

The “USD CMS Strike,” if applicable, will be a specified percentage, as specified in the relevant terms supplement.

The “EUR CMS Range,” if applicable, will be a range of per annum rates within which the applicable EUR CMS Reference Rate may satisfy the EUR CMS Provision, as specified in the relevant terms supplement.

The “EUR CMS Spread,” if applicable, will be a spread between EUR CMS Reference Rates, as specified in the relevant terms supplement.

The “EUR CMS Strike,” if applicable, will be a specified percentage, as specified in the relevant terms supplement.

The “LIBOR Range,” if applicable, will be a range of per annum rates within which the applicable LIBOR Reference Rate may satisfy the LIBOR Provision, as specified in the relevant terms supplement.

The “LIBOR Spread,” if applicable, will be a spread between LIBOR Reference Rates, as specified in the relevant terms supplement.

The “LIBOR Strike,” if applicable, will be a specified percentage, as specified in the relevant terms supplement.

The “CMT Range,” if applicable, will be a range of per annum rates within which the applicable CMT Reference Rate may satisfy the CMT Provision, as specified in the relevant terms supplement.

The “CMT Spread,” if applicable, will be a spread between CMT Reference Rates, as specified in the relevant terms supplement.

The “CMT Strike,” if applicable, will be a specified percentage, as specified in the relevant terms supplement.

The “Index Range,” if applicable, will be a range of Index Closing Values within which the applicable Index Closing Value may satisfy the Index Provision, as specified in the relevant terms supplement.

The “Index Reference Level,” if applicable, will be a specified Index Closing Value, as specified in the relevant terms supplement.

The “Specified SIFMA/LIBOR Percentage,” if applicable, will be as specified in the relevant terms supplement.

The “Specified Average LIBOR Reference Rate,” if applicable, will be as specified in the relevant terms supplement.

The “USD CMS Determination Date,” if applicable, will be, for each calendar day in an Interest Payment Period to which the applicable USD CMS Provision applies, as specified in the relevant terms supplement, or, if not specified in the relevant terms supplement, the second U.S. Government Securities Business Day prior to such calendar day; *provided, however*, that if such calendar day is not a U.S. Government Securities Business Day, the USD CMS Determination Date will be the third U.S. Government Securities Business Day immediately preceding such calendar day. For example, if the applicable calendar day was a Saturday or Sunday, the USD CMS Determination Date would be the Wednesday preceding such calendar day (*i.e.*, the third U.S. Government Securities Business Day immediately preceding such calendar day), assuming Wednesday, Thursday and Friday were each a U.S. Government Securities Business Day. Notwithstanding the foregoing, if the relevant terms supplement specifies that a Cutoff applies, for each calendar day in the Cutoff, the USD CMS Determination Date will be the U.S. Government Securities Business Day immediately preceding the first day of the Cutoff, unless otherwise specified in the relevant terms supplement.



The “EUR CMS Determination Date,” if applicable, will be, for each calendar day in an Interest Payment Period to which the applicable EUR CMS Provision applies, as specified in the relevant terms supplement, or, if not specified in the relevant terms supplement, the second TARGET Settlement Day prior to such calendar day; *provided, however*, that if such calendar day is not a TARGET Settlement Day, the EUR CMS Determination Date will be the third TARGET Settlement Day immediately preceding such calendar day. For example, if the applicable calendar day was a Saturday or Sunday, the EUR CMS Determination Date would be the Wednesday preceding such calendar day (*i.e.*, the third TARGET Settlement Day immediately preceding such calendar day), assuming Wednesday, Thursday and Friday were each a TARGET Settlement Day. Notwithstanding the foregoing, if the relevant terms supplement specifies that a Cutoff applies, for each calendar day in the Cutoff, the EUR CMS Determination Date will be the TARGET Settlement Day immediately preceding the first day of the Cutoff, unless otherwise specified in the relevant terms supplement.

The “LIBOR Determination Date,” if applicable, will be, for each calendar day in an Interest Payment Period to which the applicable LIBOR Provision applies, as specified in the relevant terms supplement, or, if not specified in the relevant terms supplement, the second London Banking Day prior to such calendar day; *provided, however*, that if such calendar day is not a London Banking Day, the LIBOR Determination Date will be the third London Banking Day immediately preceding such calendar day. For example, if the applicable calendar day was a Saturday or Sunday, the LIBOR Determination Date would be the Wednesday preceding such calendar day (*i.e.*, the third London Banking Day immediately preceding such calendar day), assuming Wednesday, Thursday and Friday were each a London Banking Day. Notwithstanding the foregoing, if the relevant terms supplement specifies that a Cutoff applies, for each calendar day in the Cutoff, the LIBOR Determination Date will be the London Banking Day immediately preceding the first day of the Cutoff, unless otherwise specified in the relevant terms supplement.

The “CMT Determination Date,” if applicable, will be, for each calendar day in an Interest Payment Period to which the applicable CMT Provision applies, as specified in the relevant terms supplement, or, if not specified in the relevant terms supplement, the second U.S. Government Securities Business Day prior to such calendar day; *provided, however*, that if such calendar day is not a U.S. Government Securities Business Day, the CMT Determination Date will be the third U.S. Government Securities Business Day immediately preceding such calendar day. For example, if the applicable calendar day was a Saturday or Sunday, the CMT Determination Date would be the Wednesday preceding such calendar day (*i.e.*, the third U.S. Government Securities Business Day immediately preceding such calendar day), assuming Wednesday, Thursday and Friday were each a U.S. Government Securities Business Day. Notwithstanding the foregoing, if the relevant terms supplement specifies that a Cutoff applies, for each calendar day in the Cutoff, the CMT Determination Date will be the U.S. Government Securities Business Day immediately preceding the first day of the Cutoff, unless otherwise specified in the relevant terms supplement.

The “SIFMA/LIBOR Determination Date” will be, for each calendar day in the applicable Interest Payment Period or the applicable SIFMA/LIBOR Averaging Period, as specified in the relevant terms supplement, or, if not specified in the relevant terms supplement, the immediately preceding Thursday. Notwithstanding the foregoing, if the relevant terms supplement specifies that a Cutoff applies, for each calendar day in the Cutoff, the SIFMA/LIBOR Determination Date will be the Thursday immediately preceding the first day of the Cutoff, unless otherwise specified in the relevant terms supplement.

The “Index Determination Date” will be, for each calendar day in an Interest Payment Period to which the applicable Index Provision applies, as specified in the relevant terms supplement, or, if not specified in the relevant terms supplement, the second trading day prior to such calendar day; *provided, however*, that if such calendar day is not a trading day, the Index Determination Date will be the third trading day immediately preceding such calendar day. For example, if the applicable calendar day was a Saturday or Sunday, the Index Determination Date would be the Wednesday preceding such calendar day (*i.e.*, the third trading day immediately preceding such calendar day), assuming Wednesday, Thursday and Friday were each a trading day. Notwithstanding the foregoing, if the relevant terms supplement specifies that a Cutoff applies, for each calendar day in the Cutoff, the Index Determination Date will be the trading day immediately preceding the first day of the Cutoff, unless otherwise specified in the relevant terms supplement.

The “SIFMA/LIBOR Averaging Period,” if applicable, will be as specified in the relevant terms supplement.

The “Cutoff,” if applicable, will be as specified in the relevant terms supplement. For example, the relevant terms supplement may specify that the Cutoff will be the period commencing on the sixth business day prior to each Interest Payment Date and ending on the business day prior to such Interest Payment Date.

### ***The Underlying Rates and Levels***

#### ***USD CMS Reference Rate***

Unless otherwise specified in the relevant terms supplement, for each USD CMS Determination Date and, if applicable, any Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date, the USD CMS Reference Rate refers to the rate for U.S. Dollar swaps with the Designated Maturities specified in the relevant terms supplement that appears on Reuters page “ISDAFIX1” (or any successor page) at approximately 11:00 a.m., New York City time, on such USD CMS Determination Date (or, if applicable, such Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date), as determined by the calculation agent. If on such USD CMS Determination Date (or, if applicable, such Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date) the applicable USD CMS Reference Rate cannot be determined by reference to the applicable Reuters page (or any successor page), then the calculation agent will request from five leading swap dealers in the New York City interbank market, selected by the calculation agent, mid-market semi-annual swap rate quotations in a Representative Amount and with terms equal to the Designated Maturities, at approximately 11:00 a.m., New York City time, on the USD CMS Determination Date (or, if applicable, such Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date) relating to such calendar day. The “semi-annual swap rate” means the mean of the bid and offered rates for the semi-annual fixed leg, calculated on a 30/360 day count basis, of a fixed-for-floating U.S. Dollar interest rate swap transaction with a term equal to the applicable Designated Maturity commencing on the relevant USD CMS Determination Date (or, if applicable, such Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date) and in the Representative Amount with an acknowledged dealer of good credit in the swap market, where the floating leg, calculated on an Actual/360 day count basis, is equivalent to the LIBOR Reference Rate with a Designated Maturity of 3 months. If at least three quotations are provided as requested, the calculation agent will calculate the applicable USD CMS Reference Rate by eliminating the highest quotation (or in the event of equality, one of the highest) and the lowest quotation (or, in the case of equality, one of the lowest) and taking the arithmetic mean of the remaining rates. If fewer than three quotations are provided, the USD CMS Reference Rate will be determined by the calculation agent, acting in a commercially reasonable manner.

#### ***EUR CMS Reference Rate***

For each EUR CMS Determination Date (and, if applicable, any Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date), the EUR CMS Reference Rate refers to the annual swap rate for Euro swap transactions with the Designated Maturities specified in the relevant terms supplement, that appears on Reuters page “ISDAFIX2” (or any successor page) under the heading “EURIBOR BASIS—EUR” and above the caption “11:00 AM Frankfurt” at approximately 11:00 a.m., Frankfurt time, on such EUR CMS Determination Date (or, if applicable, such Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date), as determined by the calculation agent. If on such EUR CMS Determination Date (or, if applicable, such Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date) the applicable EUR CMS Reference Rate cannot be determined by reference to the applicable Reuters page (or any successor page), then the calculation agent will request from five leading swap dealers in the Frankfurt interbank market, selected by the calculation agent, mid-market annual swap rate quotations in a Representative Amount and with terms equal to the Designated Maturities, at approximately 11:00 a.m., Frankfurt time, on the EUR CMS Determination Date (or, if applicable, such Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date) relating to such calendar day. The “annual swap rate” means the mean of the bid and offered rates for the annual fixed leg, calculated on a 30/360 day count basis, of a fixed-for-floating Euro interest rate swap transaction with a term equal to the applicable Designated Maturity commencing on the relevant EUR CMS Determination Date (or, if applicable, such Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date) and in the Representative Amount with an acknowledged dealer of good credit in the swap market, where the floating leg, calculated on an Actual/360 day count basis, is equivalent to the Euro Interbank Offered Rate, or the EURIBOR, with a Designated Maturity of six months. If five quotations are provided as requested, the calculation agent will calculate the applicable EUR CMS Reference Rate by eliminating the highest and lowest rates and taking the arithmetic mean of the remaining rates. If at least three, but fewer than five, quotations are provided, the EUR CMS Reference Rate will be the

arithmetic mean of the quotations. If fewer than three quotations are provided, the EUR CMS Reference Rate will be determined by the calculation agent, acting in a commercially reasonable manner.

#### *LIBOR Reference Rate*

For each LIBOR Determination Date or SIFMA/LIBOR Determination Date (and, if applicable, any Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date), the “LIBOR Reference Rate” refers to the London Interbank Offered Rate for deposits in U.S. dollars with the Designated Maturity specified in the relevant terms supplement that appears on Reuters page “LIBOR01” (or any successor page) at approximately 11:00 a.m., London time, on such LIBOR Determination Date or SIFMA/LIBOR Determination Date (or, if applicable, such Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date), or if such SIFMA/LIBOR Determination Date, if applicable, is not a London Banking Day, on the London Banking Day immediately preceding such SIFMA/LIBOR Determination Date, as determined by the calculation agent. If on any such LIBOR Determination Date or SIFMA/LIBOR Determination Date (or, if applicable, such Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date) the applicable LIBOR Reference Rate cannot be determined by reference to the applicable Reuters page (or any successor page), then the calculation agent will request the principal London office of four major banks in the London interbank market, selected by the calculation agent, for deposits in U.S. dollars in a Representative Amount and for a term equal to the Designated Maturity, at approximately 11:00 a.m., London time, on such LIBOR Determination Date or SIFMA/LIBOR Determination Date (or, if applicable, such Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date). If at least two such quotations are provided, the applicable LIBOR Reference Rate for such LIBOR Determination Date or SIFMA/LIBOR Determination Date (or, if applicable, such Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date) will be the arithmetic average of such quotations. If fewer than two such quotations are provided, the calculation agent, *provided* that the applicable LIBOR Determination Date or SIFMA/LIBOR Determination Date (or, if applicable, such Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date) is also a business day, will request each of three major banks in The City of New York to provide such bank’s rate to leading European banks for loans in U.S. dollars in a Representative Amount and for a term equal to the Designated Maturity, at approximately 11:00 a.m., New York City time, on such business day. If at least two such rates are provided, then the applicable LIBOR Reference Rate for such business day will be the arithmetic average of such rates. If fewer than two such rates are provided, or if the applicable LIBOR Determination Date or SIFMA/LIBOR Determination Date (or, if applicable, such Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date) is not also a business day, then the applicable LIBOR Reference Rate for such LIBOR Determination Date or SIFMA/LIBOR Determination Date (or, if applicable, such Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date) will be the applicable LIBOR Reference Rate for the immediately preceding London Banking Day.

#### *CMT Reference Rate*

For each CMT Determination Date (and, if applicable, any Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date), the CMT Reference Rate refers to the yield for United States Treasury securities at “constant maturity” with the Designated Maturity specified in the relevant terms supplement as set forth in H.15(519) under the caption “Treasury constant maturities,” as such yield is displayed on the Reuters page “FRBCMT” (or any successor page) on such CMT Determination Date (or, if applicable, such Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date), as determined by the calculation agent.

“H.15(519)” means the weekly statistical release designated as such, or any successor publication, published by the Board of Governors of the Federal Reserve System, available through the Web site of the Board of Governors of the Federal Reserve System at <http://www.federalreserve.gov/releases/H15/> or any successor site or publication. We make no representation or warranty as to the accuracy or completeness of the information displayed on such Web site, and such information is not incorporated by reference herein and should not be considered a part of this product supplement no. MS-2-I.

If on any CMT Determination Date (or, if applicable, any Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date) the applicable CMT Reference Rate cannot be determined by reference to the applicable Reuters page, then the following procedures will be used:

- If the CMT Reference Rate is not displayed on the applicable Reuters page by 3:30 p.m., New York City time on such CMT Determination Date (or, if applicable, such Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date), then the CMT Reference Rate for such CMT Determination Date (or, if applicable, a such Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date) will be a percentage equal to the yield for United States Treasury securities at constant maturity for a period of the Designated Maturity as set forth in H.15(519) under the caption "Treasury constant maturities" (expressed as a number and not a percentage).
- If the applicable CMT Reference Rate does not appear in H.15(519), the CMT Reference Rate for such CMT Determination Date (or, if applicable, such Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date) will be the rate for a period of the Designated Maturity as may then be published by either the Federal Reserve System Board of Governors or the United States Department of the Treasury that the calculation agent determines to be comparable to the rate which would otherwise have been published in H.15-519 (expressed as a number and not a percentage).
- If on any CMT Determination Date (or, if applicable, such Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date), neither the Board of Governors of the Federal Reserve System nor the United States Department of the Treasury publishes a yield on United States Treasury securities at a constant maturity for the maturity of the relevant CMT Reference Rate, the CMT Reference Rate on the relevant CMT Determination Date (or, if applicable, such Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date) will be calculated by the calculation agent based on the arithmetic mean of the secondary market bid prices at approximately 3:30 p.m., New York City time, on the relevant CMT Determination Date (or, if applicable, such Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date), received from three leading primary United States government securities dealers in The City of New York (expressed as a number and not a percentage). The calculation agent will select five such securities dealers, and will eliminate the highest quotation (or, in the event of equality, one of the highest) and the lowest quotation (or, in the event of equality, one of the lowest), for United States Treasury securities with an original maturity equal to the maturity of the relevant CMT Reference Rate, a remaining term to maturity of no more than one year shorter than the maturity of the relevant CMT Reference Rate and in a stated principal amount equal to the Representative Amount. If two bid prices with an original maturity as described above have remaining terms to maturity equally close to the maturity of the relevant CMT Reference Rate, the quotes for the United States Treasury security with the shorter remaining term to maturity will be used.
- If fewer than five but more than two such prices are provided as requested, the CMT Reference Rate for the relevant CMT Determination Date (or, if applicable, such Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date) will be based on the arithmetic mean of the bid prices obtained and neither the highest nor the lowest of such quotations will be eliminated.
- If the calculation agent cannot obtain three United States Treasury securities quotations of the kind requested in the prior two bullet points, the calculation agent will determine the CMT Reference Rate to be an amount equal to the yield to maturity based on the arithmetic mean of the secondary market bid prices for United States Treasury securities, at approximately 3:30 p.m., New York City time, on the relevant CMT Determination Date (or, if applicable, such Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date) of three leading primary United States government securities dealers in The City of New York (expressed as a number and not a percentage). In selecting these bid prices, the calculation agent will request quotations from at least five such securities dealers and will disregard the highest quotation (or if there is equality, one of the highest) and the lowest quotation (or if there is equality, one of the lowest) for United States Treasury securities with an original maturity greater than the maturity of the relevant CMT Reference Rate, a remaining term to maturity closest to the maturity of the relevant CMT Reference

Rate and in a Representative Amount. If two United States Treasury securities with an original maturity longer than the maturity of the relevant CMT Reference Rate have remaining terms to maturity that are equally close to the maturity of the relevant CMT Reference Rate, the calculation agent will obtain quotations for the United States Treasury security with the shorter remaining term to maturity.

- If fewer than five but more than two of the leading primary United States government securities dealers provide quotes as described in the prior paragraph, then the CMT Reference Rate will be based on the arithmetic mean of the bid prices obtained, and neither the highest nor the lowest of those quotations will be eliminated.
- If fewer than three leading primary United States government securities reference dealers selected by the calculation agent provide quotes as described above, the CMT Reference Rate will be determined by the calculation agent acting in a commercially reasonable manner.

#### *The Average SIFMA/Average LIBOR Ratio*

Unless otherwise specified in the relevant terms supplement, for each SIFMA/LIBOR Determination Date to which the applicable SIFMA/LIBOR Provision relates, the Average SIFMA/LIBOR Ratio is the ratio of the Average SIFMA Level to Average LIBOR, expressed as a percentage, on such SIFMA/LIBOR Determination Date, as determined by the calculation agent.

For each calendar day to which the applicable SIFMA/LIBOR Provision applies, the “Average SIFMA Level” on any SIFMA/LIBOR Determination Date will be equal to the daily weighted average of the Index levels of the SIFMA Municipal Swap Index for each calendar day in the SIFMA/LIBOR Averaging Period. For the purposes of calculating the Average SIFMA Level, the Index level of the SIFMA Municipal Swap Index for each calendar day in the SIFMA/LIBOR Averaging Period will be based on the Index level of the SIFMA Municipal Swap Index on the SIFMA/LIBOR Determination Date, or, if such SIFMA/LIBOR Determination Date is not a U.S. Government Securities Business Day, based on the Index level of the SIFMA Municipal Swap Index on the U.S. Government Business Day immediately preceding such SIFMA/LIBOR Determination Date. The Index level of the SIFMA Municipal Swap Index is reset weekly on each SIFMA/LIBOR Determination Date; however, the average calculation is measured daily for each calendar day in the SIFMA/LIBOR Averaging Period.

Unless otherwise specified in the relevant terms supplement, the “Average LIBOR” on any SIFMA/LIBOR Determination Date will be equal to the daily weighted average of the applicable LIBOR Reference Rates for each calendar day in the SIFMA/LIBOR Averaging Period. For the purposes of calculating the Average LIBOR, the determination of the applicable LIBOR Reference Rate for each calendar day in the SIFMA/LIBOR Averaging Period will be based on such LIBOR Reference Rate on the SIFMA/LIBOR Determination Date, or, if such SIFMA/LIBOR Determination Date is not a London Banking Day, based on the LIBOR Reference Rate on the London Banking Day immediately preceding such SIFMA/LIBOR Determination Date. The applicable LIBOR Reference Rate will be reset weekly on each SIFMA/LIBOR Determination Date; however, the average calculation is measured daily for each calendar day in the SIFMA/LIBOR Averaging Period.

The “SIFMA Index level,” with respect to the SIFMA Municipal Swap Index or any successor index (as defined below), on any SIFMA/LIBOR Determination Date will equal the official published level of the SIFMA Municipal Swap Index or any successor index on such date. Under some circumstances, the SIFMA Index level of the SIFMA Municipal Swap Index or any successor index may be determined based on the alternative calculation described under “SIFMA Municipal Swap Index — Discontinuation of the SIFMA Municipal Swap Index; Alteration of Method of Calculation.”

#### *The Index Closing Value*

Unless otherwise specified in the relevant terms supplement, with respect to an Index, the “Index Closing Value” on any trading day will equal the official closing level of such Index or any successor equity index thereto (as described under “General Terms of Notes — Discontinuation of an Index; Alteration of Method of Calculation”) published following the regular official weekday close of trading on that trading day. If a market disruption event

exists with respect to an Index on any Index Determination Date, the Index Closing Value on the immediately preceding Index Determination Date for which no market disruption event occurs or is continuing will be the Index Closing Value for such disrupted Index Determination Date (and will also be the Index Closing Value for the originally scheduled Index Determination Date). In certain circumstances, the “Index Closing Value” for an Index will be based on the alternative calculation of such Index described under “General Terms of Notes — Discontinuation of an Index; Alteration of Method of Calculation.”

### ***General Terms Relating to the Accrual Provisions***

The “Representative Amount” means an amount equal to the outstanding stated principal amount of the notes, as set forth in the relevant terms supplement, as of the relevant date of determination.

The relevant terms supplement will specify the applicable maturity to be used to determine the applicable USD CMS Reference Rate, EUR CMS Reference Rate, LIBOR Reference Rate or CMT Reference Rate, which, in each instance, we refer to as the “Designated Maturity.” For example, the relevant terms supplement may specify that the applicable USD CMS Reference Rates will be 30-Year USD CMS Reference Rate and the 10-Year USD CMS Reference Rate, or that the applicable EUR CMS Reference Rates will be 10-Year EUR CMS Reference Rate and the 2-Year EUR CMS Reference Rate, or that the applicable LIBOR Reference Rate will be the three-month LIBOR Reference Rate, or that the applicable CMT Reference Rate will be the 10-Year CMT Reference Rate.

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 dollars are not conducted.

A “London Banking Day” is, unless otherwise specified in the relevant terms supplement, any day other than a day on which banking institutions in London are authorized or required by law, regulation or executive order to close.

A “U.S. Government Securities Business Day” is, unless otherwise specified in the relevant terms supplement, any day other than a Saturday, Sunday or a day on which the Securities Industry and Financial Markets Association recommends that the fixed income departments of its members be closed for the entire day for purposes of trading U.S. government securities.

A “TARGET Settlement Day” is any business day, unless otherwise specified in the relevant terms supplement, on which the Trans-European Automated Real-time Gross settlement Express Transfer system (“TARGET2”) is open.

A “trading day” is, unless otherwise specified in the relevant terms supplement, a day, as determined by the calculation agent, on which trading is generally conducted on (i) the relevant exchanges (as defined below) for the securities underlying the Index or the relevant successor equity index, as applicable, and (ii) the exchanges on which futures or options contracts related to the Index or the relevant successor equity index, if applicable, are traded, other than a day on which trading on such relevant exchange or exchange on which such futures or options contracts are traded is scheduled to close prior to its regular weekday closing time.

Unless otherwise specified in the relevant terms supplement or any relevant underlying supplement, “relevant exchange” is the primary exchange or market of trading for any security (or any combination thereof) then included in that Index or successor index, as applicable.

Unless otherwise specified in the relevant terms supplement, the “calculation agent,” which is the agent appointed by us to make certain calculations for the notes, 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.”

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. Please see “Plan of Distribution (Conflicts of Interest)” below.

**Other Terms**

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

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.

## **RISK FACTORS**

***Your investment in the notes will involve certain 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.***

**Floating rate notes present different investment considerations than fixed rate notes or similar floating rate securities.**

The rate of interest paid by us on the notes for each Interest Payment Period (other than Initial Interest Payment Period(s) with a fixed Initial Interest Rate, if applicable, or any Substitute Interest Payment Period subject to a fixed Substitute Interest Rate, if applicable) is not fixed, but will, subject to our exercise of the Substitute Interest Rate Option, if applicable, vary depending on the number of days during any such Interest Payment Period on which the applicable Accrual Provision is satisfied, and whether such Accrual Provision is satisfied will depend on the daily fluctuations in the applicable USD CMS Reference Rate (or USD CMS Spread), EUR CMS Reference Rate (or EUR CMS Spread), LIBOR Reference Rate (or LIBOR Spread), CMT Reference Rate (or CMT Spread), the Average SIFMA/Average LIBOR Ratio or the Index Closing Value. Consequently, the return on the notes may be less than returns otherwise payable on debt securities issued by us with similar maturities. The variable interest rate on the notes, while determined, in part, by reference to the applicable USD CMS Reference Rate (or USD CMS Spread), EUR CMS Reference Rate (or EUR CMS Spread), LIBOR Reference Rate (or LIBOR Spread), CMT Reference Rate (or CMT Spread), the Average SIFMA/Average LIBOR Ratio or the Index Closing Value, does not actually pay at such rates. You should consider, among other things, the overall annual percentage rate of interest to maturity as compared to other equivalent investment alternatives. We have no control over any fluctuations in the applicable USD CMS Reference Rates (or USD CMS Spread), EUR CMS Reference Rate (or EUR CMS Spread), LIBOR Reference Rate (or LIBOR Spread), CMT Reference Rate (or CMT Spread), the Average SIFMA/Average LIBOR Ratio or the Index Closing Value.

**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 redemption, 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.

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

JPMS and other affiliates of ours trade U.S. Treasury securities and other instruments the value of which is derived from U.S. Treasury securities, financial instruments related to the USD CMS Reference Rates, the EUR CMS Reference Rates, LIBOR Reference Rates, the CMT Reference Rates, the Index and/or the SIFMA Municipal Swap Index, and some or all of the VRDOs included in the SIFMA Municipal Swap Index and listed or over-the-counter options on such VRDOs, or enter into interest rate swap and option transactions, for their accounts and for other accounts under their management. JPMS and these affiliates may also issue or underwrite or assist unaffiliated entities in the issuance or underwriting of other securities or financial instruments with returns linked, as applicable, to the USD CMS Reference Rate, the EUR CMS Reference Rate, the LIBOR Reference Rate, the CMT Reference Rate, the SIFMA Municipal Swap Index or some or all of the VRDOs included in the SIFMA Municipal Swap Index and/or the Index. To the extent that we or one of our affiliates serves as issuer, agent or underwriter for such securities or financial instruments, our or their interests with respect to such products may be adverse to those of the holders of the notes. Any of these trading activities could potentially affect the applicable USD CMS Reference Rate, EUR CMS Reference Rate, LIBOR Reference Rate, the CMT Reference Rate, the SIFMA Municipal Swap Index or the Index and, accordingly, could affect the value of the notes and the amount of interest, if any, payable on each Interest Payment Date.



We or one or more of our affiliates may publish research reports, or otherwise express views about the debt market, interest rates, including USD CMS Reference Rates, EUR CMS Reference Rates, LIBOR Reference Rates, CMT Reference Rates, the VRDOs included in the SIFMA Municipal Swap Index and the Index. Any prospective purchaser of notes should undertake an independent investigation of the debt market, interest rates, VRDOs included in the SIFMA Municipal Swap Index and the Index, as applicable, as in its judgment is appropriate to make an informed decision with respect to any investment in the notes.

Furthermore, we or one of our affiliates may serve as issuer, agent or underwriter for additional issuances of notes with returns linked to (or related to spreads between) USD CMS Reference Rates, EUR CMS Reference Rates, LIBOR Reference Rates, CMT Reference Rates, the SIFMA Municipal Swap Index and the Index. 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 may have hedged our obligations under the notes through certain affiliates or unaffiliated counterparties, who would expect to make a profit on such hedge. Because hedging our obligations entails risk and may be influenced by market forces beyond our control, such hedging may result in a profit that is more or less than expected, or it may result in a loss.

JPMS, one of our affiliates, will act as the calculation agent. The calculation agent will determine, among other things: the applicable USD CMS Reference Rate, EUR CMS Reference Rate, LIBOR Reference Rate and CMT Reference Rate, the Average LIBOR, the Index level of the SIFMA Municipal Swap Index and the Average SIFMA Level, the Index Closing Value, the applicable Interest Factor and Interest Rate for each Interest Payment Period (including the Initial Interest Rate for an Initial Interest Payment Period, the Excess Interest Balance and Excess Interest Rate and the Substitute Interest Rate, in each case, if applicable), whether the applicable Accrual Provision is satisfied on each calendar day of any Interest Payment Period, the Interest Payment Dates, the amount of interest payable on each Interest Payment Date and the amount of cash that we are required to pay to you at maturity or upon redemption, if applicable. In addition, the calculation agent will determine whether a day is a business day, TARGET Settlement Day, London Banking Day, U.S. Government Securities Business Day or trading day, whether there has been a discontinuation of the SIFMA Municipal Swap Index or the Index, whether there has been a market disruption event with respect to the Index and whether there has been a material change in the method of calculating the Index level of the SIFMA Municipal Swap Index or the Index Closing Value. 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.

**The interest rate on the notes for any Interest Payment Period (including the Initial Interest Payment Period(s), if applicable, unless otherwise specified in the relevant terms supplement) will be limited by a Maximum Rate, if applicable.**

If the relevant terms supplement specifies a Maximum Rate, the Interest Rate for any Interest Payment Period (including the Initial Interest Payment Period(s), if applicable, and any Substitute Interest Payment Period, if applicable, unless otherwise specified in the relevant terms supplement) will be limited by a Maximum Rate. The Maximum Rate will limit the amount of interest you may receive for each such Interest Payment Period, even if the fixed or floating rate component, as adjusted by any Leverage Factor and/or a spread, of the Initial Interest Rate, Interest Factor or Substitute Interest Rate, as applicable, and after giving effect to any Excess Interest Balance, if applicable, in any such Interest Payment Period, would have otherwise resulted in an Interest Rate greater than the Maximum Rate. As a result, if the Interest Rate for any Interest Payment Period (including the Initial Interest Payment Period(s), if applicable, and any Substitute Interest Payment Period, if applicable, unless otherwise specified in the relevant terms supplement) without taking into consideration the Maximum Rate would have been greater than the Maximum Rate, the notes will provide you less interest income than an investment in a similar instrument that is not subject to a maximum interest rate.

**The interest rate on the notes is based on an Accrual Provision linked to the applicable USD CMS Reference Rate (or USD CMS Spread), EUR CMS Reference Rate (or EUR CMS Spread), LIBOR Reference Rate (or LIBOR Spread), CMT Reference Rate (or CMT Spread), the Average SIFMA/Average LIBOR Ratio or the Index Closing Value, which may result in an interest rate of zero.**

Although the maximum interest rate for any Interest Payment Period (other than the Initial Interest Payment Period(s), if applicable, and any Substitute Interest Payment Period, if applicable) is equal to the Interest Factor specified in the relevant terms supplement, for every day during such Interest Payment Period on which the applicable Accrual Provision is not satisfied, the Interest Rate for that Interest Payment Period will be reduced. We cannot predict the factors that may cause the applicable Accrual Provision to be satisfied, or not, on any calendar day. The amount of interest you accrue on the notes in any Interest Payment Period (other than the Initial Interest Payment Period(s), if applicable, and any Substitute Interest Payment Period, if applicable) may decrease even if the relevant USD CMS Reference Rate, EUR CMS Reference Rate, LIBOR Reference Rate, CMT Reference Rate, the SIFMA Municipal Swap Index or the Index Closing Value increases. If the applicable Accrual Provision is not satisfied for an entire Interest Payment Period (other than the Initial Interest Payment Period(s) with a fixed Initial Interest Rate, if applicable, and any Substitute Interest Payment Period subject to a fixed Substitute Interest Rate, if applicable), the Interest Rate for such period would be zero. In that event, you will not be compensated for any loss in value due to inflation and other factors relating to the value of money over time during such period.

**If the notes are subject to redemption and are redeemed by us, the aggregate amount of interest paid to you will be less than the aggregate amount of interest payable over the term of the notes if held to maturity.**

If the relevant terms supplement specifies that the notes are subject to redemption by us, and if we redeem all or part of your notes, for the notes that are redeemed, you will receive the stated principal amount of such notes and, assuming you are the record holder of the notes at the close of business on the business day immediately preceding the Redemption Date, accrued and unpaid interest to but excluding the Redemption Date. The aggregate amount of interest paid to you will be less than the aggregate amount of interest payable over the term of the notes if held to maturity. We may choose to redeem the notes early or choose not to redeem the notes early on any Redemption Date, in our sole discretion. We may choose to redeem the notes early, for example, if (1) the applicable USD CMS Reference Rate, USD CMS Spread, EUR CMS Reference Rate, EUR CMS Spread, LIBOR Reference Rate, LIBOR Spread, CMT Reference Rate, CMT Spread or Index Closing Value is within the specified range or is equal to, less than or greater than the specified percentage or level, as applicable, of the applicable Accrual Provision, or (2) the applicable Average SIFMA/Average LIBOR Ratio is less than or equal to the Specified SIFMA/LIBOR Percentage, resulting in an amount of interest payable on the notes greater than that for instruments of a comparable maturity. If we redeem the notes early, your return may be less than the yield that the notes would have earned if they had been held to maturity and you may not be able to reinvest your funds at the same rate as provided by the notes.

**If the notes are subject to the Substitute Interest Rate Option and we exercise the Substitute Interest Rate Option on any Substitute Interest Reset Date, the Interest Rate for each Interest Payment Period commencing after such Substitute Interest Reset Date will be determined by reference to the applicable Substitute Interest Rate, instead of by reference to the applicable Accrual Provision.**

If the relevant terms supplement specifies that the notes are subject to the Substitute Interest Rate Option and we exercise the Substitute Interest Rate Option on a Substitute Interest Reset Date, the Interest Rate for each Interest Payment Period commencing after such Substitute Interest Reset Date will be determined by reference to the applicable Substitute Interest Rate, which may be a fixed rate or a floating rate as specified in the relevant terms supplement, instead of by reference to the Accrual Provision. If the Substitute Interest Rate is a fixed rate that is lower than the Interest Factor, or if we exercise the Substitute Interest Rate Option at a time when the floating Substitute Interest Rate is lower than the Interest Factor, the aggregate amount of interest paid to you over the term of the notes may be less than the aggregate amount of interest payable over the term of the notes if the Substitute Interest Rate Option were not exercised. We may choose to exercise the Substitute Interest Rate Option on any Substitute Interest Reset Date in our sole discretion. We may choose to exercise the Substitute Interest Rate Option, for example, if (1) the applicable USD CMS Reference Rate, USD CMS Spread, EUR CMS Reference Rate, EUR CMS Spread, LIBOR Reference Rate, LIBOR Spread, CMT Reference Rate, CMT Spread or Index Closing Value is within the specified range or is equal to, less than or greater than the specified percentage or level, as

applicable, of the applicable Accrual Provision, or (2) the applicable Average SIFMA/Average LIBOR Ratio is less than or equal to the Specified SIFMA/LIBOR Percentage, resulting in an amount of interest payable on the notes greater than that for instruments of a comparable maturity. If we exercise the Substitute Interest Rate Option, your return may be less than the yield that the notes would have earned if the Substitute Interest Rate Option were not exercised.

**For notes to which the USD CMS Provision, EUR CMS Provision, LIBOR Provision, CMT Provision or Index Provision relates, the applicable USD CMS Reference Rate (or USD CMS Spread), EUR CMS Reference Rate (or EUR CMS Spread), LIBOR Reference Rate (or LIBOR Spread) or CMT Reference Rate (or CMT Spread) will be affected by a number of factors.**

The amount of interest, if any, payable on notes to which the USD CMS Provision, EUR CMS Provision, LIBOR Provision or CMT Provision applies (other than interest payable with respect to the Initial Interest Payment Period(s) with a fixed Initial Interest Rate, if applicable, or with respect to any Substitute Interest Payment Period subject to a fixed Substitute Interest Rate, if applicable) will depend on the a number of factors that can affect the levels of the USD CMS Reference Rate (or USD CMS Spread), EUR CMS Reference Rate (or EUR CMS Spread), LIBOR Reference Rate (or LIBOR Spread) or CMT Reference Rate (or CMT Spread), as applicable, as well as the yield curve between USD CMS Reference Rates, EUR CMS Reference Rates, LIBOR Reference Rates and CMT Reference Rates of different Designated Maturities, including, but not limited to:

- *changes in, or perceptions about, future rates:* generally, fluctuations in, or a perception that there will be fluctuations in, the levels of the applicable USD CMS Reference Rate, EUR CMS Reference Rate, LIBOR Reference Rate or CMT Reference Rate will affect the probability that the applicable Accrual Provision will be satisfied on any given date of determination, since as volatility of any underlying rate increases, the chance of the applicable Accrual Provision being satisfied decreases; in addition, increased interest rate volatility is historically associated with an increased spread between long- and short-term interest rates and, conversely, decreased volatility is historically associated with tighter spreads;
- *general economic conditions:* the economic, financial, political, regulatory and judicial events that affect financial markets generally will affect the interest payable on the notes as well, since the interest payable is a function of fluctuations in underlying rates and levels that will generally be affected by such events;
- *prevailing interest rates:* the USD CMS Reference Rate, EUR CMS Reference Rate, LIBOR Reference Rate and CMT Reference Rate are subject to daily fluctuations depending on the levels of prevailing interest rates in the market generally; in addition, lower overall interest rates are historically associated with an increased spread between long and short-term interest rates and, conversely, higher overall interest rates are historically associated with tighter spreads; and
- *policy of the Federal Reserve Board regarding interest rates:* an easing of monetary policy is historically associated with an increased spread between long and short-term interest rates and, conversely, a tightening of monetary policy is historically associated with tighter spreads.

These and other factors may have a negative impact on the payment of interest on the notes. In addition, these and other factors may have a negative impact on the value of your notes in the secondary market. See also “For notes to which the SIFMA/LIBOR Provision applies, Average SIFMA/Average LIBOR Ratio will be affected by a number of factors.”

**For notes to which the USD CMS Provision, EUR CMS Provision, LIBOR Provision or CMT Provision relates, the applicable USD CMS Reference Rates (or USD CMS Spread), EUR CMS Reference Rates (or EUR CMS Spread), LIBOR Reference Rates (or LIBOR Spread) or CMT Reference Rates (or CMT Spread) and the manner in which they are calculated may change in the future.**

For notes to which a USD CMS Provision, EUR CMS Provision, LIBOR Provision or CMT Provision relates, there can be no assurance that the method by which the USD CMS Reference Rates, EUR CMS Reference Rates, LIBOR Reference Rates or CMT Reference Rates, as applicable, are calculated will not change. Such changes in the method of calculation could reduce the level of the individual USD CMS Reference Rates, EUR CMS Reference Rates, LIBOR Reference Rates or CMT Reference Rates, as applicable, and any corresponding USD CMS Spread, EUR CMS Spread, LIBOR Spread or CMT Spread. Accordingly, the value of the notes may be significantly reduced. If the applicable USD CMS Reference Rates, EUR CMS Reference Rates, LIBOR Reference Rates or CMT Reference Rates are substantially altered, or are not quoted on the applicable Reuters page, or any substitute page thereto, on the USD CMS Determination Date(s), EUR CMS Determination Date(s), LIBOR Determination Date(s) or CMT Determination Date(s), as applicable, or any Initial Interest Reset Date, Interest Factor Reset Date or Substitute Interest Reset Date, if applicable, a substitute rate may be employed by the calculation agent to determine the relevant USD CMS Reference Rates, EUR CMS Reference Rates, LIBOR Reference Rates or CMT Reference Rates and that substitution may adversely affect the value of the notes.

**The USD CMS Reference Rate, EUR CMS Reference Rate, LIBOR Reference Rate and CMT Reference Rate may be volatile.**

The USD CMS Reference Rate, EUR CMS Reference Rate, LIBOR Reference Rate and CMT Reference Rate are each subject to volatility due to a variety of factors affecting interest rates generally and the rates of U.S. Treasury securities specifically, including:

- sentiment regarding underlying strength in the U.S., European and global economies;
- expectation regarding the level of price inflation;
- sentiment regarding credit quality in U.S., European and global credit markets;
- central bank policy regarding interest rates; and
- performance of capital markets.

Increases or decreases in the applicable USD CMS Reference Rate, EUR CMS Reference Rate, LIBOR Reference Rate or CMT Reference Rate could result in the corresponding USD CMS Provision, EUR CMS Provision, LIBOR Provision or CMT Provision not being satisfied and thus in the reduction of interest payable on notes.

**Changes in banks' inter-bank lending rate reporting practices or the method pursuant to which LIBOR is determined may adversely affect the value of the notes.**

Concerns have been expressed that some of the member banks recently surveyed by the British Bankers' Association (the "BBA") in connection with the calculation of daily LIBOR rates may have been under-reporting the inter-bank lending rate applicable to them in order to avoid an appearance of capital insufficiency or adverse reputational or other consequences that may result from reporting higher inter-bank lending rates. If such under-reporting has occurred, it may have resulted in the LIBOR rates being artificially low. If such under-reporting in fact exists and some or all of the member banks discontinue such practice, there may be a resulting sudden or prolonged upward movement in LIBOR rates. In addition, the BBA recently announced that it will change the LIBOR rate-fixing process by increasing the number of banks surveyed to set a LIBOR rate. The BBA also indicated that it will consider adding a second rate-fixing process for U.S. dollar LIBOR after the U.S. market opening, after discussion with the member banks. The BBA is continuing its consideration of ways to strengthen the oversight of the process. The changes announced by the BBA, or future changes adopted by the BBA, in the method pursuant to which the LIBOR rates are determined, may result in a sudden or prolonged increase in the reported LIBOR rates.

As a result, for notes linked to a LIBOR Reference Rate with a LIBOR Range or for notes linked to a LIBOR Reference Rate where the LIBOR Provision is satisfied if the LIBOR Reference Rate is less than or equal to a LIBOR Strike, the possibility that the applicable LIBOR Reference Rate will, from time to time, be greater than the high end of the applicable LIBOR Range or greater than the applicable LIBOR Strike, as applicable, may increase, which could result in lower interest payments and adversely affect the value of the notes.

**Owning notes linked to CMT Reference Rates, if applicable, is not the same as owning a U.S. Treasury security directly.**

The return on notes linked to CMT Reference Rates, if applicable, will not reflect the return you would realize if you actually purchased U.S. Treasury securities. The Constant Maturity U.S. Treasury Rates are calculated by extrapolating between bid rates for a combination of Treasury securities and does not necessarily reflect the price, or even the existence, of a security with exactly the same rate and maturity reflected in the relevant CMT Reference Rate on a trading day or at maturity. The return on your notes will likely vary significantly from the return that you would realize if you invested in U.S. Treasury obligations directly.

**The interest rate on the notes to which the SIFMA/LIBOR Provision applies is based on the ratio of the Average SIFMA Level to Average LIBOR, which may result in an interest rate of zero.**

With respect to notes to which the SIFMA/LIBOR Provision applies (other than interest payable with respect to Initial Interest Payment Periods with a fixed Initial Interest Rate, if applicable, or with respect to any Substitute Interest Payment Period subject to a fixed Substitute Interest Rate, if applicable), the applicable LIBOR Reference Rate and the Average SIFMA Level may be influenced by a number of factors, including (but not limited to) monetary policies, fiscal policies, inflation, general economic conditions and public expectations with respect to such factors. The effect that any single factor may have on the applicable LIBOR Reference Rate and the SIFMA Municipal Swap Index may be partially offset by other factors. We cannot predict the factors that may cause the ratio of Average SIFMA Level to Average LIBOR to increase or decrease. An increase in the ratio of the Average SIFMA Level to Average LIBOR may result in a reduction of the interest rate per annum payable for the corresponding Interest Payment Period, depending on whether such increase causes the Average SIFMA/Average LIBOR Ratio to exceed the Specified SIFMA/LIBOR Percentage. The amount of interest you accrue on the notes in any Interest Payment Period may decrease even if either or both of the applicable LIBOR Reference Rate and the level of the SIFMA Municipal Swap Index increases. Interest during any Interest Payment Period may be equal to zero, and you will not be compensated for any loss in value due to inflation and other factors relating to the value of money over time during such period.

**For notes to which the SIFMA/LIBOR Provision applies, the Average SIFMA/Average LIBOR Ratio will be affected by a number of factors**

The amount of interest, if any, payable on notes to which the SIFMA/LIBOR Provision applies (other than interest payable with respect to Initial Interest Payment Periods with a fixed Initial Interest Rate, if applicable, or with respect to any Substitute Interest Payment Period subject to a fixed Substitute Interest Rate, if applicable) will depend on the Average SIFMA/Average LIBOR Ratio. A number of factors can affect the Average SIFMA/Average LIBOR Ratio by causing changes in the relative values of the level of the SIFMA Municipal Swap Index and the applicable LIBOR Reference Rate including, but not limited to:

- *changes in, or perceptions about, future marginal tax rates:* generally, decreases in, or a perception that there will be decreases in, marginal tax rates are expected to affect the Average SIFMA/Average LIBOR Ratio, since variable-rate demand obligations, or VRDOs, that compose the SIFMA Municipal Swap Index are exempt from U.S. federal taxation;
- *changes or uncertainty with respect to the tax-exempt nature of municipal securities:* generally, changes in the tax laws that have an adverse effect on the tax-exempt nature of municipal securities are expected to affect the Average SIFMA/Average LIBOR Ratio;
- *changes in the tax treatment of comparable securities:* changes in the tax laws that grant securities other than municipal securities favorable tax treatment to investors may adversely impact market

demand for, and pricing of, municipal securities generally; such a development is expected to affect the Average SIFMA/Average LIBOR Ratio; and

- *relative supply and demand for tax-exempt and taxable debt in their respective marketplaces and other factors affecting pricing of tax-exempt debt:* a relative increase in demand for or a decrease in supply of tax-exempt debt caused by factors other than tax rates or other factors negatively impacting pricing of tax-exempt debt could cause an increase in the Average SIFMA/Average LIBOR Ratio to the extent that the Index level of the SIFMA Municipal Swap Index increases relative to the applicable LIBOR Reference Rate as a result of these developments; such other factors include fragmentation in the municipal securities market that can lead to aberrational pricing as well as periods of illiquidity and the possibility of uncertainty with respect to the rights of investors holding these securities.

These and other factors may have a negative impact on the payment of interest on the notes. In addition, these and other factors may have a negative impact on the value of your notes in the secondary market.

**For notes to which the SIFMA/LIBOR Provision applies, the method of determining the variable interest rate for any Interest Payment Period will not directly correlate with actual levels of the applicable LIBOR Reference Rate and the SIFMA Municipal Swap Index.**

The determination of the interest rate per annum payable for any Interest Payment Period (other than Initial Interest Payment Period(s), if applicable, or any Substitute Interest Payment Period, if applicable) on notes to which the SIFMA/LIBOR Provision applies will be based, in part, on the applicable SIFMA Municipal Swap Index and the LIBOR Reference Rate as specified in the relevant terms supplement, but it will not directly correlate with actual levels of the applicable SIFMA Municipal Swap Index and LIBOR Reference Rate. We will use the applicable Index level of the SIFMA Municipal Swap Index and LIBOR Reference Rate on each SIFMA/LIBOR Determination Date to determine the Average SIFMA/Average LIBOR Ratio on the applicable SIFMA/LIBOR Determination Date, which in turn will determine whether the SIFMA/LIBOR Provision is satisfied for any calendar day in the applicable Interest Payment Period. Moreover, the Average SIFMA Level and Average LIBOR which make up the Average SIFMA/Average LIBOR Ratio will be based, respectively, on daily weighted averages of the Index level of the SIFMA Municipal Swap Index and of the applicable LIBOR Reference Rate, reset weekly on the applicable SIFMA/LIBOR Determination Date, as applicable.

**For notes to which the SIFMA/LIBOR Provision applies, you will have no rights with respect to any VRDO included in the SIFMA Municipal Swap Index.**

As a holder of the notes to which the SIFMA/LIBOR Provision applies, you will not own or have any beneficial or other legal interest in, and will not be entitled to any rights with respect to, any VRDO included in the SIFMA Municipal Swap Index. An investment in the notes does not constitute an investment in any VRDO included in the SIFMA Municipal Swap Index. In addition, the interest you earn on the notes, if any, will not be tax-exempt municipal bond interest for U.S. federal income tax purposes. You are urged to review carefully the section entitled "Material U.S. Federal Income Tax Consequences" in this product supplement no. MS-2-I for a description of the tax consequences of an investment in the notes and to consult your tax adviser regarding your personal circumstances.

**SIFMA and/or MMD may discontinue the SIFMA Municipal Swap Index or adjust the SIFMA Municipal Swap Index in a way that affects its level, and neither SIFMA nor MMD has any obligation to consider your interests.**

The SIFMA Municipal Swap Index was created by Securities Industry and Financial Markets Association (formerly the Bond Market Association) ("SIFMA") and produced by Municipal Market Data, a Thomson Financial Services company ("MMD"). SIFMA and/or MMD may make methodological or other changes that could change the Index level of the SIFMA Municipal Swap Index, including changes related to the method by which the Index level is calculated, the criteria for eligibility in the SIFMA Municipal Swap Index, or the timing with which the Index level is published. In addition, SIFMA and/or MMD may alter, discontinue or suspend calculation or dissemination of the SIFMA Municipal Swap Index. SIFMA and MMD have no obligation to consider your interests in calculating, revising or discontinuing the SIFMA Municipal Swap Index. With respect to notes to which the SIFMA/LIBOR Provision applies, in the event that the SIFMA Municipal Swap Index is no longer published, the calculation agent may select

another comparable index as a successor index or substitute another value for the Index level as described under “SIFMA Municipal Swap Index — Discontinuation of the SIFMA Municipal Swap Index; Alteration of Method of Calculation.” No assurance can be given that the rates used in lieu of the Index level of the SIFMA Municipal Swap Index will be accurate assessments of the average tax-exempt VRDO rates that the SIFMA Municipal Swap Index is currently intended to assess. Any of these actions could adversely affect the Average SIFMA Levels used to calculate Average SIFMA/Average LIBOR Ratio, and in turn, the Interest Rate for any Interest Payment Period (other than Initial Interest Payment Period(s), if applicable) for notes to which the SIFMA/LIBOR Provision applies and, therefore, the value of the notes or the amount of interest payment on any Interest Payment Date relating to such notes.

### **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 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 stated principal amount of the notes, even in cases where the applicable USD CMS Reference Rate, EUR CMS Reference Rate, LIBOR Reference Rate, CMT Reference Rate, the SIFMA Municipal Swap Index or the Index has appreciated since the pricing date. The potential returns described in the relevant terms supplement assume that your notes, which are not designed to be short-term trading instruments, are held to maturity unless redeemed by us prior to maturity.

### **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 applicable USD CMS Reference Rate, EUR CMS Reference Rate, LIBOR Reference Rate, CMT Reference Rate, the level of the SIFMA Municipal Swap Index or the Index Closing Value 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 applicable USD CMS Reference Rate, EUR CMS Reference Rate, LIBOR Reference Rate, CMT Reference Rate, the level of the SIFMA Municipal Swap Index or the Index Closing Value. The value of the notes will be affected by a number of other factors that may either offset or magnify each other, including:

- volatility of, or the perception of expected volatility of, the applicable USD CMS Reference Rate, EUR CMS Reference Rate, LIBOR Reference Rate, CMT Reference Rate, the level of the SIFMA Municipal Swap Index or the Index Closing Value;
- for notes linked to the USD CMS Spread, EUR CMS Spread, LIBOR Spread or CMT Spread, the applicable USD CMS Reference Rate, EUR CMS Reference Rate, LIBOR Reference Rate or CMT Reference Rate yield curves;
- for notes linked to the Average SIFMA/Average LIBOR Ratio, the volatility of the Index level of the SIFMA Municipal Swap Index and the applicable LIBOR Reference Rate (and the correlation between those volatilities);
- the time to maturity of the notes;

- interest and yield rates in the market generally;
- if the notes are subject to redemption by us, the likelihood, or expectation, that the notes will be redeemed by us, based on prevailing market interest rates or otherwise;
- economic, financial, political, regulatory and judicial events that affect the debt markets generally; and
- our creditworthiness, including actual or anticipated downgrades in our credit ratings.

You cannot predict the future performance of the applicable USD CMS Reference Rate, EUR CMS Reference Rate, LIBOR Reference Rate, CMT Reference Rate, the SIFMA Municipal Swap Index or the Index based on their historical performance. The applicable rate or rates may fluctuate such that the applicable Accrual Provision is never or only rarely satisfied causing the return on your investment to be negligible, or even zero.

**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.

**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.

**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.**

## **Risks Relating to an Equity Index**

**You will have no shareholder rights in issuers of equity securities that are included in an Index.**

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

**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 Index Sponsor for an Index is responsible for maintaining such Index. The Index Sponsor can add, delete or substitute the securities underlying the applicable Index or make other methodological changes that could change the level of that Index. You should realize that the changing of equity securities included in an Index may affect such Index, as a newly added equity security 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 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 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 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 to a foreign index, the notes will be subject to risks associated with foreign indices.**

For notes linked to a foreign index, the notes will be subject to risks associated with foreign indices. See “— Risks Relating to a Foreign Index” below.

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

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

Because the prices of the non-U.S. securities underlying the applicable foreign index are not converted into U.S. dollars for purposes of calculating the value of that foreign index and although the non-U.S. securities underlying that foreign index are traded in currencies other than U.S. dollars, and the notes, which are linked to that foreign index, are denominated in U.S. dollars, the amount payable on the notes at maturity 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 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 will be determined solely in accordance with the procedures described in “Description of Notes — Payment at Maturity.”

**For notes linked to a foreign index, 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, the notes may be subject to currency exchange risk.**

Because the prices of the non-U.S. securities underlying the applicable foreign index are converted into U.S. dollars for the purposes of calculating the value of that foreign index, 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 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 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 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 to a foreign index, 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, changes in the volatility of exchange rates and the correlation between those rates and the values of that foreign index are likely to affect the market value of the notes.**

The exchange rate between the U.S. dollar and each of the currencies in which the non-U.S. securities underlying the applicable foreign index are denominated refers to a foreign exchange spot rate that measures the relative values of two currencies — the particular currency in which an equity security composing that foreign index 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 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 are denominated refers to the size and frequency of changes in that exchange rate.

Because the applicable foreign index is calculated, in part, by converting the closing prices of the non-U.S. securities underlying that foreign index 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 are denominated and the value of that foreign index refers to the relationship between the percentage changes in that exchange rate and the percentage changes in the value of that foreign index. The direction of the correlation (whether positive or negative) and the extent of the correlation between the percentage changes in the exchange rate between the U.S. dollar and each of the currencies in which the non-U.S. securities underlying a foreign index are denominated and the percentage changes in the value of that foreign index could affect the value of the notes.

**For notes linked to a foreign index, 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 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 composed of securities traded in one or more emerging market countries.

Some or all of these factors may influence the Equity Index Level for a foreign index. 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 Equity Index may decrease, which may adversely affect the value of the notes.

**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 \$60.00 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 Components or the securities underlying the Index. To accomplish this, we, through our affiliates or others, may take positions in one or more trades on U.S. Treasury securities or take positions in instruments the value of which is derived from U.S. Treasury securities, interest rate swap and option transactions, purchases and sales of VRDOs and listed or over-the-counter options on VRDOs, the Index or securities underlying the Index or other derivative transactions with returns linked or related to the applicable USD CMS Reference Rate, EUR CMS Reference Rate, LIBOR Reference Rate, CMT Reference Rate, the SIFMA Municipal Swap Index or the Index or such other applicable rate or rates.

While we cannot predict an outcome, any if these hedging activities or other trading activities of ours could potentially affect the applicable USD CMS Reference Rate, EUR CMS Reference Rate, LIBOR Reference Rate, CMT Reference Rate, or such other applicable rate or rates, the Index level of the SIFMA Municipal Swap Index or the Index Closing Value and any spreads related thereto and, therefore, effectively decrease the interest rate payable on the notes. 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 securities or instruments whose value is derived from the applicable USD CMS Reference Rates, EUR CMS Reference Rates, LIBOR Reference Rate, CMT Reference Rates, Index level of the SIFMA Municipal Swap Index or Index. Although we have no reason to believe that any of these activities will have a material impact on the applicable USD CMS Reference Rate, EUR CMS Reference Rate, LIBOR Reference Rate, CMT Reference Rate, Index level of the SIFMA Municipal Swap Index or Index Closing Value, or the value of the notes, we cannot assure you that these activities will not have such an effect. 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" 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 any interest rate, one or more Components or the securities underlying one or more Components. 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.

## **U.S. DOLLAR CONSTANT MATURITY SWAP RATES**

The U.S. Dollar Constant Maturity Swap Rate is a measurement of the fixed rate leg of a hypothetical fixed rate-for-floating rate swap transaction, which we refer to as a constant maturity swap. In this hypothetical swap transaction, the fixed rate payment stream is reset each period relative to a regularly available fixed maturity market rate (such as the 10-Year or 2-Year U.S. dollar swap rate, payable semi-annually on the basis of a 360-day year consisting of twelve 30-day months) and is exchangeable for a floating 3-month LIBOR-based payment stream, payable quarterly on the basis of the actual number of days elapsed in a 360-day year. LIBOR is the London interbank offered rate, and is a common rate of interest used in the swaps industry. The constant maturity side of the swap, which we refer to as the USD CMS Reference Rate, represents the yield on an instrument with a longer life than the length of the fixed rate reset period. The value of the constant maturity swap is determined based on the comparison of the expected future LIBOR rates versus the fixed constant maturity swap rate, so the parties to a constant maturity swap have exposure to changes in a longer-term market rate.

## **EURO CONSTANT MATURITY SWAP RATES**

The Euro Constant Maturity Swap Rate is a measurement of the fixed rate leg of a hypothetical fixed rate-for-floating rate swap transaction, which we refer to as a constant maturity swap. In this hypothetical swap transaction, the fixed rate payment stream is reset each period relative to a regularly available fixed maturity market rate (such as the 30-year or 10-year Euro swap rate, payable annually on the basis of a 360-day year consisting of twelve 30-day months) and is exchangeable for a floating 6-month EURIBOR-based payment stream, payable semi-annually on the basis of the actual number of days elapsed in a 360-day year. EURIBOR is the Euro Interbank Offered Rate, and is a common rate of interest used in the swaps industry. The constant maturity side of the swap, which we refer to as the EUR CMS Reference Rate, represents the yield on an instrument with a longer life than the length of the fixed rate reset period. The value of the constant maturity swap is determined based on the comparison of the expected future EURIBOR rates versus the fixed constant maturity swap rate, so the parties to a constant maturity swap have exposure to changes in a longer-term market rate.

## **CONSTANT MATURITY U.S. TREASURY RATES**

A set of theoretical securities with artificially constant maturity, all priced at par, is constructed daily by the United States Department of the Treasury based on the rates of existing, marketable securities issued by the U.S. government. Constant Maturity U.S. Treasury Rates are yields interpolated by the United States Department of the Treasury from its daily yield curve. That yield curve, which relates the yield on a U.S. Treasury security to its time to maturity, is based on the closing market bid yields on actively traded U.S. Treasury securities in the over-the-counter market. These market yields are calculated from composites of quotations obtained by the Federal Reserve Bank of New York. The yield values are read from the yield curve at fixed maturities (as of the date of this product supplement, such maturities are 1, 3 and 6 months and 1, 2, 3, 5, 7, 10, 20 and 30 years). This method provides a yield for a 10-year maturity, for example, even if no outstanding U.S. Treasury security has exactly 10 years remaining to maturity. We have derived all information contained in this product supplement regarding Constant Maturity U.S. Treasury Rates from publicly available information, including the United States Department of the Treasury's Web site at <http://www.treas.gov/> as available on the date of this product supplement. We make no representation or warranty as to the accuracy or completeness of the information displayed on such website, and such information is not incorporated by reference herein and should not be considered a part of this product supplement.

## **SIFMA MUNICIPAL SWAP INDEX**

We have derived all information contained in this product supplement no. MS-2-I regarding the Securities Industry and Financial Markets Association Municipal Swap Index (the “SIFMA Municipal Swap Index” or the “Index”), including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information. Such information reflects the policies of, and is subject to change by, the Securities Industry and Financial Markets Association (formerly the Bond Market Association) (“SIFMA”) and/or Municipal Market Data, a Thomson Financial Services company (“MMD”). We make no representation or warranty as to the accuracy or completeness of such information.

The SIFMA Municipal Swap Index (formerly known as the Bond Market Association (“BMA”) Municipal Swap Index) was created by SIFMA and is produced by MMD. The SIFMA Municipal Swap Index is a seven-day high-grade market index composed of tax-exempt variable-rate demand obligations, or VRDOs, from MMD’s database of VRDO issues. In a swap transaction, two counterparties “swap” fixed-rate interest payments for floating-rate interest payments, or vice versa. One of the most critical elements of a swap transaction is the index on which the floating rate is based. The SIFMA Municipal Swap Index is intended to serve as a benchmark floating rate in a swap transaction.

The SIFMA Municipal Swap Index is calculated on a weekly basis, and released to subscribers on Thursday. The actual number of issues that make up the SIFMA Municipal Swap Index will vary in time as issues mature or are called, converted, or newly issued. In addition, if changes occur that violate the criteria or calculation methods of the SIFMA Municipal Swap Index, an issue will be removed. The qualification criteria for the SIFMA Municipal Swap Index have been established by a subcommittee of SIFMA. Typically, the SIFMA Municipal Swap Index has included 650 issues in any given week.

### **Computation of the SIFMA Municipal Swap Index**

To be eligible for inclusion in the SIFMA Municipal Swap Index, an issue must meet the following criteria:

- be a weekly reset, effective on Wednesday (no lag resets considered);
- not be subject to alternative minimum tax;
- have an outstanding amount of \$10 million or more;
- have the highest short-term rating (VMIG1 by Moody’s or A-1+ by S&P); and
- pay interest on a monthly basis, calculated on an actual/actual basis.

In addition, only one quote per obligor per remarketing agent will be included in the SIFMA Municipal Swap Index. Issues from all states are eligible for inclusion.

The following are part of calculation methods of the SIFMA Municipal Swap Index:

- The standard deviation of the rates is calculated. Any issue falling outside of +/- 1.0 standard deviations is removed.
- Each participating remarketing agent is limited to no more than 15% of the SIFMA Municipal Swap Index by an averaging method.

### **License Agreement**

We expect that one of our affiliates will enter into a non-exclusive license agreement with SIFMA providing the right to use the SIFMA Municipal Swap Index owned by SIFMA and published by MMD in connection with certain securities, including the notes.

The notes are not sponsored, endorsed, sold or promoted by SIFMA or MMD. Neither SIFMA nor MMD makes any representation or warranty, express or implied, to the holder of the notes or to any member of the public regarding the advisability of investing in securities generally or in the notes particularly or the ability of the SIFMA or MMD to track the performance of municipal swaps. SIFMA's only relationship to JP Morgan Chase & Co. and its subsidiaries (other than transactions entered into in the ordinary course of business) is the licensing of certain servicemarks and tradenames of SIFMA and of the SIFMA Municipal Swap Index which is determined, composed and calculated by SIFMA and/or MMD without regard to JP Morgan Chase & Co., its subsidiaries or holders of the notes. Neither SIFMA nor MMD has any obligation to take the needs of JP Morgan Chase & Co., its subsidiaries or the holders of the notes into consideration in determining, composing or calculating the SIFMA Municipal Swap Index. Neither SIFMA nor MMD is responsible for and has participated in the determination of the timing or sale of the notes, prices at which the notes are initially to be sold, or quantities of the notes to be issued or in the determination or calculation of the equation by which interest is payable on the notes. SIFMA and MMD have no obligation or liability in connection with the administration, marketing or trading of the notes.

The SIFMA Municipal Swap Index is calculated using information that SIFMA and/or MMD considers reliable but neither SIFMA nor MMD represents that the SIFMA Municipal Swap Index is accurate or complete and it should not be relied upon as such by JP Morgan Chase & Co., its subsidiaries, the trustee or holders of the notes. In addition, the methodology used to calculate the SIFMA Municipal Swap Index may change from time to time and, although it will endeavor to provide JP Morgan Chase & Co. with reasonable advance notice, SIFMA and MMD reserve the right to discontinue publication of the SIFMA Municipal Swap Index at any time. In no event will SIFMA or MMD have any liability to JP Morgan Chase & Co., its subsidiaries, the trustee, holders of the notes or any other third party for damages of any kind incident to the use of the SIFMA Municipal Swap Index.

#### **Discontinuation of the SIFMA Municipal Swap Index; Alteration of Method of Calculation**

If SIFMA and/or MMD discontinues publication of the SIFMA Municipal Swap Index and SIFMA and/or MMD or another entity publishes a successor or substitute index that the calculation agent determines, in its sole discretion, to be comparable to the discontinued SIFMA Municipal Swap Index (such index being referred to herein as a "successor index"), then the Index level for any SIFMA/LIBOR Determination Date or any other relevant date or dates as set forth in the relevant terms supplement will be determined by reference to the official published level of such successor index on such day.

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

If SIFMA and/or MMD discontinues publication of the SIFMA Municipal Swap Index prior to, and such discontinuation is continuing on, a SIFMA/LIBOR Determination Date or other relevant date as set forth in the relevant terms supplement, and the calculation agent determines, in its sole discretion, that no successor index is available at such time, or the calculation agent has previously selected a successor index and publication of such successor index is discontinued prior to, and such discontinuation is continuing on, such SIFMA/LIBOR Determination Date or other relevant date, then the calculation agent will determine the Index level for such date. The Index level will be computed by the calculation agent in accordance with the formula for and method of calculating the SIFMA Municipal Swap Index or successor index, as applicable, last in effect prior to such discontinuation. Notwithstanding these alternative arrangements, discontinuation of the publication of the SIFMA Municipal Swap Index or successor index, as applicable, may adversely affect the value of the notes.

If at any time the method of calculating the SIFMA Municipal Swap Index or a successor index, or the level thereof, is changed in a material respect, or if the SIFMA Municipal Swap Index or a successor index is in any other way modified so that the SIFMA Municipal Swap Index or such successor index does not, in the opinion of the calculation agent, fairly represent the level of the SIFMA Municipal Swap Index or such successor index had such changes or modifications not been made, then the calculation agent will, at the close of business in The City of New York on each date on which the Index level 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 the SIFMA Municipal Swap Index or such successor index, as the case may be, as if such changes or modifications had not been made, and the calculation agent will calculate the Index level with reference to the SIFMA Municipal Swap Index or such successor index, as adjusted.

## OTHER COMPONENTS

### Indices and Funds

If the notes are linked to any rate or rates not described in this product supplement, or an Index, a separate underlying supplement or the relevant terms supplement will provide additional information relating to such rate or rates or Index.

### 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” for information about economic interests with respect to any Components 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: the applicable USD CMS Reference Rate, EUR CMS Reference Rate, LIBOR Reference Rate, CMT Reference Rate, any other applicable rate or rates, the Average LIBOR, the Index level of the SIFMA Municipal Swap Index and the Average SIFMA Level, the Index Closing Value, the applicable Interest Factor and Interest Rate for each Interest Payment Period (including the Initial Interest Rate for an Initial Interest Payment Period, the Excess Interest Balance and Excess Interest Rate and the Substitute Interest Rate, in each case, if applicable), whether the applicable Accrual Provision is satisfied on each calendar day of any Interest Payment Period, the Interest Payment Dates, the amount of interest payable on each Interest Payment Date and the amount of cash that we are required to pay to you at maturity or upon redemption, if applicable. In addition, the calculation agent will determine whether a day is a business day, TARGET Settlement Day, London Banking Day, U.S. Government Securities Business Day or trading day, whether there has been a discontinuation of the SIFMA Municipal Swap Index or the Index, whether there has been a market disruption event with respect to the Index and whether there has been a material change in the method of calculating the Index level of the SIFMA Municipal Swap Index or the Index. 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 to be paid at maturity, on a Redemption Date, if applicable, and on each Interest Payment Date on or prior to 11:00 a.m., New York City time, on the business day preceding the maturity date, Redemption Date or Interest Payment Date, as applicable.

All calculations with respect to the applicable Interest Rate, USD CMS Reference Rate, EUR CMS Reference Rate, LIBOR Reference Rate, CMT Reference Rate, Index level of the SIFMA Municipal Swap Index, the Average LIBOR, the Average SIFMA Level, any other applicable rate or rates, and the Index Closing Value, as well as any successor or substitute rate calculation described above, 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 the determination of the interest payment per \$1,000 principal amount note on each Interest Payment Date, at maturity or on a Redemption Date, if any, 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 on the aggregate stated 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 properly determining the closing level of an Equity Index, and consequently, calculating the amount, if any, due on the notes. These events may include disruptions or suspensions of trading in the markets as a whole.

With respect to each Index or any relevant successor equity index, a "market disruption event," unless otherwise specified in the relevant terms supplement or any 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 Index (or that successor equity 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 Index (or that successor equity 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 Index (or that successor equity 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 Index (or the relevant successor equity index) exists at any time, if trading in a security included in that Index (or that successor equity index) is materially suspended or materially limited at that time, then the relevant percentage contribution of that security to the level of that Index (or that successor equity index) will be based on a comparison of:

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

in each case immediately before that suspension or limitation.

For purposes of determining whether a market disruption event with respect to an Index (or the relevant successor equity 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 Index (or that successor equity 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 Index (or that successor equity 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 Index (or that successor equity 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 Index (or that successor equity index) are traded will not include any time when that exchange or market is itself closed for trading under ordinary circumstances.

“Relevant exchange” means, with respect to an Index or any relevant successor equity index, the primary exchange or market of trading for any security (or any combination thereof) then included in that Index or successor equity index, as applicable.

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

Unless otherwise specified in the applicable terms supplement or any relevant underlying supplement, if the index sponsor of an Index (the “Index Sponsor”) discontinues publication of such Index and the 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 equity index”), then the Index Closing Value of such Index on any trading day on which the Index Closing Value of such Index is to be determined will be determined by reference to the level of such successor equity index at the close of trading on the relevant exchange for such successor equity index on such day.

Upon any selection by the calculation agent of a successor equity 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 applicable terms supplement or any relevant underlying supplement, if the Index Sponsor for an Index discontinues publication of such Index prior to, and such discontinuation is continuing on, any trading day on which the Index Closing Value of such Index is to be determined, and the calculation agent determines, in its sole discretion, that no successor equity index for such Index is available at such time, or the calculation agent has previously selected a successor equity index for an Index and publication of such successor equity index is discontinued prior to, and such discontinuation is continuing on such trading day, then the calculation agent will determine the Index Closing Value for such Index on such date. The Index Closing Value of such Index will be computed by the calculation agent in accordance with the formula for and method of calculating such Index or successor equity index, as applicable, last in effect prior to such discontinuation, using the closing price (or, if trading in the relevant securities has been materially suspended or materially limited, the calculation agent’s good faith estimate of the closing price that would have prevailed but for such suspension or limitation) at the close of the principal trading session on such date of each security most recently composing such Index or successor equity index, as applicable. Notwithstanding these alternative arrangements, discontinuation of the publication of the Index or its successor equity index, as applicable, may adversely affect the value of the notes.

If at any time the method of calculating an Index or a successor equity index, or the level thereof, is changed in a material respect, or if an Index or a successor equity index is in any other way modified so that such Index or such successor equity index does not, in the opinion of the calculation agent, fairly represent the level of such Index or such successor equity index had such 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 Value of such Index 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 such Index or such successor equity index, as the case may be, as if such changes or modifications had not been made, and the calculation agent will calculate the Index Closing Value for such Index with reference to such Index or such successor equity index, as adjusted. Accordingly, if the method of calculating such Index or such successor equity index is modified so that the level of such Index or such successor equity index is a fraction of what it would have been if there had been no such modification (e.g., due to a split in such Index), then the calculation agent will adjust its calculation of such Index or such successor equity index in order to arrive at a level of such Index or such successor equity index as if there had been no such modification (e.g., as if such split had not occurred).

## **Events of Default**

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

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

Unless otherwise specified in the relevant terms supplement, in case an event of default with respect to the notes shall have occurred and be continuing, the amount declared due and payable per \$1,000 stated 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 \$1,000 per \$1,000 stated principal amount note *plus* accrued and unpaid interest, calculated as if the date of acceleration were the maturity date. In such case, interest will be calculated on the basis of a 365-day year and the actual number of days in such adjusted Interest Payment Period and will be based on (1) the Interest Rate on the USD CMS Determination Date, EUR CMS Determination Date, LIBOR Determination Date, CMT

Determination Date, SIFMA/LIBOR Determination Date or Index Determination Date, as applicable, immediately preceding such adjusted Interest Payment Period, or (2) if such adjusted Interest Payment Period falls within an Initial Interest Payment Period, the Initial Interest Rate and if such Initial Interest Rate is based on a floating rate, as determined on the Initial Interest Reset Date applicable to such adjusted Interest Payment Period, unless otherwise specified in the relevant terms supplement. Notwithstanding the foregoing, if the date of acceleration occurs during a Substitute Interest Payment Period, any interest due upon acceleration will be calculated on the basis of a 365-day year and the actual number of days in such adjusted Substitute Interest Payment Period and will be based on the Substitute Interest Rate on the Substitute Interest Reset Date applicable to such adjusted Substitute Interest Payment Period, unless otherwise specified in the relevant terms supplement.

If the maturity of the notes is accelerated because of an event of default as described above, we will, or will cause the 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 stated 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, and on each Interest Payment Date, if applicable, 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 summary of the material U.S. federal income tax consequences of the ownership and disposition of the notes. This summary applies to you if you are an initial holder of a note purchasing the note at its issue price for cash and if you hold the note as a capital asset within the meaning of Section 1221 of the Internal Revenue Code of 1986, as amended (the “Code”).

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

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

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

### Tax Treatment of the Notes

We expect to seek an opinion from Sidley Austin LLP, our special tax counsel, regarding the treatment of the notes as either “variable rate debt instruments” or “contingent payment debt instruments” for U.S. federal income tax purposes. If special tax counsel provides an opinion regarding the tax treatment of the notes, then the relevant terms supplement will describe its level of comfort on this issue, which will depend on the facts of the particular offering, its receipt of certain factual representations from us at the time of the relevant offering and any additional considerations that may be relevant to the particular offering. In any event, the relevant terms supplement will specify whether we intend to treat the notes as variable rate debt instruments or as contingent payment debt instruments. By purchasing the notes, you will agree to treat the notes consistently with that treatment. In any case, we expect that the tax treatment of the notes will not be clear, and that there will be some risk that the Internal Revenue Service (the “IRS”) could determine that our treatment of the notes was incorrect. For example, if we treat an offering of notes as variable rate debt instruments (as described below), we expect that there will be some risk that the IRS could determine that they were in fact contingent payment debt instruments (as described below), and vice versa. Any such determination could have adverse U.S. federal income tax consequences for you.

### Tax Consequences to U.S. Holders

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

- a citizen or resident of the United States;

- a corporation created or organized in or under the laws of the United States or any political subdivision thereof; or
- an estate or trust the income of which is subject to U.S. federal income taxation regardless of its source.

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

The following discussion does not apply to notes that are issued at a price that is less than their “stated redemption price at maturity” by more than a *de minimis* threshold (“OID notes”). If relevant, prospective holders of these OID notes will be provided with a supplemental disclosure statement in the relevant terms supplement, describing the tax consequences relating to these OID notes.

Interest paid on a note that is treated as a variable rate debt instrument for U.S. federal income tax purposes (a “VRDI”) will generally be taxable to you as ordinary income at the time it accrues or is received in accordance with your method of tax accounting.

Upon the sale or exchange of a VRDI (including redemption at maturity or early redemption), you will recognize taxable gain or loss equal to the difference between the amount realized and your adjusted tax basis in the note. For this purpose, the amount realized does not include any amount attributable to accrued interest, which will be treated as ordinary income as described in the preceding paragraph. In general, gain or loss realized upon the sale or exchange will be capital gain or loss and will be long-term capital gain or loss if you have held the VRDI for more than one year at that time. The deductibility of capital losses, however, is subject to limitations.

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

A note that is treated as a contingent payment debt instrument for U.S. federal income tax purposes (a “CPDI”) will generally be subject to the original issue discount (“OID”) provisions of the Code and the Treasury regulations issued thereunder, and you will be required to accrue as interest income the OID on the CPDI as described below.

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

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

**Neither the comparable yield nor the projected payment schedule constitutes a representation by us regarding the actual amounts that we will pay on a CPDI.**

For U.S. federal income tax purposes, you are required to use our determination of the comparable yield and projected payment schedule in determining interest accruals and adjustments in respect of your CPDI, unless you timely disclose and justify the use of other estimates to the Internal Revenue Service (the “IRS”). Regardless of your accounting method, you will be required to accrue as interest income OID on your CPDI at the comparable yield, adjusted upward or downward to reflect the difference, if any, between the actual and the projected amount of the contingent payments on the CPDI (as described below). The amount of interest (*i.e.*, OID) accrued on a CPDI for each accrual period is determined by multiplying the comparable yield of the CPDI, adjusted for the length of the accrual period, by the CPDI’s adjusted issue price at the beginning of the accrual period, determined in accordance with the rules set forth in the Treasury regulations applicable to contingent payment debt instruments. The amount of OID so determined is then allocated on a ratable basis to each day in the accrual period that you held the CPDI.

In addition to interest accrued based upon the comparable yield as described above, you will be required to recognize interest income equal to the amount of any net positive adjustment, *i.e.*, the excess of actual payments

over projected payments, in respect of a CPDI for a taxable year. A net negative adjustment, *i.e.*, the excess of projected payments over actual payments, in respect of a CPDI for a taxable year:

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

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

Upon a sale or exchange of a CPDI (including redemption at maturity or early redemption), you generally will recognize taxable income or loss equal to the difference between the amount received from the sale, exchange or retirement and your adjusted tax basis in the note. Your adjusted tax basis in the CPDI will equal the cost thereof, increased by the amount of interest income previously accrued by you in respect of the CPDI (determined without regard to any of the positive or negative adjustments to interest accruals described above) and decreased by the amount of any prior projected payments in respect of the CPDI. You generally must treat any income as interest income and any loss as ordinary loss to the extent of previous interest inclusions (reduced by the total amount of net negative adjustments previously taken into account as ordinary losses), and the balance as capital loss. These ordinary losses are not subject to the limitation imposed on miscellaneous itemized deductions under Section 67 of the Code. The deductibility of capital losses, however, is subject to limitations. Additionally, if you recognize a loss above certain thresholds, you may be required to file a disclosure statement with the IRS. You should consult your tax adviser regarding these limitations and reporting obligations.

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

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

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

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

Income and gain from a note will be exempt from U.S. federal income tax (including withholding tax) *provided*, generally, that you have certified on IRS Form W-8BEN, under penalties of perjury, that you are not a United States person and provided your name and address or otherwise satisfied applicable documentation requirements, and that 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 the income or gain from a note is effectively connected with your conduct of that trade or business, although exempt from the withholding tax referred to above, you generally will be subject to U.S. income tax on this income or gain in the same manner as if you were a U.S. Holder, except that in lieu of the certificate described in the preceding paragraph, you will be required to provide a properly executed IRS Form W-8ECI in order to claim an exemption from withholding. If this paragraph applies to you, you should consult your tax adviser with respect to other U.S. tax consequences of the ownership and disposition of notes, including the possible imposition of a 30% branch profits tax if you are a corporation.

If you are an individual, your notes will not be included in your estate for U.S. federal estate tax purposes, *provided* that your income from the notes is not then effectively connected with your conduct of a U.S. trade or business.

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

Interest (including OID) accrued or paid on your notes and the proceeds received from a sale or exchange of your notes (including redemption at maturity or early redemption) will be subject to information reporting if you are not an “exempt recipient” and may also be subject to backup withholding at the rates specified in the Code if you fail to provide certain identifying information (such as an accurate taxpayer identification number, if you are a U.S. Holder) or meet certain other conditions. If you are a Non-U.S. Holder and you comply with the identification procedures described in the preceding section, you will generally establish an exemption from backup withholding.

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.



## **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 from time to time in one or more negotiated transactions, or otherwise, at market prices prevailing at the time of sale, at prices related thereto at the time of resale, at negotiated prices 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. MS-2-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. MS-2-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. MS-2-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. MS-2-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 “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.