

JPMORGAN CHASE & CO.

Principal Protected Notes Linked to a Commodity Index

General

- JPMorgan Chase & Co. may offer and sell principal protected notes linked to a commodity index from time to time. This product supplement no. 157-A-I describes terms that will apply generally to the principal protected notes, and supplements the terms described in the accompanying prospectus supplement and prospectus. A separate term sheet or pricing supplement, as the case may be, will describe terms that apply specifically to the notes, including any changes to the terms specified below. We refer to such term sheets and pricing supplements generally as terms supplements. A separate index supplement will describe any 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 the related index supplement, or in the accompanying prospectus supplement or prospectus, the terms described in the relevant terms supplement will control. If the terms described in the relevant index supplement are inconsistent with those terms described herein, the terms in the index supplement will control.
- The notes are senior unsecured obligations of JPMorgan Chase & Co.
- Payment is linked to a commodity index as described below.
- Unless otherwise specified in the relevant terms supplement, full principal protection if the notes are held to maturity.
- Unless otherwise specified in the relevant terms supplement, cash payment at maturity of principal (or a portion of principal if the relevant terms supplement specifies a Partial Principal Protection Percentage) plus the Additional Amount*.
- The Additional Amount* will depend on the Index Return and the specific terms of the notes as set forth in the relevant terms supplement. Unless otherwise specified, the Additional Amount* per \$1,000 principal amount note will equal (A) \$1,000 x the Index Return x the Participation Rate, but will not be less than zero (or the Minimum Return, if applicable) or greater than the Maximum Return, if applicable, or (B) an amount calculated according to the formula in clause A, unless the Index closing level exceeds a specified level (which we refer to as the Knock-Out Level) on one of the trading days specified in the relevant terms supplement, in which case the Additional Amount* will equal \$1,000 x the Knock-Out Rate, or (C) if the Ending Index Level is greater than or equal to the Initial Index Level, a fixed amount specified in the relevant terms supplement (which amount we refer to as the Fixed Payment) and otherwise zero (or the Minimum Return, if applicable).
- In addition to a cash payment at maturity of the applicable principal amount plus the Additional Amount*, if any, the notes may pay interest prior to maturity, as specified in the relevant terms supplement.
- For important information about tax consequences, see "Certain U.S. Federal Income Tax Consequences" beginning on page PS-54.
- Minimum denominations of \$1,000 and integral multiples thereof, unless otherwise specified in the relevant terms supplement.
- Investing in the notes is not equivalent to investing in the Index or any of its component securities.
- The notes will not be listed on any securities exchange unless otherwise specified in the relevant terms supplement.

Key Terms

Index:	The relevant terms supplement will specify the Index (the "Index"), which will be a commodity index as defined herein.
Payment at Maturity:	Unless otherwise specified in the relevant terms supplement, at maturity you will receive a cash payment for each \$1,000 principal amount note of \$1,000 (or, \$1,000 x Partial Principal Protection Percentage, if the relevant terms supplement specifies a Partial Principal Protection Percentage) plus the Additional Amount*, which may be zero (or may equal the Minimum Return, if applicable).
Additional Amount* (Notes with neither a Knock-Out Level nor a Fixed Payment):	For notes with neither a Knock-Out Level nor a Fixed Payment, the Additional Amount* per \$1,000 principal amount note paid at maturity will equal, unless otherwise specified in the relevant terms supplement, \$1,000 x the Index Return x the Participation Rate; <i>provided</i> that the Additional Amount* will not be less than zero (or the Minimum Return, if applicable) or greater than the Maximum Return, if applicable.
Additional Amount* (Notes with a Knock-Out Level):	For notes with a Knock-Out Level, the Additional Amount* per \$1,000 principal amount note paid at maturity will equal, unless otherwise specified in the relevant terms supplement: <ol style="list-style-type: none">(1) If the Index closing level is less than the Knock-Out Level on each of the trading days specified in the relevant terms supplement, \$1,000 x the Index Return x the Participation Rate; <i>provided</i> that the Additional Amount will not be less than zero (or the Minimum Return, if applicable) or greater than the Maximum Return, if applicable; or(2) If the Index closing level is greater than or equal to the Knock-Out Level on any of the trading days specified in the relevant terms supplement, which we refer to as a Knock-Out Event, \$1,000 x the Knock-Out Rate.
Additional Amount* (Notes with a Fixed Payment):	For notes with a Fixed Payment, the Additional Amount* per \$1,000 principal amount note paid at maturity will equal: <ol style="list-style-type: none">(1) If the Ending Index Level is greater than or equal to the Initial Index Level, an amount specified in the relevant terms supplement; or(2) If the Ending Index Level is less than the Initial Index Level, zero (or the Minimum Return, if applicable).
Minimum Return:	If applicable, then the amount specified as the Minimum Return in the relevant terms supplement.
Maximum Return:	If applicable, then the Additional Amount* will equal no more than the amount specified as the Maximum Return in the relevant terms supplement.

*** Subject to the impact of a commodity hedging disruption event as described under "General Terms of Notes—Market Disruption Events" and "General Terms of Notes—Consequences of a Commodity Hedging Disruption Event." In the event of a commodity hedging disruption event, we have the right, but not the obligation, to cause the calculation agent to determine the value of the Additional Amount payable upon maturity prior to, and without regard to the level of the Index on, the Observation Date or any of the Ending Averaging Dates, as the case may be.**

Index Return:	Unless otherwise specified in the relevant terms supplement: $\frac{\text{Ending Index Level} - \text{Initial Index Level}}{\text{Initial Index Level}}$
Initial Index Level:	The Index closing level on the pricing date, or such other date or dates as specified in the relevant terms supplement, or the arithmetic average of the Index closing levels on each of the Initial Averaging Dates, if so specified in the relevant terms supplement.
Ending Index Level:	The Index closing level on the Observation Date, or the arithmetic average of the Index closing level on each of the Ending Averaging Dates, or such other date or dates as specified in the relevant terms supplement.
Initial Averaging Dates:	As specified, if applicable, in the relevant terms supplement. Any Initial Averaging Date is subject to postponement in the event of certain market disruption events and as described under "Description of Notes – Payment at Maturity."
Index Valuation Date(s):	The Index closing level will be calculated on a single date, which we refer to as the Observation Date, or on several dates, each of which we refer to as an Ending Averaging Date, as specified in the relevant terms supplement. We refer to such dates generally as Index Valuation Dates in this product supplement. Any Index Valuation Date is subject to postponement in the event of certain market disruption events and as described under "Description of Notes — Payment at Maturity."
Knock-Out Event:	For notes with a Knock-Out Level, the relevant terms supplement may specify any trading day(s) during the term of the notes as the day(s) on which a Knock-Out Event can occur.
Maturity Date:	As specified in the relevant terms supplement. The maturity date of the notes is subject to postponement in the event of certain market disruption events and as described under "Description of Notes — Payment at Maturity."

Other Terms: In each case if applicable, the Participation Rate, Knock-Out Level, Knock-Out Rate, Fixed Payment, Interest Rate, Partial Principal Protection Percentage, Interest Period, Interest Determination Dates and/or Interest Payment Date(s) will be set forth in the relevant terms supplement.

Investing in the Principal Protected Notes involves a number of risks. See "Risk Factors" beginning on page PS-6.

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. 157-A-I, the accompanying prospectus supplement and prospectus, or any related index supplement or terms supplement. Any representation to the contrary is a criminal offense.

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

J.P.Morgan

December 4, 2008

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In making your investment decision, you should rely only on the information contained or incorporated by reference in the terms supplement relevant to your investment, any related index supplement, this product supplement no. 157-A-I and the accompanying prospectus supplement and prospectus with respect to the notes offered by the relevant terms supplement, any related index supplement and this product supplement no. 157-A-I and with respect to JPMorgan Chase & Co. This product supplement no. 157-A-I, together with the relevant terms supplement, any related index supplement and the accompanying prospectus and prospectus supplement, contains the terms of the notes and supersedes all other prior or contemporaneous oral statements as well as any other written materials including preliminary or indicative pricing terms, correspondence, trade ideas, structures for implementation, sample structures, fact sheets, brochures or other educational materials of ours. The information in the relevant terms supplement, any related index supplement, this product supplement no. 157-A-I and the accompanying prospectus supplement and prospectus may only be accurate as of the dates of each of these documents, respectively.

The notes described in the relevant terms supplement and this product supplement no. 157-A-I are not appropriate for all investors, and involve important legal and tax consequences and investment risks, which should be discussed with your professional advisers. You should be aware that the regulations of the Financial Industry Regulatory Authority, or FINRA, and the laws of certain jurisdictions (including regulations and laws that require brokers to ensure that investments are suitable for their customers) may limit the availability of the notes. The relevant terms supplement, any related index supplement, this product supplement no. 157-A-I and the accompanying prospectus supplement and prospectus do not constitute an offer to sell or a solicitation of an offer to buy the notes in any circumstances in which such offer or solicitation is unlawful.

In this product supplement no. 157-A-I, any related index supplement, the relevant terms supplement and the accompanying prospectus supplement and prospectus, “we,” “us” and “our” refer to JPMorgan Chase & Co., unless the context requires otherwise.

DESCRIPTION OF NOTES

The following description of the terms of the notes supplements the description of the general terms of the debt securities set forth under the headings “Description of Notes” in the accompanying prospectus supplement and “Description of Debt Securities” in the accompanying prospectus. A separate terms supplement will describe the terms that apply specifically to the notes, including any changes to the terms specified below. A separate index supplement will describe an 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. 157-A-I have the meanings assigned in the accompanying prospectus supplement, prospectus, the relevant terms supplement and any related index supplement. The term “note” refers to each \$1,000 principal amount of our Principal Protected Notes Linked to an Index.

General

The Principal Protected Notes are senior unsecured obligations of JPMorgan Chase & Co. that are linked to an index as specified in the relevant terms supplement (the “Index”). In this product supplement no. 157-A-I, we refer to an index that tracks the performance of commodity futures contracts as a “commodity index.” The notes are a series of securities referred to in the accompanying prospectus supplement, prospectus and the relevant terms supplement, as well as any related index supplement. The notes will be issued by JPMorgan Chase & Co. under an indenture dated May 25, 2001, as may be amended or supplemented from time to time, between us and Deutsche Bank Trust Company Americas (formerly Bankers Trust Company), as trustee.

Unless otherwise specified in the relevant terms supplement, the notes will not pay interest or a fixed amount at maturity. Instead, at maturity you will receive a payment in cash, the amount of which will vary depending on the performance of the Index over the term of the notes, calculated in accordance with the applicable formula as set out below. Unless otherwise specified in the relevant terms supplement, we will pay you at maturity at least the principal amount of \$1,000 (or a portion of the principal amount if the relevant terms supplement specifies a Partial Principal Protection Percentage) for each \$1,000 principal amount note and, if specified in the relevant terms supplement, accrued and unpaid interest and/or a Minimum Return.

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

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

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

The specific terms of the notes will be described in the relevant terms supplement accompanying this product supplement no. 157-A-I and any related index supplement. The terms described in that document supplement those described herein and in any related index supplement, the accompanying prospectus and prospectus supplement. If the terms described in the relevant terms supplement are inconsistent with those described herein or in any related index supplement, the accompanying prospectus or prospectus supplement, the terms described in the relevant terms supplement will control.

Payment at Maturity

The maturity date for the notes will be set forth in the relevant terms supplement and is subject to adjustment if such day is not a business day or if the final Index Valuation Date is postponed as described

below. We will specify, in each case if applicable, the Participation Rate, Partial Principal Protection Percentage, Minimum Return, Maximum Return, Knock-Out Level, Knock-Out Rate, Knock-Out Event, Interest Rate and Fixed Payment and the applicable terms of any such payment terms in the relevant terms supplement.

Your return on the notes will be linked to the performance of the S&P 500[®] Index during the life of the notes.

Unless otherwise specified in the relevant terms supplement, at maturity you will receive a cash payment for each \$1,000 principal amount note of \$1,000 (or \$1,000 x Partial Principal Protection Percentage, if the relevant terms supplement specifies a Partial Principal Protection Percentage) plus the Additional Amount as described below, which amount may be zero unless a Minimum Return applies. **The Additional Amount will be subject to the impact of a commodity hedging disruption event as described under “General Terms of Notes—Market Disruption Events” and “General Terms of Notes—Consequences of a Commodity Hedging Disruption Event.”** Unless otherwise specified in the relevant terms supplement, you will not receive less than \$1,000 (or \$1,000 x Partial Principal Protection Percentage, if the relevant terms supplement specifies a Partial Principal Protection Percentage) for each \$1,000 principal amount note if you hold the notes to maturity.

Subject to the impact of a commodity hedging disruption event, for notes with neither a Knock-Out Level nor a Fixed Payment, the “Additional Amount” per \$1,000 principal amount note paid at maturity will equal, unless otherwise specified in the relevant terms supplement, \$1,000 x the Index Return x the Participation Rate; *provided* that the Additional Amount will not be less than zero (or the Minimum Return, if applicable) or greater than the Maximum Return, if applicable.

The “Partial Principal Protection Percentage,” if applicable, will be a percentage less than 100%, as specified in the relevant terms supplement.

The “Participation Rate” will be a percentage, which may be more or less than 100%, as specified in the relevant terms supplement.

The “Minimum Return,” if applicable, will be a fixed dollar amount per \$1,000 principal amount note as specified in the relevant terms supplement.

The “Maximum Return,” if applicable, will be a fixed dollar amount per \$1,000 principal amount note as specified in the relevant terms supplement.

Subject to the impact of a commodity hedging disruption event, for notes with a Knock-Out Level, the “Additional Amount” per \$1,000 principal amount note paid at maturity will equal, unless otherwise specified in the relevant terms supplement:

- (1) if the Index closing level is less than the Knock-Out Level on each of the trading days specified in the relevant terms supplement, \$1,000 x the Index Return x the Participation Rate; *provided* that the Additional Amount will not be less than zero (or the Minimum Return, if applicable) or greater than the Maximum Return, if applicable; or
- (2) if the Index closing level is greater than or equal to the Knock-Out Level on any of the trading days specified in the relevant terms supplement, \$1,000 x the Knock-Out Rate.

The “Knock-Out Level” will be a percentage of the Initial Index Level or a fixed level of the Index as specified in the relevant terms supplement.

The “Knock-Out Rate” will be a percentage as specified in the relevant terms supplement.

A “Knock-Out Event” occurs when the Index closing level is greater than or equal to the Knock-Out Level on any of the trading days specified in the relevant terms supplement. For example, the terms supplement may specify a single trading day as the only day on which a Knock-Out Event can occur, or

the terms supplement may specify that a Knock-Out Event can occur on any trading day during the term of the notes.

Subject to the impact of a commodity hedging disruption event, for notes with a Fixed Payment, the “Additional Amount” per \$1,000 principal amount note paid at maturity will equal:

- (1) if the Ending Index Level is greater than or equal to the Initial Index Level, the Fixed Payment; or
- (2) if the Ending Index Level is less than the Initial Index Level, zero (or the Minimum Return, if applicable).

The “Fixed Payment” is a fixed dollar amount per \$1,000 principal amount note as specified in the relevant terms supplement.

The determination of the Additional Amount may be modified in the event of a commodity hedging disruption event as described under “General Terms of Notes—Market Disruption Events” and “General Terms of Notes—Consequences of a Commodity Hedging Disruption Event.”

For more information about the impact of a commodity hedging disruption event, please see “—Payment at Maturity” and “General Terms of Notes—Consequences of a Commodity Hedging Disruption Event.”

Unless otherwise specified in the relevant terms supplement, the “Index Return,” as calculated by the calculation agent, is the percentage change in the Index closing level, calculated by comparing the Index closing level on the Observation Date, or the arithmetic average of the Index closing level on each of the Ending Averaging Dates, or such other date or dates as specified in the relevant terms supplement (the “Ending Index Level”), to the Index closing level on the pricing date, or such other date or dates as specified in the relevant terms supplement, or to the arithmetic average of the Index closing levels on each of the Initial Averaging Dates, if so specified in the relevant terms supplement (the “Initial Index Level”). The relevant terms supplement will specify the manner in which the Initial Index Level and the Ending Index Level will be determined. The Index Return, unless otherwise specified in the relevant terms supplement, is calculated as follows:

$$\text{Index Return} = \frac{\text{Ending Index Level} - \text{Initial Index Level}}{\text{Initial Index Level}}$$

The “Index closing level” on any trading day will equal the closing level of the Index or any successor index thereto (as described under any related index supplement or under “General Terms of Notes—Discontinuation of the Index; Alteration of Method of Calculation” in this product supplement no. 157-A-I) published following the regular official weekday close of trading on that trading day. In certain circumstances, the “Index closing level” will be based on the alternative calculation of the Index described under any related index supplement or under “The Index— Discontinuation of the Index; Alteration of Method of Calculation” in this product supplement no. 157-A-I .

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

The Initial Averaging Dates, if applicable, will be specified in the relevant terms supplement and any such date is subject to adjustment as described below. If an Initial Averaging Date is not a trading day or if there is a market disruption event on such day, the applicable Initial Averaging Date will be postponed to the immediately succeeding trading day during which no market disruption event shall have occurred or

be continuing. In no event, however, will any Initial Averaging Date be postponed more than ten business days following the date originally scheduled to be such Initial Averaging Date. If the tenth business day following the date originally scheduled to be the applicable Initial Averaging Date is not a trading day, or if there is a market disruption event on such date, the calculation agent will determine the Index closing level for such Initial Averaging Date on such date in accordance with the formula for and method of calculating the Index closing level last in effect prior to commencement of the market disruption event (or prior to the non-trading day), using the closing price (or, if trading in the relevant securities has been materially suspended or materially limited, the calculation agent's good faith estimate of the closing price that would have prevailed but for such suspension or limitation or non-trading day) on such tenth scheduled business day of each security most recently constituting the Index.

The Index Valuation Date(s), which will be either a single date, which we refer to as the Observation Date, or several dates, each of which we refer to as an Ending Averaging Date, will be specified in the relevant terms supplement and any such date is subject to adjustment as described below.

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

We will irrevocably deposit with DTC no later than the opening of business on the applicable date or dates funds sufficient to make payments of the amount payable at maturity and on the Interest Payment Dates, 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.

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.

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.

Notes with a maturity of more than one year

The Index Valuation Date(s), which will be either a single date, which we refer to as the Observation Date, or several dates, each of which we refer to as an Ending Averaging Date, will be specified in the relevant terms supplement and any such date is subject to adjustment as described below. If an Index Valuation Date is not a trading day or if there is a market disruption event on such day, the applicable Index Valuation Date will be postponed to the immediately succeeding trading day during which no market disruption event shall have occurred or be continuing. In no event, however, will any Index Valuation Date be postponed more than ten business days following the date originally scheduled to be such Index Valuation Date. If the tenth business day following the date originally scheduled to be the applicable Index Valuation Date is not a trading day, or if there is a market disruption event on such date, the calculation agent will determine the Index closing level on such date in accordance with the formula for and method of calculating the Index closing level last in effect prior to commencement of the market disruption event (or prior to the non-trading day), using the closing price (or, if trading in the relevant securities has been materially suspended or materially limited, the calculation agent's good faith estimate of the closing price that would have prevailed but for such suspension or limitation or non-trading day) on such tenth scheduled business day of each security most recently constituting the Index.

Notes with a maturity of not more than one year

If a market disruption event occurs on any Index Valuation Date other than the final Index Valuation Date, or such date is not a trading day, the Index closing level will be determined on the immediately succeeding trading day on which no market disruption event shall have occurred or is continuing. The final Index Valuation Date will be the third scheduled trading day prior to the maturity date, unless the calculation agent determines that a market disruption event occurred or is continuing on that day. In that event, the final Index Valuation Date will be the first succeeding trading day on which the calculation agent determines that a market disruption event has not occurred and is not continuing. In no event, however, shall the final Index Valuation Date be postponed more than ten business days, *provided* that such final Index Valuation Date, as postponed, shall not produce a maturity date (including the issue date but not the maturity date) more than one year after the issue date (any such date, the “Final Disrupted Valuation Date”). If the final Index Valuation Date has been postponed to the Final Disrupted Valuation Date, and such Final Disrupted Valuation Date is not a trading day, or if there is a market disruption event on such Final Disrupted Valuation Date, the calculation agent will determine the Index closing level on such Final Disrupted Valuation Date in accordance with the formula for and method of calculating the Index last in effect prior to commencement of the market disruption event, using the closing price (or, if trading in the relevant securities has been materially suspended or materially limited, its good faith estimate of the closing price that would have prevailed but for such suspension or limitation or non-trading day) on the business day immediately preceding such Final Disrupted Valuation Date of each security most recently constituting the Index.

Interest Payments

If the relevant terms supplement specifies that the notes will bear interest, the notes will bear interest at the rate per annum, or such other rate or rates, as specified in such terms supplement. Under these circumstances, interest will accrue from the issuance date of the notes to but excluding the maturity date. Interest will be paid in arrears on each date specified in the relevant terms supplement (each such date an “Interest Payment Date”) to and excluding the maturity date, to the holders of record at the close of business on the date 15 calendar days prior to that Interest Payment Date, whether or not such fifteenth calendar day is a business day, unless otherwise specified in the relevant terms supplement. Interest on the notes will be calculated based on a 360-day year of twelve 30-day months, unless otherwise specified in the relevant terms supplement. If any day on which a payment of interest or principal is due is not a business day, the payment will be made with the same force and effect on the next succeeding business day. If the maturity date is adjusted as the result of a market disruption event, 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, but no additional interest will accrue or be payable as a result of the delayed payment.

RISK FACTORS

*Your investment in the notes will involve certain risks. The notes may not pay interest or guarantee any return of principal prior to maturity unless otherwise specified in the relevant terms supplement. Investing in the notes is not equivalent to investing directly in the Index or any of the component securities of the Index. In addition, your investment in the notes entails other risks not associated with an investment in conventional debt securities. **You should consider carefully the following discussion of risks before you decide that an investment in the notes is suitable for you.***

Risks Relating to the Notes Generally

The notes differ from conventional debt securities.

The notes combine features of equity and debt. The terms of the notes differ from those of conventional debt securities in that we may not pay interest on the notes or, if we do pay interest, a significant portion of your total payment at maturity may be based on the performance of the Index rather than the interest rate we will pay you. Where the relevant terms supplement does not provide for interest payments, if the Ending Index Level does not exceed, or in certain cases, equal, the Initial Index Level, and if the Index closing level is less than the Knock-Out Level, if any, on each of the trading days specified in the relevant terms supplement, at maturity you will receive only \$1,000 (plus the Minimum Return, if any) for each \$1,000 principal amount note, unless otherwise specified in the relevant terms supplement. Therefore, the return on your investment in the notes may be less than the amount that would be paid on an ordinary debt security. The return at maturity of only the applicable principal amount of each note (plus the Minimum Return, if any) will not compensate you for any loss in value due to inflation and other factors relating to the value of money over time.

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

The notes are subject to the credit risk of JPMorgan Chase & Co. and our credit ratings and credit spreads may adversely affect the market value of the notes. Investors are dependent on JPMorgan Chase & Co.'s ability to pay all amounts due on the notes at maturity 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 adversely affect the value of the notes.

The notes may not pay more than the applicable principal amount, and accrued and unpaid interest, if applicable, at maturity.

If the Ending Index Level is less than, or, in certain cases, equal to the Initial Index Level, and the Index closing level is less than the Knock-Out Level, if any, on all of the trading days specified in the relevant terms supplement, you will receive only the applicable interest payments, if any, set forth in the terms supplement and, unless otherwise specified in the relevant terms supplement, \$1,000 (plus the Minimum Return, if any) for each \$1,000 principal amount note you hold at maturity. This will be true even if the value of the Index was higher than the Initial Index Level at some time during the life of the notes but later falls below the Initial Index Level. Because the notes may accrue interest at an interest rate lower than that payable for other debt securities issued by us with a comparable maturity, the return on your investment in the notes may be less than the amount that would be paid on a conventional debt security of comparable maturity. This return may not fully compensate you for any loss in value due to inflation and other factors relating to the value of money over time.

Your investment in the notes may result in a loss if a Partial Principal Protection Percentage is applicable.

If the relevant terms supplement specifies that a Partial Principal Protection Percentage will apply to the notes, you may receive a payment at maturity in an amount that is less than \$1,000 for each \$1,000

principal amount note. For notes with partial principal protection, at maturity you will receive a cash payment for each \$1,000 principal amount note of \$1,000 x the Partial Principal Protection Percentage, plus the Additional Amount, which may be zero.

The appreciation potential of the notes will be limited by the Knock-Out Level, if applicable.

If the notes have a Knock-Out Level, the appreciation potential of the notes is limited by the Knock-Out Level and the corresponding Knock-Out Rate. For example, if the Knock-Out Level equals 125% of the Initial Index Level, the appreciation potential of the notes is limited to 24.99%. Once the Index closing level equals or exceeds the Knock-Out Level, the appreciation potential of the notes is limited to the Knock-Out Rate, even if the Index Return is greater than the Knock-Out Rate. For notes with a Knock-Out Level, if the Index closing level is greater than or equal to the Knock-Out Level on any trading day specified in the relevant terms supplement, the return on the notes will equal the Knock-Out Rate multiplied by the applicable principal amount of the notes and will not be determined by reference to the Index Return. This return may not compensate you for any loss in value due to inflation and other factors relating to the value of money over time. Therefore your return may be less than the return you would have otherwise received if you had invested directly in the Index, the stocks underlying the Index or contracts relating to the Index for which there is an active secondary market. Under these circumstances, your return will not reflect any potential increase in the Ending Index Level, as compared to the Initial Index Level, of greater than the Knock-Out Rate.

The Ending Index Level may be less than the Index level at other times during the term of the notes.

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

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

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

The appreciation potential of the notes will be limited by the Fixed Payment, if applicable.

If the notes have a Fixed Payment, the appreciation potential of the notes is limited to the appreciation represented by such Fixed Payment, even if the appreciation in the Index would, but for the

Fixed Payment, result in the payment of a greater Additional Amount at maturity. If the Ending Index Level is greater than or equal to the Initial Index Level, the return on the notes will equal the Fixed Payment and will not be determined by reference to the Index Return. This return will be limited regardless of the appreciation of the Index, which may be significant. Therefore, under certain circumstances, your return may be less than the return you would have otherwise received if you had invested directly in the Index, the stocks underlying the Index or contracts relating to the Index for which there is an active secondary market.

The appreciation potential of the notes will be limited by the Maximum Return, if applicable.

If the notes have a Maximum Return, the appreciation potential of the notes is limited to the fixed dollar amount per \$1,000 principal amount note specified in the relevant terms supplement as the Maximum Return. The Additional Amount will equal no more than the Maximum Return. Accordingly, the appreciation potential of the notes will be limited to the Maximum Return even if the Additional Amount calculated with reference to the Index Return and Participation Rate would be greater than the Maximum Return.

If the Participation Rate is less than 100%, the Additional Amount will be limited by the Participation Rate.

If the Participation Rate is less than 100% and the Ending Index Level exceeds the Initial Index Level, the Additional Amount you receive at maturity will equal only a percentage, as specified in the relevant terms supplement, of the Index performance above the Initial Index Level. Under these circumstances, the Additional Amount you receive at maturity will not fully reflect the performance of the Index.

The notes are designed to be held to maturity.

The notes are not designed to be short-term trading instruments. The price at which you will be able to sell your notes prior to maturity, if at all, may be at a substantial discount from the principal amount of the notes, even in cases where the Index has appreciated since the date of the issuance of the notes. The potential returns described in any terms supplement assume that your notes are held to maturity.

Secondary trading may be limited.

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

J.P. Morgan Securities Inc., or JPMSI 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 JPMSI is willing to buy the notes. If at any time JPMSI or another agent does not act as a market maker, it is likely that there would be little or no secondary market for the notes.

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

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

- the expected volatility in the Index and its constituents;
- the time to maturity of the notes;
- the market price of the physical commodities upon which the futures contracts that compose the constituents of the Index are based;

- interest and yield rates in the market generally;
- economic, financial, political, regulatory, geographical, agricultural, meteorological or judicial events that affect the commodities underlying the constituents or markets generally and which may affect the value of the commodity futures contracts, and thus the closing levels of the constituents of the Index; and
- our creditworthiness, including actual or anticipated downgrades in our credit ratings.

You cannot predict the future performance of the Index based on its historical performance. The Ending Index Level may be flat or negative as compared to the Initial Index Level, in which event you will only receive the applicable principal amount of your notes at maturity unless the relevant terms supplement provides for interest payments, a Minimum Return or includes a Knock-Out feature.

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

While the payment at maturity 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 through one or more of our affiliates. Such agent's commission 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 JPMSI will be willing to purchase notes from you in secondary market transactions, if at all, will likely be lower than the original issue price. In addition, any such prices may differ from values determined by pricing models used by JPMSI, as a result of such compensation or other transaction costs.

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

J.P. Morgan Securities Inc. and other affiliates of ours trade other financial instruments related to the underlying commodities on a regular basis, for their accounts and for other accounts under their management. J.P. Morgan Securities Inc. 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 to any of the underlying commodities. 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 price of commodity futures contracts underlying the Constituents that compose the JPMorgan Optimax Market-Neutral Index or the JPMorgan Optimax Plus Index (together the "JPMorgan Optimax Indices" and each a "JPMorgan Optimax Index") and, accordingly, could affect the value of the notes and the amount, if any, payable to you at maturity.

We or our affiliates may currently or from time to time engage in trading activities related to the potential underlying commodities. We or one or more of our affiliates may also publish research reports, or otherwise express views, with respect to such investments or regarding expected movements in price of the underlying commodities. We do not make any representation or warranty to any purchaser of a note with respect to any matters whatsoever relating to such activities or future price movements of the underlying commodities.

Additionally, we or one of our affiliates may serve as issuer, agent or underwriter for additional issuances of notes with returns linked or related to changes in the price of any of the underlying commodities. 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, 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 or our affiliates' control, such hedging may result in a profit that is more or less than expected, or it may result in a loss.

JPMSI, one of our affiliates, will act as the calculation agent. The calculation agent will determine, among other things, the Initial Index Level, the Ending Index Level, the closing level of the Index on each Index Valuation Date and each Initial Averaging Date, if applicable, the Index Return and the Additional Amount, if any, that we will pay you at maturity as well as whether the Index closing level is greater than or equal to the Knock-Out Level (for notes with a Knock-Out Level) whether the Ending Index Level is equal to or greater than the Initial Index Level and the amount of interest payable, if any, on any Interest Payment Date. The calculation agent will also be responsible for determining whether a market disruption event has occurred, whether the Index has been discontinued, whether there has been a material change in the method of calculation of the Index and, if the notes bear interest, whether a day is an Interest Payment Date. In performing these duties, JPMSI may have interests adverse to the interests of the holders of the notes, which may affect your return on the notes, particularly where JPMSI, as the calculation agent, is entitled to exercise discretion.

Market disruptions may adversely affect your return.

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

In addition, if we or our affiliates are unable to effect transactions necessary to hedge our obligations under the notes due to a commodity hedging disruption event, we have the right, but not the obligation, to adjust your payment at maturity. In making such adjustment, we will determine the forward price of the embedded option representing the Additional Amount payable on the notes at maturity (the “Option Value”) as of the date on which we declare a commodity hedging disruption event (such date, a “commodity hedging disruption date”). At maturity, we will pay you, instead of the amount specified under “Description of Notes — Payment at Maturity,” the amount described under “General Terms of Notes — Consequences of a Commodity Hedging Disruption Event,” which will not be less than \$1,000 for each \$1,000 principal amount note (unless the relevant terms supplement specifies a Partial Principal Protection Percentage, in which case the amount due and payable for each \$1,000 principal amount note will not be less than \$1,000 x Partial Principal Protection Percentage). If a commodity hedging disruption event occurs and we decide to exercise our right to adjust your payment at maturity and in doing so determine the Option Value of your notes, such Option Value will be determined by the calculation agent on the commodity hedging disruption date in good faith and in a commercially reasonable manner; *however*, the amount due and payable per \$1,000 principal amount note will be due and payable only at maturity. The amount you receive at maturity will not reflect any further appreciation or depreciation of the Index after the Option Value is determined on the commodity hedging disruption date. Furthermore, you will not receive any amounts (related to the Option Value or otherwise) until maturity. Additionally, if a commodity hedging disruption event ceases to exist, the amounts determined on the commodity hedging disruption date will not be revised after such commodity hedging disruption date. See “General Terms of Notes—Consequences of a Commodity Hedging Disruption Event.”

Generally, if the term of the notes is not more than one year, the notes will be treated as short-term debt instruments for U.S. federal income tax purposes.

Unless otherwise provided in the relevant terms supplement, if the term of the notes is not more than one year (including either the issue date or the last possible date that the notes could be outstanding, but not both), the notes will be treated as “short-term” debt instruments for U.S. federal income tax purposes. No statutory, judicial or administrative authority directly addresses the treatment of notes or instruments similar to the notes for U.S. federal income tax purposes, and no ruling is being requested from the Internal Revenue Service (the “IRS”) with respect to the notes. As a result, certain aspects of the tax

treatment of an investment in the notes are uncertain. You should review carefully the section entitled "Certain U.S. Federal Income Tax Consequences" in this product supplement no. 157-A-I and consult your tax adviser regarding your particular circumstances.

Generally, if the term of the notes is more than one year, the notes will be treated as contingent payment debt instruments for U.S. federal income tax purposes.

Unless otherwise provided in the relevant terms supplement, if the term of the notes is more than one year (including either the issue date or the last possible date the notes could be outstanding, but not both), the notes will be treated as "contingent payment debt instruments" for U.S. federal income tax purposes. As a result, you will generally be required to recognize interest income in each year at a "comparable yield," even though we may not make any payments with respect to the notes until maturity. Interest included in income will increase your basis in the notes and the projected amount of stated interest, if any, will reduce your basis in the notes. Generally, amounts received at maturity or on earlier sale or exchange in excess of your basis will be treated as additional interest income while any loss will generally be treated as an ordinary loss to the extent of all previous inclusions with respect to the notes, which will be deductible against other income (e.g., employment and interest income) with the balance treated as capital loss, which may be subject to limitations. Losses may be subject to special reporting requirements. You should review carefully the section entitled "Certain U.S. Federal Income Tax Consequences" in this product supplement no. 157-A-I and consult your tax adviser regarding your particular circumstances.

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

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

Risks Relating to the Index

The JPMorgan Optimax Indices are not representative of a pure commodities allocation and are not designed to replicate or track commodities markets, the S&P GSCI™ or any or all of the sub-indices of the S&P GSCI™.

The JPMorgan Optimax Indices each seek to replicate a synthetic portfolio that references certain S&P GSCI™ sub-indices, but their performances will not reflect the underlying performance of the commodities markets as a whole. The Indices are designed to create the largest expected return, within the volatility constraints applicable to each Index, through synthetic investment in long and short positions. The S&P GSCI™, in contrast, seeks to allocate weights based on the relative importance of component commodities within the overall economy and assumes relatively constant exposure to specific commodity positions. The Indices are not designed to replicate or track commodities markets, the S&P GSCI™ or any or all of the sub-indices of the S&P GSCI™. For any given period, the commodities markets, the S&P GSCI™ or any or all of the sub-indices of the S&P GSCI™ may have positive or significantly positive performance, and the Indices may have negative or significantly negative performance, in absolute terms or relative to the S&P GSCI™ or any of its sub-indices. An increase in the value of commodities will not necessarily result in an increase in the values of the Indices.

The JPMorgan Optimax Indices lack operating history and may perform in unanticipated ways.

The JPMorgan Optimax Indices were established on May 6, 2008 and therefore lack historical performance. In addition, the Index Rules were not formalized until June 27, 2008 and were amended on December 2, 2008. For the period from and including May 6, 2008 to, but excluding, June 27, 2008, the Indices were calculated using formulas that were substantially similar to the formulas set forth in the Index

Rules. The amendments to the Index Rules adopted on December 2, 2008 had no impact on the calculation of the levels of the JPMorgan Optimax Indices. The Optimax Calculation Agent has also retrospectively calculated the closing levels of the JPMorgan Optimax Indices prior to May 6, 2008 based on historical data. However, because the JPMorgan Optimax Indices did not exist before such date, all such retrospective closing levels are simulated and must be considered hypothetical and illustrative only. The simulated data was constructed using certain procedures that vary from the procedures used to calculate the JPMorgan Optimax Indices on a going forward basis, and on the basis of certain assumptions that may not hold during future periods. Although these procedures and assumptions are considered reasonable or necessary, the variations used in producing simulated historical data from those used to calculate the JPMorgan Optimax Indices going forward could produce variations in returns of indeterminate direction and magnitude.

The performance of Constituents in the JPMorgan Optimax Indices may offset each other.

The JPMorgan Optimax Indices consist of 18 different Constituents, each of which will be assigned a weight based on the rebalancing algorithm. The algorithm under which the weights for the Constituents are established and rebalanced allows various Constituents to be weighted positively or negatively (*i.e.*, a short position could be established for one or more Constituents) or accorded zero weight. For any period of time, gains attributable to long or short positions in particular Constituents could be reduced, offset or more than offset by losses attributable to the performance of other Constituents. Similarly, losses attributable to long or short positions in particular Constituents could be reduced, offset or more than offset by gains attributable to the performance of other Constituents.

The weightings of the Constituents for any monthly period will be based on, among other things, the assumptions that covariance between pairs of Constituents for a prior period will continue for a future period and that past performance can be used as an indicator for future performance. The correlations between pairs of Constituents may change substantially and rapidly, and these changes could exacerbate losses or gains if weightings assume loss-making positions or gain-producing positions, respectively, in several Constituents at any one time. Additionally, past performance is not necessarily indicative of future performance, and a reversal in momentum may result in a loss in the price of the Constituent and a decline in the level of the JPMorgan Optimax Indices. The JPMorgan Optimax Indices are not designed to respond to rapid changes in correlation (or changes in correlation of limited duration) or momentum (or changes in momentum of limited duration). By design, the JPMorgan Optimax Indices respond gradually to trends that persist over a course of time.

If a negative weighting is assigned to a Constituent, signifying a short position relative to such Constituent, there is unlimited loss exposure to such Constituent and such exposure may result in a significant drop in the level of such Index.

The JPMorgan Optimax Indices employ a technique generally known as a “long-short” strategy. This means the JPMorgan Optimax Indices may include a number of notional long positions and a number of notional short positions. Short positions in any investment carry the risk of unlimited loss exposure. If a negative weighting is assigned to a Constituent, a positive return on such Constituent will have a negative impact on the closing level of such Index. If a negatively weighted Constituent posts significant positive returns, it may have a large negative impact on the closing level of such Index. Since the Constituent weightings are scheduled to be rebalanced only once per month, there is a risk that a loss-causing negative weighting will remain in place for a significant period of time. In addition, due to the short positions, the level of the JPMorgan Optimax Indices could potentially fall to zero without the value of any of the Constituents falling to zero.

There are risks associated with the use of a momentum strategy.

The JPMorgan Optimax Indices are constructed, in part, using a mathematical model intended to implement what is generally known as a momentum strategy, which generally seeks to capitalize on trends in the prices of assets. As such, the JPMorgan Optimax Indices assign weights to the Constituents in part based on the performance of the Constituents during the immediately preceding

twelve months. However, there is no guarantee that trends existing in the preceding twelve months will continue in the future. In non-trending, sideways markets, momentum investment strategies are subject to “whipsaws.” A whipsaw occurs when the market reverses and does the opposite of what is indicated by the trend indicator, resulting in a trading loss during the particular period. Consequently, the JPMorgan Optimax Indices may perform poorly in non-trending, “choppy” markets characterized by short-term volatility.

The mathematical model used to rebalance the JPMorgan Optimax Indices does not consider the skew or kurtosis of the possible returns.

On each monthly rebalancing date, the JPMorgan Optimax Indices are rebalanced according to a mathematical model designed to maximize their expected returns over the coming months, subject to the volatility caps and other constraints applicable to each Index. However, this model only takes into account the expected return of the JPMorgan Optimax Indices following the rebalancing, and does not consider the specific distribution of possible returns resulting from any rebalancing. Because it does not account for the “skew” of the distribution of possible returns (the extent to which the distributions of possible returns is asymmetric around the mean) and the level of kurtosis in the distribution of possible returns (the size of the “tails”), the rebalancing model may result in the JPMorgan Optimax Indices having many possible returns that are substantially above or substantially below the expected return. Moreover, the JPMorgan Optimax Indices may have higher probabilities of very high returns or very low returns than would be the case if the expected possible returns of the JPMorgan Optimax Indices were normally distributed around the mean (the expected return).

Commodity prices may change unpredictably, affecting the level of the JPMorgan Optimax Indices in unforeseeable ways.

Trading in commodity futures contracts underlying the Constituents is speculative and can be extremely volatile. Market prices of the commodities on which such futures contracts are based may fluctuate rapidly based on numerous factors, including: changes in supply and demand relationships; weather; agriculture; trade; fiscal, monetary and exchange control programs; domestic and foreign political and economic events and policies; legal, regulatory and administrative rules (and proposed and actual changes to such rules) applicable to trading in commodity futures contracts; disease; technological developments and changes in interest rates. These factors may affect the level of the Constituents and, therefore, the level of the JPMorgan Optimax Indices in varying and unpredictable ways.

The JPMorgan Optimax Indices may not be successful, may not outperform any alternative strategy that might be employed with respect to the Constituents and may exceed their volatility caps.

The JPMorgan Optimax Indices follow a proprietary strategy that operates on the basis on pre-determined rules. No assurance can be given that the investment strategy on which the JPMorgan Optimax Indices are based will be successful or that the JPMorgan Optimax Indices will outperform any alternative strategy that might be employed with respect to the Constituents. Furthermore, since the volatility caps applied on the rebalancing dates only serve to limit historical volatility of any specific weighting of Constituents, no assurance can be given that the volatility of the Optimax Market-Neutral Index will remain below its volatility cap of 5% or that the volatility of the Optimax Plus Index will remain below its volatility cap of 12%. The actual realized volatility of the Optimax Market-Neutral Index may be greater than 5% and the actual realized volatility of the Optimax Plus Index may be greater than 12%.

Higher or lower future prices of the commodity futures contracts underlying the Constituents, relative to their current prices, may affect the value of the JPMorgan Optimax Indices.

The Constituents, which are 18 of the 24 sub-indices constituting the S&P GSCI™, are themselves composed of futures contracts on physical commodities. Unlike equities, which typically entitle the holder to a continuing stake in a corporation, commodity futures contracts normally specify a certain date for delivery of the underlying physical commodity. As the exchange-traded futures contracts that compose the Constituents approach expiration, they are replaced by contracts that have a later expiration. Thus,

for example, a contract purchased and held in August may specify an October expiration. As time passes, the contract expiring in October is replaced by a contract for delivery in November. This process is referred to as “rolling.”

If the market for these contracts is (putting aside other considerations) in “backwardation,” where the prices are lower in the distant delivery months than in the nearer delivery months, the sale of the October contract would take place at a price that is higher than the price of the November contract, thereby creating a positive “roll yield.” The presence of backwardation could adversely affect the value of the Constituents with a short weighting at the time and thus the level of the JPMorgan Optimax Indices. While many of the contracts included in the Constituents have historically exhibited consistent periods of backwardation, backwardation will most likely not exist at all times. The presence of “contango” in the commodity markets, where the prices are higher in the distant delivery months than in the nearer delivery months, could result in negative “roll yields,” which could adversely affect the value of the Constituents with a long weighting at that time and thus the level of the JPMorgan Optimax Indices.

Some of the Constituents of the JPMorgan Optimax Indices will be subject to pronounced risks of pricing volatility.

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

The sum of the weights for the Constituents of the Optimax Market-Neutral Index may not be equal to zero at all times.

The Optimax Market-Neutral Index is referred to as “Market Neutral” because the sum of the weights of all Constituents immediately after rebalancing is zero. However, because the dollar weights of the Constituents may fluctuate in between rebalancing dates, the net weight of the portfolio of Constituents that comprise the Optimax Market-Neutral Index may not always sum to zero and the Optimax Market-Neutral Index may have net long or short exposure in between rebalancing dates.

The Optimax Plus Index may be subject to increased volatility, compared to the Optimax Market-Neutral Index, due to the use of leverage, due to the higher volatility caps and due to the non-application of the sector weight constraint.

The absolute sum of the positive and negative weights for all Constituents of the Optimax Plus Index may be as great as 250% (under the gross weight constraint) and, consequently, the Optimax Plus Index may include the use of leverage. Where the synthetic portfolio is leveraged, any price movements in the commodity contracts replicating the Constituents may result in greater changes in the level of the Optimax Plus Index than if leverage was not used. In addition, the short-term and long-term historical volatility caps applicable to the Optimax Plus Index are higher than those applicable to the Optimax Market-Neutral Index, which means that it is likely that there will be more volatility in the future performance of the Optimax Plus Index, as compared to the Optimax Market-Neutral Index. Finally, unlike the Optimax Market-Neutral Index, the Optimax Plus Index does not include any constraint relating to sector diversification, even though diversification among sectors of commodities may reduce the volatility of a portfolio, since some sectors are groupings of Constituents with a similar nature or use, such as industrial metals or energy.

Suspension or disruptions of market trading in the commodity and related futures markets may affect the level of one or more of the Constituents and thus may adversely affect the level of the JPMorgan Optimax Indices.

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

The commodity futures contracts underlying the Constituents of the JPMorgan Optimax Indices are subject to legal and regulatory regimes that may change in ways that could affect our ability to hedge our obligations under the notes, may have an adverse effect on the level of the JPMorgan Optimax Indices and/or could lead to the early determination of the Additional Amount for your notes, any of which would impact the value of your payment at maturity.

The commodity futures contracts that underlie the Constituents of the JPMorgan Optimax Indices are subject to legal and regulatory regimes in the United States and, in some cases, in other countries that may change in ways that could negatively affect the levels of the JPMorgan Optimax Indices. For example, the United States House of Representatives and the United States Senate have considered legislation intended to decrease speculation and increase transparency in the commodities markets. If enacted such legislation may, among other things, require the United States Commodity Futures Trading Commission (the “CFTC”) to adopt rules establishing position limits on positions in commodity futures contracts (or eliminating or modifying exemptions from already-existing position limits), impose higher margins on traders in commodity futures contracts or compel additional disclosure requirements on traders. Future legislation could also comprehensively overhaul the existing regulatory regime, for example by merging the CFTC with the Securities and Exchange Commission. The likelihood of such legal and regulatory changes may have also increased as a result of recent turmoil in the financial markets and political and personnel changes following the 2008 national elections.

Upon the occurrence of legal or regulatory changes that the calculation agent for the notes determines have interfered with our or our affiliates’ ability to hedge our obligations under the notes, or if for any other reason we or our affiliates are unable to enter into or maintain hedge positions the calculation agent for the notes deems necessary to hedge our obligations under the notes, the calculation agent for the notes may, in its sole and absolute discretion, determine that a commodity hedging disruption event has occurred and we will then have the right, but not the obligation, to adjust your payment at maturity based on further determinations by the calculation agent for the notes. In making such adjustment, the calculation agent for the notes will determine the Option Value of your notes on the commodity hedging disruption date in good faith and in a commercially reasonable manner, *however*, all amounts payable per \$1,000 principal amount note will be due and payable only at maturity. At maturity, we will pay you, instead of the amount specified under “Description of Notes—Payment at Maturity,” an amount described under “General Terms of Notes—Consequences of a Commodity Hedging Disruption Event,” which will not be less than \$1,000 for each \$1,000 principal amount note (unless the relevant terms supplement specifies a Partial Principal Protection Percentage, in which case the amount due and payable for each \$1,000 principal amount note will not be less than \$1,000 x Partial Principal Protection Percentage). If a commodity hedging disruption event occurs and we decide to exercise our right to have the calculation agent for the notes determine the Option Value of your notes on the commodity hedging disruption date, the amount due and payable on your notes will be due and payable only at maturity. The amount you receive at maturity will not reflect any further appreciation or depreciation of the Index after the commodity hedging disruption date. Furthermore, you will not receive any amounts (related to the

Option Value or otherwise) until maturity. Additionally, if a commodity hedging disruption event ceases to exist, the amounts determined on the commodity hedging disruption date will not be revised after such commodity hedging disruption date. See “General Terms of Notes—Consequences of a Commodity Hedging Disruption Event.”

The commodity futures contracts underlying the Constituents of the JPMorgan Optimax Indices are subject to legal and regulatory regimes that may change in ways that could result in the calculation agent for the JPMorgan Optimax Indices making changes to the Constituents of the JPMorgan Optimax Indices or could result in modifications to the Index Rules, either of which would impact the value of your payment at maturity.

Changes to the legal or regulatory regimes applicable to the commodity futures contracts that underlie the Constituents of the JPMorgan Optimax Indices may result in the calculation agent for such indices exercising its discretionary right under the Index Rules to remove and/or replace Constituents of the JPMorgan Optimax Indices, which may, in turn, have a negative effect on the levels of the JPMorgan Optimax Indices and your payment at maturity. The removal or replacement of Constituents described above could affect the diversification amongst the Constituents or the volatility of the JPMorgan Optimax Indices notwithstanding the normal diversification and volatility constraints imposed on the JPMorgan Optimax Indices by the Index Rules.

In addition, changes to the legal or regulatory regimes applicable to the commodity futures contracts that underlie the Constituents of the JPMorgan Optimax Indices could also result in modifications to the Index Rules, which may, in turn, have a negative effect on the level of the JPMorgan Optimax Indices and your payment at maturity.

The reported level of the JPMorgan Optimax Indices will include the deduction of a hypothetical replication adjustment factor.

One way in which the JPMorgan Optimax Indices differ from a typical index is that their daily reported levels include a deduction of a hypothetical replication adjustment factor, a fee assessed at an annual rate of 0.96% of the aggregate values of its Constituents. This hypothetical fee is deducted daily and calculated based on an actual/360 accrual basis. As a result of the deduction of this amount, the value of an investment linked to the level of the JPMorgan Optimax Indices will trail the value of a hypothetical identically constituted synthetic portfolio from which no such amount is deducted.

The Constituents of the JPMorgan Optimax Indices are “excess return” indices.

In general, returns from investing in futures contracts are derived from three sources: (1) changes in the price of such futures contracts (known as the “price return”), (2) profit or loss realized when rolling from a futures contract with one expiry date to another futures contract with a different, generally later, expiry date (known as the “roll return”) and (3) interest earned on the cash (or other) collateral deposited in connection with the purchase of such a futures contract (known as the “collateral return”). The Constituents of the JPMorgan Optimax Indices generate “excess returns,” meaning the sum of the price return and the roll return with respect to the futures contracts underlying the Constituents. As a result, an investment in an instrument linked to the JPMorgan Optimax Indices will not generate the same returns that would be obtained from investing directly in the futures contracts underlying the Constituents because the collateral return is not used in calculating an “excess return” index.

Certain calculations and determinations will be made in the sole discretion of the Index Calculation Agent.

JPMorgan and its affiliates play a variety of roles in connection with the JPMorgan Optimax Indices, and J.P. Morgan Securities Ltd. (“JPMSL”), one of its affiliates, will act as the calculation agent for each JPMorgan Optimax Index (in each case the “Index Calculation Agent” for the applicable Index). In its role as the calculation agent for each of the JPMorgan Optimax Indices, JPMSL has responsibility for calculating and publishing the closing levels of the JPMorgan Optimax Indices. It is entitled to exercise

discretion in relation to the JPMorgan Optimax Indices, including but not limited to, the determination of the values to be used in the event of market disruptions that affect its ability to calculate and publish the closing levels of the JPMorgan Optimax Indices, its ability to substitute or exclude Constituents and the interpretation of the rules for valuing the JPMorgan Optimax Indices. Although JPMSL, in its role as calculation agent for each of the JPMorgan Optimax Indices, will make all determinations and take all action in relation to the JPMorgan Optimax Indices acting in good faith, it should be noted that such discretion could have an impact, positive or negative, on the levels of the JPMorgan Optimax Indices. JPMSL is under no obligation to consider your interests in taking any actions that might affect the JPMorgan Optimax Indices.

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

USE OF PROCEEDS

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.

Unless otherwise specified in the relevant terms supplement, each agent's commissions 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. Because hedging our obligations entails risk and may be influenced by market forces beyond our or our affiliates' control, our projected profit resulting from such hedging may result in a profit that is more or less than expected, or could result in a loss. See also "Use of Proceeds" in the accompanying prospectus.

On or prior to the date of the relevant terms supplement, we, through our affiliates or others, may hedge some or all of our anticipated exposure in connection with the notes by taking positions in instruments whose value is derived from the Index or from the constituents of the Index, or positions in options or futures contracts underlying such constituents, or positions in related options or futures contracts. While we cannot predict an outcome, such hedging activity or other hedging or investment activities of ours could potentially increase the level of the constituents included in the Index, and therefore effectively establish a higher level that the constituents must achieve for you to obtain a return on your investment or avoid a loss of principal at maturity (other than the Additional Amount). From time to time, prior to maturity of the notes, we may pursue a dynamic hedging strategy that may involve taking long or short positions in the instruments described above. Although we have no reason to believe that any of these activities will have a material impact on the price of commodity futures contracts that determine the level of the constituents included the Index, or the value of the notes, we cannot assure you that these activities will not have such an effect.

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. No note holder will have any rights or interest in our hedging activity or any positions we may take in connection with our hedging activity.

THE JPMORGAN OPTIMAX MARKET-NEUTRAL INDEX

The following is a qualitative description of the rules for the JPMorgan Optimax Market-Neutral Index, as set forth in the JPMorgan Optimax Index Rules dated as of June 27, 2008 and as amended in December 2, 2008 (the "Index Rules"). A copy of the Index Rules is attached to this product supplement as Annex A. For a more detailed and quantitative description of the Index Rules, please see Annex A attached to this product supplement. The Index Rules, and not this description, will govern the calculation and constitution of the JPMorgan Optimax Market-Neutral Index and other decisions and actions related to the JPMorgan Optimax Market-Neutral Index's calculation and maintenance, including (but not limited to) the calculation of each Constituent's index values. Any reference in this description to a particular rule (e.g., "Rule 4.2") is a reference to the specified section of the Index Rules.

The JPMorgan Optimax Market-Neutral Index is the intellectual property of J.P. Morgan Securities Ltd., and J.P. Morgan Securities Ltd. reserves all rights with respect to its ownership of the JPMorgan Optimax Market-Neutral Index. JPMorgan Chase & Co. makes no representation or warranty as to the accuracy or completeness of the information regarding the JPMorgan Optimax Market-Neutral Index contained in, or attached as an annex to, this Product Supplement.

For the purposes of this product supplement no. 157-A-I, the JPMorgan Optimax Market-Neutral Index is a commodity index.

General

The JPMorgan Optimax Market-Neutral Index (the "Market-Neutral Index") is a JPMorgan commodity strategy that seeks to generate consistent returns through a selection of commodity-linked component sub-indices (the "Constituents") based on modern portfolio theory and momentum theory. Each Constituent is a sub-index of the Standard & Poor's GSCITM Excess Return Commodity Index (the "S&P GSCITM"), with each such sub-index itself comprised of exchange-traded commodity futures contracts. The Market-Neutral Index is not representative of a pure commodities allocation and is not designed to replicate or track commodities markets, the S&P GSCITM or any or all of the sub-indices of the S&P GSCITM. Rather, the Market-Neutral Index seeks to replicate a synthetic portfolio that references certain S&P GSCITM sub-indices. For more information on the S&P GSCITM sub-indices please see the section below entitled "Background on the S&P GSCITM Single Commodity Indices."

The Market-Neutral Index is described as a "notional" or "synthetic" portfolio or basket because its reported value does not represent the value of any actual assets held by any person. The value of the Market-Neutral Index at any point is the value of a hypothetical uncollateralized portfolio of positions in the Constituents, less calculation fees, as of that point, and there is no actual portfolio of assets in which any person has any ownership interest. The Market-Neutral Index will generally take long synthetic positions in the Constituents with positive estimated future returns and short synthetic positions in the Constituents with negative estimated future returns (although in certain circumstances, the Market-Neutral Index might take short synthetic positions in Constituents with positive estimated future returns or long synthetic positions in Constituents with negative estimated future returns).

Each month, the Market-Neutral Calculation Agent (as defined below) will rebalance the Market-Neutral Index to take synthetic long and short positions in the Constituents based on mathematical rules that account for certain variables. Those variables include the returns of each Constituent over the preceding twelve months (after accounting for seasonal effects), the covariance between the Constituents (a measure of the degree to which two Constituents change relative to each other), the volatility of the Constituents over the preceding three months and the preceding twelve months and certain constraints applicable to the weights of the Constituents of the Market-Neutral Index. This process of rebalancing the Market-Neutral Index is discussed in "—Optimax Market-Neutral Index Methodology and Rebalancing."

It is expected that the universe of Constituents will continue to be limited to the 18 components of the S&P GSCITM set forth under "—Constituents of the Market-Neutral Index" below. The S&P GSCITM single

commodity components are chosen as the Market-Neutral Index Constituents because of their wide usage as commodity contract price benchmarks and correlation with commodity spot prices.

The rebalancing algorithm is intended to take advantage of the insights of modern portfolio theory and momentum theory. Modern portfolio theory analyzes the relationship between assets contained within a portfolio, and allocates the weights of those assets in an effort to obtain an “efficient” portfolio (*i.e.*, a portfolio with the highest expected return for a given level of risk). Momentum theory seeks to capitalize on positive and negative trends in the levels of the Constituents on the assumption that if certain Constituents performed well or poorly in the past, they will continue to perform well or poorly in the future.

Calculation and Publication of the Market-Neutral Index Values

J.P. Morgan Securities Ltd. or any affiliate or subsidiary designated by it, will act as calculation agent for the Market-Neutral Index (the “Market-Neutral Calculation Agent”). The Market-Neutral Calculation Agent will calculate the Market-Neutral Index value (the “Market-Neutral Index closing value”) on every Index Valuation Day for the purpose of reporting the value, based on the U.S. dollar levels of the Constituents of the synthetic portfolio as of such Index Valuation Day. The value of the Market-Neutral Index is published by Bloomberg Financial Markets under the ticker “CMDTOMER”. The Market-Neutral Calculation Agent may calculate the Market-Neutral Index values with greater frequency than daily and share this calculation with its affiliates for internal purposes (Rule 4.1). The Market-Neutral Calculation Agent will not be obligated to publish the value of the Market-Neutral Index on any day that is a Disrupted Day (Rule 7.2). See “—Market-Neutral Index Methodology and Rebalancing” below. A “Disrupted Day” means, in respect of any Constituent, a day on which a Market Disruption Event occurs or exists with respect to such Constituent. In respect of a Constituent, a Market Disruption Event, in turn, means the failure of the Constituent Sponsor (as defined below) to calculate and publish the dollar level for such Constituent on such day.

The Market-Neutral Index value will be reported to four decimal places (although the Market-Neutral Calculation Agent may maintain a record of the Market-Neutral Index value with greater precision for internal purposes) on every Index Valuation Day. The Market-Neutral Calculation Agent will be under no obligation to any person to provide Market-Neutral Index values by any alternative method if publication of the CMDTOMER ticker is subject to any delay in or interruptions of publication or any act of God, act of governmental authority, or act of public enemy, or due to war, the outbreak or escalation of hostilities, fire, flood, civil commotion, insurrection, labor difficulty including, without limitation, any strike, other work stoppage, or slow-down, severe or adverse weather conditions, power failure, communications line or other technological failure that may occur or any other event beyond the control of the Market-Neutral Calculation Agent (Ap.1.6 of Rules Appendix 1).

Constituents of the Market-Neutral Index

The Constituents in the Market-Neutral Index are eighteen (18) out of the twenty four (24) sub-indices composing the S&P GSCI™, as set forth in the table below. The S&P GSCI™ is a composite index that is broadly diversified across the spectrum of commodities, composed of single commodity sub-indices (each a “Sub-Index” and together, the “Sub-Indices”) representing an unleveraged, long-only investment in commodity futures. Each Sub-Index measures the performance of taking a long position in the nearest-dated futures contract for the relevant commodity and “rolling” the position into the second-nearest-dated futures contract (that is, closing out the position in the nearest-dated futures contract and opening a position in the second-nearest-dated futures contract). Thus, the returns of each Sub-Index are related both to the changes in the spot price of the relevant commodity (the “price return”) and to the difference in price between the nearest-dated and second-nearest-dated futures contract on dates when the positions are rolled for the relevant commodity (the “roll return” and together with the price return, the “excess return”). For more information on the S&P GSCI™ and the Sub-Indices, see “Background on the S&P GSCI™ Single Commodity Indices.”

The table below lists the Constituents of the Market-Neutral Index, as well as the sector of each Constituent:

Constituent	Sector	Bloomberg ticker
WTI Crude Oil	Energy	SPGCCLP
Brent Crude Oil	Energy	SPGCBRP
Gasoline (RBOB)	Energy	SPGCHUP
Natural gas	Energy	SPGCNGP
Gas oil	Energy	SPGCGOP
Heating oil	Energy	SPGCHOP
Gold	Precious Metals	SPGCGCP
Silver	Precious Metals	SPGCSIP
Corn	Agriculture	SPGCCNP
Soybeans	Agriculture	SPGCSOP
Wheat	Agriculture	SPGCWHP
Coffee	Agriculture	SPGCKCP
Sugar	Agriculture	SPGCSBP
Lead	Industrial Metals	SPGILP
Zinc	Industrial Metals	SPGIZP
Nickel	Industrial Metals	SPGCIK
Aluminum	Industrial Metals	SPGCIAP
Copper	Industrial Metals	SPGCICP

As of the date of this product supplement, the Sub-Indices excluded from being Constituents in the Indices were Red Wheat, Cotton, Cocoa, Live Cattle, Feeder Cattle and Lean Hogs. As of November 25th, 2008, these Sub-Indices constituted 7.75% of the dollar weight in the S&P GSCI™.

As of the most recent rebalancing of the Market-Neutral Index, which took place on November 25th, 2008, the synthetic portfolio for the monthly period commencing on such date contained long positions in 8 Constituents, which were Brent Crude Oil, Coffee, WTI Crude Oil, Gold, Copper, Lead, Sugar and Soybeans, and short positions in 10 Constituents, which were Corn, Gas Oil, Heating Oil, Gasoline (RBOB), Aluminum, Nickel, Zinc, Natural Gas, Silver and Wheat. As of the date of this product supplement, the weightings of WTI Crude Oil, Brent Crude Oil, Gasoline (RBOB), Natural gas, Gas oil, Heating oil, Gold, Silver, Corn, Soybeans, Wheat, Coffee, Sugar, Lead, Zinc, Nickel, Aluminum and Copper were 8.88%, 7.82%, -8.88%, -0.05%, -6.26%, -8.88%, 5.11%, -3.64%, -0.34%, 2.33%, -5.85%, 5.63%, 8.18%, 0.25%, -0.72%, -3.66%, -5.25% and 5.34%, respectively.

The Constituents set forth in the table above may be amended from time to time in accordance with the provision described under “—Extraordinary Events Affecting the Market-Neutral Index and its Constituents.”

Optimax Market-Neutral Index Methodology and Rebalancing

The Market-Neutral Index is re-balanced immediately upon the close of trading on the seventeenth (17th) Dealing Day of every month (the “Market-Neutral Rebalancing Date”), subject to postponement in the event of a Disrupted Day or the occurrence of a Hedge Disruption Event and the specification of an interim Rebalancing Date (as described under “—Extraordinary Events Affecting the Market-Neutral Index and its Constituents—Adjustments to or Cancellation of the Market-Neutral Index as a Result of a Hedge Disruption Event”), based on the rebalancing weights of the Constituents determined on the sixteenth (16th) Dealing Day of every month (the “Rebalancing Observation Date”), subject to the occurrence of a Hedge Disruption Event and the specification of an interim Rebalancing Observation Date (as described under “—Extraordinary Events Affecting the Market-Neutral Index and its Constituents—Adjustments to or

Cancellation of the Market-Neutral Index as a Result of a Hedge Disruption Event“) (Ap. 1.1 of Rules Appendix 1).

A “Dealing Day” means each day (other than a Saturday or a Sunday) (i) on which commercial banks in both New York and London are open generally for business (including for dealings in foreign exchange and foreign currency deposits), and (ii) which is a Scheduled Trading Day for all the Constituents of such Index. In respect of each Constituent, a “Scheduled Trading Day” means a day on which the level of such Constituent is scheduled to be published and the principal exchange for futures and options contracts on such Constituent is scheduled to be open for trading for its regular trading session.

The rebalancing weights of the Constituents are determined pursuant to a weighting algorithm that is intended to maximize the expected return of the Index, subject to the constraints applicable to the Market-Neutral Index. The weighting algorithm consists of the following four successive steps:

- Step 1: Determining predicted returns for each Constituent and covariance for each pair of Constituents;
- Step 2: Determining the efficient weights;
- Step 3: Scaling weights to satisfy the long-term volatility constraint; and
- Step 4: Rounding the weights.

Step 1 – Determining predicted returns for each Constituent and covariance for each pair of Constituents

First, on each Rebalancing Observation Date, the algorithm determines the predicted returns for each Constituent based on the momentum of such Constituent over the previous 252 Constituent Publication Days, including the Rebalancing Observation Date if that day is a Constituent Publication Day (such period, the “Relevant Observation Period”). The algorithm takes into account the performance of each Constituent on twelve different periods, each consisting of 21 Constituent Publication Days (or approximately one calendar month) during the Relevant Observation Period (which is approximately twelve calendar months). For example, assuming the Rebalancing Observation Date is a Constituent Publication Date for all Constituents, the algorithm will take into account the level of each Constituent on such Rebalancing Observation Date, on the date that is 21 Constituent Publication Days prior to such Rebalancing Observation Date, on the date that is 42 Constituent Publication Days prior to such Rebalancing Observation Date and so on up until the date that is 252 Constituent Publication Days prior to such Rebalancing Observation Date. A Constituent Publication Day means each day for which the Constituent Sponsor (as defined below) has published the dollar level of at least half of the Constituents.

In the case of certain Constituents considered “seasonal,” the performances of such Constituents during certain periods are given additional or reduced weight in determining the predicted returns for such Constituents, depending on whether those periods are deemed more or less “seasonally” relevant to the performance of such Constituents in the period directly following the Rebalancing Observation Date. For each seasonal Constituent, the performances of such Constituent during the three earliest and the three latest periods in the Relevant Observation Period are given a weighting of 1/9 for each such period and the performances of such Constituent during the other six periods in the Relevant Observation Period are given a weighting of 1/18 for each such period. Constituents that are not considered seasonal are each given a weighting of 1/12 for each of the twelve periods in the Relevant Observation Period. The set of seasonal Constituents is defined in the Index Rules to include the Constituents comprised of commodity futures contracts for Corn, Soybeans, Wheat, Coffee, Sugar, Gas Oil, Heating Oil, Gasoline (ULR) and Natural Gas.

After determining the predicted returns for each Constituent, the algorithm will determine the short-term covariance for each pair of Constituents by reference to the daily returns of such Constituents over a

period of 63 Constituent Publication Days (approximately three months) preceding the relevant rebalancing observation date.

The short term covariance for each pair of Constituents i, j (henceforth the $CSTC_{i,j}$) shall be calculated by the Market-Neutral Calculation Agent according to the following formula:

$$CSTC_{i,j} = \frac{252}{63} \sum_{d=1}^{63} (CDR_i(189 + d) - CSTRM_i) \times (CDR_j(189 + d) - CSTRM_j)$$

Where the Constituent short term return mean for Constituent i (henceforth $CSTRM_i$) shall be calculated by the Market-Neutral Calculation Agent according to the following formula:

$$CSTRM_i = \frac{1}{63} \sum_{d=1}^{63} CDR_i(189 + d)$$

And where the Constituent daily return for Constituent i on Constituent Publication Day d (henceforth $CDR_i(d)$) is defined as:

$$CDR_i(d) = \frac{Level_i(d)}{Level_i(d-1)} - 1$$

The covariance of each pair of Constituents is used as an input in the procedures performed to determine the efficient weight of each Constituent in the synthetic portfolio constituting the Market-Neutral Index.

Step 2 – Determining the efficient weights

The efficient weights for each of the Constituents is determined pursuant to an iterative process intended to enable the Market-Neutral Index take long positions in the Constituents with the highest predicted returns and short positions in the Constituents with the lowest predicted returns, while meeting the short-term volatility constraint and other constraints set forth below. The initial weights of all of the Constituents is first set to zero. Then, the iterative process will formulaically increase the weight of one Constituent while decreasing the weight of a second Constituent by the same amount in order to determine whether the predicted return of the overall portfolio of Constituents can be increased while not violating the constraints set forth below. This process of re-weighting pairs of Constituents is re-iterated up to one thousand times until the set of Constituent weightings for the portfolio is reached that has the highest predicted return at the lowest possible level of volatility for such highest predicted return (*provided* that a change in weightings that would produce a negligible increase in predicted return will not be performed) without violating one or more of the constraints set forth below.

The following constraints are applicable in determining the efficient weights of the Constituents of the Market-Neutral Index:

- Asset weight constraint – no Constituent can have a weight that is greater than 10% or less than -10% of the Market-Neutral Index;
- Sector weight constraint – the weights of all the Constituents of any given sector (as identified in “—Constituents of the Market-Neutral Index” above) must not be greater than 20% or less than -20% of the Market-Neutral Index;
- Net weight constraint – the sum of the weights of all of the Constituents must equal zero;

- Gross weight constraint – the sum of the absolute values of the weights of all of the Constituents must be no greater than 100%; and
- Short term volatility constraint – the short term historical volatility of any portfolio of Constituents (as measured over the prior 63 Dealing Days) must not be greater than 5%.

The rebalancing weights will conform to the constraints described above except that, due to the effect of rounding, the rebalancing weights may contravene the constraints by a small amount (no greater than 0.9%). In addition, since the dollar weights of the Constituents may fluctuate during the period from (and excluding) one Market-Neutral Rebalancing Date to (and including) the following Market-Neutral Rebalancing Date due to movements in the levels of the Constituents, weights of the Constituents may violate any of the Constraints during the periods between Market-Neutral Rebalancing Dates.

Step 3 – Scaling Weights to Satisfy the Long-Term Volatility Constraint

Unlike the other constraints, the long-term volatility constraint will not affect the relative weightings of the Constituents. In Step 3, the long-term volatility of the portfolio of Constituents with the weightings determined pursuant to Step 2 above is tested. If the long-term volatility of that portfolio (as measured over the prior 252 Dealing Days and determined pursuant to the formula set forth below) is less than or equal to 5%, the long-term volatility constraint is deemed satisfied and the weights are not modified. However, if the long-term volatility of that portfolio is greater than 5%, the weights of the Constituents are scaled downward. Each Constituent weight is multiplied by 5% and then divided by the long-term volatility of the portfolio. For example, if the long-term volatility of the portfolio is determined to be 7.5%, the weight of each Constituent will be multiplied by 2/3rds (5% / 7.5%).

The long term volatility of the portfolio of Constituents produced by the procedures set out in Step 2 shall be calculated as:

$$LTV = \sqrt{252} \times \sqrt{\frac{1}{251} \left(\sum_{d=1}^{252} PDR(d)^2 - \frac{1}{252} \left(\sum_{d=1}^{252} PDR(d) \right)^2 \right)}$$

Where the Portfolio Daily Return on Constituent Publication Day d (henceforth $PDR(d)$) shall be calculated as:

$$PDR(d) = \frac{PL(d)}{PL(d-1)} - 1$$

And Where the portfolio level on Constituent Publication Day d, where d may vary between 0 and 252, both inclusive (henceforth $PL(d)$) shall be calculated as:

$$PL(d) = \begin{cases} 100 & \text{if } d = 0 \\ PL(d-1) \times \left(1 + \sum_{i \in AC} EW_i \times CDR_i(d) \right) & \text{Otherwise} \end{cases}$$

Step 4 – Rounding the Weights

Finally, the rebalancing weight for each Constituent will then be rounded down by truncating each weight after the fourth digit following the decimal place. For example, if the rebalancing weight for a given Constituent determined pursuant to Step 3 above is 0.34467, the rebalancing weight of such Constituent will be rounded to 0.3446.

The Market-Neutral Index Valuation

The Market-Neutral Index was first calculated on May 6, 2008 and was assigned a starting value of 100 and the Market-Neutral Index value on the first Market-Neutral Rebalancing Date (April 23, 2008) was defined as 100.2324.

At the close of each Valuation Day t , the Market-Neutral Index value shall be calculated by the Market-Neutral Calculation Agent in accordance with the following formula:

$$\text{CMDTOMER}(t) = \text{CMDTOMER}(\text{RD}_{n-1}) \times \left[1 + \sum_{i \in \text{AC}} \text{RW}_i(\text{RD}_{n-1}) \times \left(\frac{\text{Level}_i(t)}{\text{Level}_i(\text{RD}_{n-1})} - 1 \right) \right] \times (1 - \text{RAF}_t)$$

Where:

- $\text{CMDTOMER}(t)$ is the Market-Neutral Index value on the relevant Valuation Day.
- n is the number of Market-Neutral Rebalancing Dates from, and including, the zero-th Market-Neutral Rebalancing Date to, and including, RD_{n-1} .
- RD_{n-1} is the Market-Neutral Rebalancing Date immediately preceding the relevant Valuation Day.
- $\text{Level}_i(t)$ is the USD Level of Constituent i at the close of the relevant Valuation Day t .
- $\text{Level}_i(\text{RD}_{n-1})$ is the USD Level of Constituent i at the close of the Market-Neutral Rebalancing Date immediately preceding the relevant Valuation Day.
- $\text{RW}_i(\text{RD}_{n-1})$ is the rebalancing weight of the Constituent i implemented at the close of the Market-Neutral Rebalancing Date immediately preceding the relevant Valuation Day.
- $\text{CMDTOMER}(\text{RD}_{n-1})$ is the Optimax Market-Neutral Index Value on the Market-Neutral Rebalancing Date immediately preceding the Relevant Optimax Valuation Day, rounded to 4 decimal places.
- RAF_t is calculated as $\text{RAF}_t = 1 - \left(1 - \frac{0.96}{100} \right)^{\frac{\text{CalendarDays}}{360}}$, where Calendar Days is the number of calendar days from, and including, the Market-Neutral Rebalancing Date immediately preceding the relevant Valuation Day to, but excluding, the relevant Valuation Day.

For the avoidance of doubt on each Market-Neutral Rebalancing Date RD_n the Market-Neutral Index value shall be defined as follows:

$$CMTOMER(RD_n) = CMTOMER(RD_{n-1}) \times \left[1 + \sum_{i \in AC} RW_i(RD_{n-1}) \times \left(\frac{Level_i(RD_n)}{Level_i(RD_{n-1})} - 1 \right) \right] \times (1 - RAF_t)$$

Where:

$Level_i(RD_n)$ is the USD Level of Constituent i at the close of RD_n .

The above calculations include the deduction of the Optimax Replication Adjustment Factor, a fee assessed at a rate of ninety-six basis points per year (0.96%) and deducted from the reported value of the Market-Neutral Index. The fee will be deducted daily, calculated on the basis of the actual number of calendar days that have elapsed since the last preceding deemed fee deduction, divided by 360. (Rule 4.2)

Notwithstanding the forgoing, the value of the Market-Neutral Index will never fall below zero and if the application of the value calculation formula would result in a negative value, the value of the Market-Neutral Index will be defined to be zero (Ap. 1.5 of Rules Appendix 1).

Disruption and Limit Events Affecting the Market-Neutral Index Values

If any Index Valuation Day is a Disrupted Day or Limit Day in respect of any Constituent (each, an “Affected Constituent”), then the Index Valuation Day will remain the day originally scheduled, but the publication of the Market-Neutral Index value in respect of that Index Valuation Date will be delayed. The Market-Neutral Index value in respect of that Index Valuation Day will be calculated retroactively based on (a) the USD Levels of the Constituents (other than the Affected Constituents) on the originally scheduled Index Valuation Date and (b) the USD Level of each Affected Constituent on the next Scheduled Trading Day that is not a Limit Day or a Disrupted Day for that Constituent, unless, in respect of any Affected Constituent(s), the ten Scheduled Trading Days immediately following the day originally scheduled to be that Optimax Valuation Day are all Disrupted Days or Limit Days for such Affected Constituent(s). In that case, on the tenth Scheduled Trading Day following the day originally scheduled to be the relevant Market-Neutral Valuation Day, the Market-Neutral Calculation Agent shall calculate the Market-Neutral Index Value for the relevant Index Valuation Day using levels for such Affected Constituent(s) calculated by the Market-Neutral Calculation Agent acting in good faith using such information and/or methods as it determines, in its reasonable discretion, are appropriate (notwithstanding that such day is a Disrupted Day or a Limit Day for one or more Constituents). A Limit Day means, in respect of any Constituent, any day on which there is a limitation on, or suspension of, the trading of options or futures contracts on the related commodity imposed by any relevant exchange on which futures or options contracts relating to that Constituent (the “Exchange”) by reason of movements exceeding “limit up” or “limit down” levels permitted by such Exchange and which, in the opinion of the Market-Neutral Calculation Agent, is material taking into account generally prevailing trading volumes and other market conditions.

Extraordinary Events Affecting the Market-Neutral Index and its Constituents

Successor Index

In respect of any Constituent, the Constituent Sponsor is the corporation or other entity that (a) is responsible for setting and reviewing the rules and procedures and the methods of calculation and adjustments, if any, related to such Constituent and (b) announces (directly or through an agent) the USD

Level of such Constituent on a regular basis. As of the date of this product supplement no. , Standard & Poor's is the Constituent Sponsor for each of the Constituents.

If any Constituent is (a) not calculated and announced by the relevant Constituent Sponsor but is calculated and announced by a successor sponsor acceptable to the Market-Neutral Calculation Agent, or (b) replaced by a successor index using, in the determination of the Market-Neutral Calculation Agent, the same or substantially similar formula for and method of calculation as used in the calculation of the relevant Constituent, then in each case that successor index (the "Successor Index") will be deemed to replace the relevant Constituent with effect from a date determined by the Market Neutral Calculation Agent, and the Market Neutral Calculation Agent may make an adjustment to the Index Rules, as it determines in good faith is appropriate to account for such change. (Rule 8.1)

Constituent Exclusion and Substitution

Without prejudice to the ability of the Market-Neutral Calculation Agent to amend the Rules generally as described elsewhere in this product supplement, the Market-Neutral Calculation Agent may, acting in good faith and in a commercially reasonable manner exclude, or substitute for, any Constituent in circumstances in which it reasonably considers it would be unreasonable not to so, adjust the universe of Constituents to reflect the intention of the Optimax Market-Neutral Index strategy in the altered and unanticipated circumstances which have then arisen, including (without prejudice to the generality of the foregoing) changes announced by the relevant Constituent Sponsor relating to the modification, exclusion, inclusion or substitution of any Constituent or its futures and options contracts or any perception among market participants generally that the published U.S. dollar level of the relevant Constituent is generally inaccurate (and the Constituent Sponsor of such Constituent fails to correct such U.S. dollar level), and if it so excludes or substitutes for any Constituent, then the Market-Neutral Calculation Agent may make such adjustment to the Index Rules as it determines in good faith to be appropriate to account for such exclusion or substitution on such date(s) selected by the Market-Neutral Calculation Agent. (Rule 8.2)

Material Change to Constituent

If, at any time, a Constituent Sponsor announces that it will make a material change in the formula for or the method of calculating that Constituent (including but not limited to rebasing) or in any other way materially modifies that Constituent (other than a modification prescribed in that formula or method to maintain that Constituent) or permanently cancels the Constituent and no Successor Index exists or fails to calculate and announce the U.S. dollar level of the Constituent, then the Market-Neutral Calculation Agent will remove such Constituent from the universe of Constituent and may make such adjustment to the Index Rules as it determines in good faith to be appropriate to account for such change(s) on such date(s) selected by the Market-Neutral Calculation Agent. (Rule 8.3)

Cancellation of Index License

If, at any time, the license granted to the Market-Neutral Calculation Agent by the Constituent Sponsor of any Constituent to use such Constituent for the purposes of the Market-Neutral Index terminates, or the Market-Neutral Calculation Agent's right to use the Constituent for the purposes of the Market-Neutral Index is otherwise impaired or ceases (for any reason), then the Market-Neutral Calculation Agent will remove such Constituent from the universe of Constituent and may make such adjustment to the Index Rules as it determines in good faith to be appropriate to account for such change(s) on such date(s) selected by the Market-Neutral Calculation Agent. (Rule 8.4)

Adjustments to or Cancellation of the Market-Neutral Index as a Result of a Hedge Disruption Event

If the Market-Neutral Calculation Agent determines in good faith and in a commercially reasonable manner that a Hedge Disruption Event (as defined below) has occurred in respect of one or several Constituents, the Market-Neutral Calculation Agent may, acting in good faith and in a commercially reasonable manner, exclude or replace any Constituent affected by such Hedge Disruption Event. In order to effectuate such exclusion or replacement, the Market-Neutral Calculation Agent will publish (i) its

adjustments to the universe of Constituents, including but not limited to, publishing a list of the Constituents to be excluded and/or a list of new constituents to be included (as replacements for the removed Constituents) on a going forward basis, *provided* that the new constituents shall be commodity indices or a basket of commodity futures, and (ii) the date on which such adjustments will become effective. For the avoidance of doubt, upon the date that such adjustments become effective the new constituents will be Constituents of the Market-Neutral Index and the removed Constituents will cease to be Constituents of the Market-Neutral Index.

The Market-Neutral Calculation Agent will endeavor to complete any exclusion or substitution as soon as possible in light of the prevailing circumstances and if possible on the next Rebalancing Date. The Market-Neutral Calculation Agent may, in its sole and absolute discretion, announce an interim Rebalancing Observation Date or an interim Rebalancing Date to take place on a Dealing Day, pursuant to which the Market-Neutral Calculation Agent may rebalance the Market-Neutral Index at a date earlier than the next Rebalancing Date based on the normal procedures for rebalancing the Market-Neutral Index. The Market-Neutral Calculation Agent will re-weight on the Rebalancing Observation Date (or, as the case may be, on the interim Rebalancing Observation Date) and rebalance the notional portfolio of the Market-Neutral Index on the relevant Rebalancing Date (or, as the case may be, on the relevant interim Rebalancing Date) in accordance with the normal procedures for re-weighting the Constituents and rebalancing the Market-Neutral Index. In such cases, (i) exclusion of the affected Constituents and rebalancing of the weights of the Constituents or (ii) substitution of the Constituents affected by such Hedge Disruption Event by the new constituents and rebalancing of the weights of the Constituents will take effect immediately following the close of such Rebalancing Date.

The Market-Neutral Calculation Agent is under no obligation to continue the calculation and publication of the Market-Neutral Index and, upon the occurrence or existence of a Hedge Disruption Event, the Market-Neutral Calculation Agent may decide to cancel the Market-Neutral Index if it determines, acting in good faith and in a commercially reasonable manner, that the objective of the Market-Neutral Index can no longer be achieved. (Rule 8.5)

“Hedge Disruption Event” in relation to a Constituent means:

(a) that, due to (i) the adoption of, or any change in, any applicable law, regulation or rule (including, without limitation, any tax law) or (ii) the promulgation of, or any change in, the interpretation by any court, tribunal or regulatory authority with competent jurisdiction of any applicable law, rule, regulation or order (including, without limitation, as implemented by the U.S. Commodity and Futures Trading Commission or any exchange or trading facility), the Market-Neutral Calculation Agent determines in good faith that (x) it is contrary to such law, rule, regulation or order for a market participant or market participants (individually or collectively) to hold, acquire or dispose of (in whole or in part) any commodity futures contracts underlying such Constituent or any transaction referencing commodity futures contracts underlying such Constituent or (y) holding a position in any commodity futures contracts underlying such Constituent or any transaction referencing any commodity futures contracts underlying such Constituent is (or, but for the consequent disposal or termination thereof, would otherwise be) in excess of any allowable position limit(s) applicable to a market participant or market participants (individually or collectively) under any such law, rule, regulation in relation to any commodity futures contracts underlying such Constituent traded on any exchange(s) or other trading facility (including, without limitation, any relevant exchange);

(b) the occurrence or existence of: (i) any suspension or limitation imposed on trading commodity futures contracts underlying such Constituent, whether imposed by any relevant exchange or otherwise or (ii) any other event that materially disrupts or impairs the liquidity of any commodity futures contracts underlying such Constituent or the ability of any market participants (individually or collectively) to effect transactions in any commodity futures contracts underlying such Constituent or causes (or will cause) trading in any commodity futures contracts underlying such Constituent to cease; or

(c) that the Market-Neutral Calculation Agent determines in good faith that any market participants (individually or collectively) are, for any reason, unable, after using commercially reasonable efforts to: (i) acquire, establish, re-establish, substitute, maintain, unwind or dispose of any position in commodity

futures contracts underlying such Constituent or any transaction(s) referencing commodity futures contracts underlying such Constituent that a market participant or market participants (individually or collectively) deem necessary to hedge the price risk of entering into and performing its or their obligations under any transaction or (ii) realize, recover or remit the proceeds of any such position(s) or transaction(s).

Corrections

In the event that (a) the U.S. dollar level of any Constituent used to calculate the Market-Neutral Index value on any Index Valuation Day is subsequently corrected and the correction is published by the relevant Constituent Sponsor of the Constituent on or before the next following Market-Neutral Rebalancing Date or (b) the Market-Neutral Calculation Agent identifies an error or omission in any of its calculations or determinations with respect to the Market-Neutral Index, then the Market-Neutral Calculation Agent may, if practicable and the correction is deemed material by the Market-Neutral Valuation Day, adjust or correct the Market-Neutral Index value published in respect of the relevant Index Valuation Day and each subsequent Index Valuation Day and publish such corrected Market-Neutral Index value(s) as soon as it is reasonably practicable. (Rule 9)

Market-Neutral Calculation Agent; Amendment of Rules; Limitation of Liability

The Index Rules provide that the Market-Neutral Calculation Agent must act in good faith and in a commercially reasonable manner. In the event that ambiguities arise in interpreting or applying the Index Rules, the Market-Neutral Calculation Agent will resolve ambiguities in a reasonable manner and, if necessary, amend the Rules to reflect such resolution. (Rule 10)

Neither the Market-Neutral Calculation Agent nor any of its affiliates or subsidiaries or any of their respective directors, officers, employees, delegates or agents (each a "Relevant Person") shall have any responsibility to any person (whether as a result of negligence or otherwise) for any determinations made or anything done (or omitted to be determined or done) in respect of the Market-Neutral Index or in respect of the publication of the value of the Market-Neutral Index (or failure to publish such value) and any use which any person may put on the Market-Neutral Index or such value. All determinations in respect of the Market-Neutral Index shall be final, conclusive and binding, and no person shall be entitled to make any claim against any of the Relevant Persons in respect thereof. Once a determination or calculation is made or action taken by the Market-Neutral Calculation Agent or any other Relevant Person in respect of the Market-Neutral Index, neither the Market-Neutral Calculation Agent nor any other Relevant Person shall be under any obligation to revise any determination or calculation made or action taken for any reason (Rule 10). No Relevant Person makes any representation or warranty, express or implied, as to the results that may be obtained through an investment in an instrument linked to the Market-Neutral Index.

THE JPMORGAN OPTIMAX PLUS INDEX

The following is a qualitative description of the rules for the JPMorgan Optimax Plus Index, as set forth in the Index Rules (as defined above in “The JPMorgan Market-Neutral Index”). JPMorgan Optimax Index Rules dated as of June 27, 2008 and as amended in December 2, 2008 (the “Index Rules”). A copy of the Index Rules is attached to this product supplement as Annex A. For a more detailed and quantitative description of the Index Rules, please see Annex A attached to this product supplement. The Index Rules, and not this description, will govern the calculation and constitution of the JPMorgan Optimax Plus Index and other decisions and actions related to the JPMorgan Optimax Plus Index’s calculation and maintenance, including (but not limited to) the calculation of each Constituent’s index values. Any reference in this description to a particular rule (e.g., “Rule 4.2”) is a reference to the specified section of the Index Rules

The JPMorgan Optimax Plus Index is the intellectual property of J.P. Morgan Securities Ltd., and J.P. Morgan Securities Ltd. reserves all rights with respect to its ownership of the JPMorgan Optimax Plus Index. JPMorgan Chase & Co. makes no representation or warranty as to the accuracy or completeness of the information regarding the JPMorgan Optimax Plus Index contained in, or attached as an annex to, this Product Supplement.

For the purposes of this product supplement no. 157-A-I, the JPMorgan Optimax Plus Index is a commodity index.

General

The JPMorgan Optimax Plus Index (the “Optimax Plus Index”) is a JPMorgan commodity strategy that seeks to generate consistent returns through a selection of commodity-linked component sub-indices (the “Constituents”) based on modern portfolio theory and momentum theory. Each Constituent is a sub-index of the Standard & Poor’s GSCI™ Excess Return Commodity Index (the “S&P GSCI™”), with each such sub-index itself comprised of exchange-traded commodity futures contracts. The Optimax Plus Index is not representative of a pure commodities allocation and is not designed to replicate or track commodities markets, the S&P GSCI™ or any or all of the sub-indices of the S&P GSCI™. Rather, the Optimax Plus Index seeks to replicate a synthetic portfolio that references certain S&P GSCI™ sub-indices. For more information on the S&P GSCI™ sub-indices please see the section below entitled “Background on the S&P GSCI™ Single Commodity Indices.”

The Optimax Plus Index is described as a “notional” or “synthetic” portfolio or basket because its reported value does not represent the value of any actual assets held by any person. The value of the Optimax Plus Index at any point is the value of a hypothetical uncollateralized portfolio of positions in the Constituents, less calculation fees, as of that point, and there is no actual portfolio of assets in which any person has any ownership interest. The Optimax Plus Index will generally take long synthetic positions in the Constituents with positive estimated future returns and short synthetic positions in the Constituents with negative estimated future returns (although in certain circumstances, the Optimax Plus Index might take short synthetic positions in Constituents with positive estimated future returns or long synthetic positions in Constituents with negative estimated future returns).

Each month, the Optimax Plus Calculation Agent (as defined below) will rebalance the Optimax Plus Index to take synthetic long and short positions in the Constituents based on mathematical rules that account for certain variables. Those variables include the returns of each Constituent over the preceding twelve months (after accounting for seasonal effects), the covariance between the Constituents (a measure of the degree to which two Constituents change relative to each other), the volatility of the Constituents over the preceding three months and the preceding twelve months and certain constraints applicable to the weights of the Constituents of the Optimax Plus Index. This process of rebalancing the Optimax Plus Index is discussed in “—Optimax Plus Index Methodology and Rebalancing.”

It is expected that the universe of Constituents will continue to be limited to the 18 components of the S&P GSCI™ set forth under “—Constituents of the Optimax Plus Index” below. The S&P GSCI™ single

commodity components are chosen as the Optimax Plus Index Constituents because of their wide usage as commodity contract price benchmarks and correlation with commodity spot prices.

The rebalancing algorithm is intended to take advantage of the insights of modern portfolio theory and momentum theory. Modern portfolio theory analyzes the relationship between assets contained within a portfolio, and allocates the weights of those assets in an effort to obtain an “efficient” portfolio (*i.e.*, a portfolio with the highest expected return for a given level of risk). Momentum theory seeks to capitalize on positive and negative trends in the levels of the Constituents on the assumption that if certain Constituents performed well or poorly in the past, they will continue to perform well or poorly in the future.

Calculation and Publication of the Optimax Plus Index Values

J.P. Morgan Securities Ltd. or any affiliate or subsidiary designated by it, will act as calculation agent for the Optimax Plus Index (the “Optimax Plus Calculation Agent”). The Optimax Plus Calculation Agent will calculate the Optimax Plus Index value (the “Optimax Plus Index closing value”) on every Index Valuation Day for the purpose of reporting the value, based on the U.S. dollar levels of the Constituents of the synthetic portfolio as of such Index Valuation Day. The value of the Optimax Plus Index is published by Bloomberg Financial Markets under the ticker “CMDTOPER”. The Optimax Plus Calculation Agent may calculate the Optimax Plus Index values with greater frequency than daily and share this calculation with its affiliates for internal purposes (Rule 4.1). The Optimax Plus Calculation Agent will not be obligated to publish the value of the Optimax Plus Index on any day that is a Disrupted Day (Rule 7.2). See “—Optimax Plus Index Methodology and Rebalancing” below. A “Disrupted Day” means, in respect of any Constituent, a day on which a Market Disruption Event occurs or exists with respect to such Constituent. In respect of a Constituent, a Market Disruption Event, in turn, means the failure of the Constituent Sponsor (as defined below) to calculate and publish the dollar level for such Constituent on such day.

The Optimax Plus Index value will be reported to four decimal places (although the Optimax Plus Calculation Agent may maintain a record of the Optimax Plus Index value with greater precision for internal purposes) on every Index Valuation Day. The Optimax Plus Calculation Agent will be under no obligation to any person to provide Optimax Plus Index values by any alternative method if publication of the CMDTOPER ticker is subject to any delay in or interruptions of publication or any act of God, act of governmental authority, or act of public enemy, or due to war, the outbreak or escalation of hostilities, fire, flood, civil commotion, insurrection, labor difficulty including, without limitation, any strike, other work stoppage, or slow-down, severe or adverse weather conditions, power failure, communications line or other technological failure that may occur or any other event beyond the control of the Optimax Plus Calculation Agent (Ap.2.6 of Rules Appendix 2).

Constituents of the Optimax Plus Index

The Constituents in the Optimax Plus Index are eighteen (18) out of the twenty four (24) sub-indices composing the S&P GSCI™, as set forth in the table below. The S&P GSCI™ is a composite index that is broadly diversified across the spectrum of commodities, composed of single commodity sub-indices (each a “Sub-Index” and together, the “Sub-Indices”) representing an unleveraged, long-only investment in commodity futures. Each Sub-Index measures the performance of taking a long position in the nearest-dated futures contract for the relevant commodity and “rolling” the position into the second-nearest-dated futures contract (that is, closing out the position in the nearest-dated futures contract and opening a position in the second-nearest-dated futures contract). Thus, the returns of each Sub-Index are related both to the changes in the spot price of the relevant commodity (the “price return”) and to the difference in price between the nearest-dated and second-nearest-dated futures contract on dates when the positions are rolled for the relevant commodity (the “roll return” and together with the price return, the “excess return”). For more information on the S&P GSCI™ and the Sub-Indices, see “Background on the S&P GSCI™ Single Commodity Indices.”

The table below lists the Constituents of the Optimax Plus Index, as well as the sector of each Constituent:

Constituent	Sector	Bloomberg ticker
WTI Crude Oil	Energy	SPGCCLP
Brent Crude Oil	Energy	SPGCBRP
Gasoline (RBOB)	Energy	SPGCHUP
Natural gas	Energy	SPGCNGP
Gas oil	Energy	SPGCGOP
Heating oil	Energy	SPGCHOP
Gold	Precious Metals	SPGCGCP
Silver	Precious Metals	SPGCSIP
Corn	Agriculture	SPGCCNP
Soybeans	Agriculture	SPGCSOP
Wheat	Agriculture	SPGCWHP
Coffee	Agriculture	SPGCKCP
Sugar	Agriculture	SPGCSBP
Lead	Industrial Metals	SPGILP
Zinc	Industrial Metals	SPGIZP
Nickel	Industrial Metals	SPGCIKP
Aluminum	Industrial Metals	SPGCIAP
Copper	Industrial Metals	SPGCICP

As of the date of this product supplement, the Sub-Indices excluded from being Constituents in the Indices were Red Wheat, Cotton, Cocoa, Live Cattle, Feeder Cattle and Lean Hogs. As of November 25th, 2008, these Sub-Indices constituted 7.75% of the dollar weight in the S&P GSCI™.

As of the most recent rebalancing of the Optimax Plus Index, which took place on November 26th, 2008, the synthetic portfolio for the monthly period commencing on such date contained long positions in 6 Constituents, which were Corn, Soybeans, Copper, Brent Crude Oil, WTI Crude Oil and Sugar, and short positions in 12 Constituents, which were Heating Oil, Gasoline (RBOB), Aluminum, Gas Oil, Wheat, Nickel, Silver, Zinc, Coffee, Gold, Lead and Natural Gas. As of the date of this product supplement, the weightings of WTI Crude Oil, Brent Crude Oil, Gasoline (RBOB), Natural gas, Gas oil, Heating oil, Gold, Silver, Corn, Soybeans, Wheat, Coffee, Sugar, Lead, Zinc, Nickel, Aluminum and Copper were 20.87%, 20.87%, -20.87%, -0.01%, -17.68%, -20.87%, -0.22%, -3.11%, 1.50%, 1.54%, -14.09%, -1.65%, 20.87%, -0.19%, -3.03%, -6.05%, -20.87%, and 16.14%, respectively.

The Constituents set forth in the table above may be amended from time to time in accordance with the provisions described under “—Extraordinary Events Affecting the Optimax Plus Index and its Constituents.”

Optimax Plus Index Methodology and Rebalancing

The Optimax Plus Index is re-balanced immediately upon the close of trading on the seventeenth (17th) Dealing Day of every month (the “Optimax Plus Rebalancing Date”), subject to postponement in the event of a Disrupted Day or the occurrence of a Hedge Disruption Event and the specification of an interim Rebalancing Date (as described under “—Extraordinary Events Affecting the Optimax Plus Index and its Constituents—Adjustments to or Cancellation of the Optimax Plus Index as a Result of a Hedge Disruption Event”), based on the rebalancing weights of the Constituents determined on the sixteenth (16th) Dealing Day of every month (the “Rebalancing Observation Date”), subject to the occurrence of a Hedge Disruption Event and the specification of an interim Rebalancing Observation Date (as described under “—Extraordinary Events Affecting the Optimax Plus Index and its Constituents—Adjustments to or

Cancellation of the Optimax Plus Index as a Result of a Hedge Disruption Event“) (Ap. 2.1 of Rules Appendix 2).

A “Dealing Day” means each day (other than a Saturday or a Sunday) (i) on which commercial banks in both New York and London are open generally for business (including for dealings in foreign exchange and foreign currency deposits), and (ii) which is a Scheduled Trading Day for all the Constituents of such Index. In respect of each Constituent, a “Scheduled Trading Day” means a day on which the level of such Constituent is scheduled to be published and the principal exchange for futures and options contracts on such Constituent is scheduled to be open for trading for its regular trading session.

The rebalancing weights of the Constituents are determined pursuant to a weighting algorithm that is intended to maximize the expected return of the Index, subject to the constraints applicable to the Optimax Plus Index. The weighting algorithm consists of the following four successive steps:

- Step 1: Determining predicted returns for each Constituent and covariance for each pair of Constituents;
- Step 2: Determining the efficient weights;
- Step 3: Scaling weights to satisfy the long-term volatility constraint; and
- Step 4: Rounding the weights.

Step 1 – Determining predicted returns for each Constituent and covariance for each pair of Constituents

First, on each Rebalancing Observation Date, the algorithm determines the predicted returns for each Constituent based on the momentum of such Constituent over the previous 252 Constituent Publication Days, including the Rebalancing Observation Date if that day is a Constituent Publication Day (such period, the “Relevant Observation Period”). The algorithm takes into account the performance of each Constituent on twelve different periods, each consisting of 21 Constituent Publication Days (or approximately one calendar month) during the Relevant Observation Period (which is approximately twelve calendar months). For example, assuming the Rebalancing Observation Date is a Constituent Publication Date for all Constituents, the algorithm will take into account the level of each Constituent on such Rebalancing Observation Date, on the date that is 21 Constituent Publication Days prior to such Rebalancing Observation Date, on the date that is 42 Constituent Publication Days prior to such Rebalancing Observation Date and so on up until the date that is 252 Constituent Publication Days prior to such Rebalancing Observation Date. A Constituent Publication Day means each day for which the Constituent Sponsor (as defined below) has published the dollar level of at least half of the Constituents.

In the case of certain Constituents considered “seasonal,” the performances of such Constituents during certain periods are given additional or reduced weight in determining the predicted returns for such Constituents, depending on whether those periods are deemed more or less “seasonally” relevant to the performance of such Constituents in the period directly following the Rebalancing Observation Date. For each seasonal Constituent, the performances of such Constituent during the three earliest and the three latest periods in the Relevant Observation Period are given a weighting of 1/9 for each such period and the performances of such Constituent during the other six periods in the Relevant Observation Period are given a weighting of 1/18 for each such period. Constituents that are not considered seasonal are each given a weighting of 1/12 for each of the twelve periods in the Relevant Observation Period. The set of seasonal Constituents is defined in the Index Rules to include the Constituents comprised of commodity futures contracts for Corn, Soybeans, Wheat, Coffee, Sugar, Gas Oil, Heating Oil, Gasoline (ULR) and Natural Gas.

After determining the predicted returns for each Constituent, the algorithm will determine the short-term covariance for each pair of Constituents by reference to the daily returns of such Constituents over a

period of 63 Constituent Publication Days (approximately three months) preceding the relevant rebalancing observation date.

The short term covariance for each pair of Constituents i, j (henceforth the $CSTC_{i,j}$) shall be calculated by the Optimax Plus Calculation Agent according to the following formula:

$$CSTC_{i,j} = \frac{252}{63} \sum_{d=1}^{63} (CDR_i(189 + d) - CSTRM_i) \times (CDR_j(189 + d) - CSTRM_j)$$

Where the Constituent short term return mean for Constituent i (henceforth $CSTRM_i$) shall be calculated by the Optimax Plus Calculation Agent according to the following formula:

$$CSTRM_i = \frac{1}{63} \sum_{d=1}^{63} CDR_i(189 + d)$$

And where the Constituent daily return for Constituent i on Constituent Publication Day d (henceforth $CDR_i(d)$) is defined as:

$$CDR_i(d) = \frac{Level_i(d)}{Level_i(d-1)} - 1$$

The covariance of each pair of Constituents is used as an input in the procedures performed to determine the efficient weight of each Constituent in the synthetic portfolio constituting the Optimax Plus Index.

Step 2 – Determining the efficient weights

The efficient weights for each of the Constituents is determined pursuant to an iterative process intended to enable the Optimax Plus Index take long positions in the Constituents with the highest predicted returns and short positions in the Constituents with the lowest predicted returns, while meeting the short-term volatility constraint and other constraints set forth below. The initial weights of all of the Constituents is first set to zero. Then, the iterative process will formulaically change the weights of pairs of Constituents in order to determine whether the predicted return of the overall portfolio of Constituents can be increased while not violating the constraints set forth below. This process of re-weighting pairs of Constituents is re-iterated up to one thousand times until the set of Constituent weightings for the portfolio is reached that has the highest predicted return at the lowest possible level of volatility for such highest predicted return (*provided* that a change in weightings that would produce a negligible increase in predicted return will not be performed) without violating one or more of the constraints set forth below.

The following constraints are applicable in determining the efficient weights of the Constituents of the Optimax Plus Index:

- Asset weight constraint – no Constituent can have a weight that is greater than 25% or less than -25% of the Optimax Plus Index;
- Net weight constraint – the sum of the weights of all of the Constituents must not be greater than 100% or less than -100%;
- Gross weight constraint – the sum of the absolute values of the weights of all of the Constituents must be no greater than 250%; and
- Short term volatility constraint – the short term historical volatility of any portfolio of Constituents (as measured over the prior 63 Dealing Days) must not be greater than 12%.

The rebalancing weights will conform to the constraints described above except that, due to the effect of rounding, the rebalancing weights may contravene the constraints by a small amount (no greater than 0.9%). In addition, since the dollar weights of the Constituents may fluctuate during the period from (and excluding) one Optimax Plus Rebalancing Date to (and including) the following Optimax Plus Rebalancing Date due to movements in the levels of the Constituents, weights of the Constituents may violate any of the Constraints during the periods between Optimax Plus Rebalancing Dates.

Step 3 – Scaling Weights to Satisfy the Long-Term Volatility Constraint

Unlike the other constraints, the long-term volatility constraint will not affect the relative weightings of the Constituents. In Step 3, the long-term volatility of the portfolio of Constituents with the weightings determined pursuant to Step 2 above is tested. If the long-term volatility of that portfolio (as measured over the prior 252 Dealing Days and determined pursuant to the formula set forth below) is less than or equal to 12%, the long-term volatility constraint is deemed satisfied and the weights are not modified. However, if the long-term volatility of that portfolio is greater than 12%, the weights of the Constituents are scaled downward. Each Constituent weight is multiplied by 12% and then divided by the long-term volatility of the portfolio. For example, if the long-term volatility of the portfolio is determined to be 18%, the weight of each Constituent will be multiplied by 2/3rds (12% / 18%).

The long term volatility of the portfolio of Constituents produced by the procedures set out in Step 2 shall be calculated as:

$$LTV = \sqrt{252} \times \sqrt{\frac{1}{251} \left(\sum_{d=1}^{252} PDR(d)^2 - \frac{1}{252} \left(\sum_{d=1}^{252} PDR(d) \right)^2 \right)}$$

Where the Portfolio Daily Return on Constituent Publication Day d (henceforth $PDR(d)$) shall be calculated as:

$$PDR(d) = \frac{PL(d)}{PL(d-1)} - 1$$

And Where the portfolio level on Constituent Publication Day d, where d may vary between 0 and 252, both inclusive (henceforth $PL(d)$) shall be calculated as:

$$PL(d) = \begin{cases} 100 & \text{if } d = 0 \\ PL(d-1) \times \left(1 + \sum_{i \in AC} EW_i \times CDR_i(d) \right) & \text{Otherwise} \end{cases}$$

Step 4 – Rounding the Weights

Finally, the rebalancing weight for each Constituent will then be rounded down by truncating each weight after the fourth digit following the decimal place. For example, if the rebalancing weight for a given Constituent determined pursuant to Step 3 above is 0.34467, the rebalancing weight of such Constituent will be rounded to 0.3446.

The Optimax Plus Index Valuation

The Optimax Plus Index was first calculated on May 6, 2008 and was assigned a starting value of 100 and the Optimax Plus Index value on the first Optimax Plus Rebalancing Date (April 24, 2008) was defined as 100.0027.

At the close of each Valuation Day t , the Optimax Plus Index value shall be calculated by the Optimax Plus Calculation Agent in accordance with the following formula:

$$\text{CMDTOPER}(t) = \text{CMDTOPER}(\text{RD}_{n-1}) \times \left[1 + \sum_{i \in AC} \text{RW}_i(\text{RD}_{n-1}) \times \left(\frac{\text{Level}_i(t)}{\text{Level}_i(\text{RD}_{n-1})} - 1 \right) \right] \times (1 - \text{RAF}_t)$$

Where:

$\text{CMDTOPER}(t)$ is the Optimax Plus Index value on the relevant Valuation Day.

n is the number of Optimax Plus Rebalancing Dates from, and including, the zero-th Optimax Plus Rebalancing Date to, and including, RD_{n-1} .

RD_{n-1} is the Optimax Plus Rebalancing Date immediately preceding the relevant Valuation Day.

$\text{Level}_i(t)$ is the USD Level of Constituent i at the close of the relevant Valuation Day t .

$\text{Level}_i(\text{RD}_{n-1})$ is the USD Level of Constituent i at the close of the Optimax Plus Rebalancing Date immediately preceding the relevant Valuation Day.

$\text{RW}_i(\text{RD}_{n-1})$ is the rebalancing weight of the Constituent i implemented at the close of the Optimax Plus Rebalancing Date immediately preceding the relevant Valuation Day.

$\text{CMDTOPER}(\text{RD}_{n-1})$ is the Optimax Plus Index Value on the Optimax Plus Rebalancing Date immediately preceding the Relevant Optimax Valuation Day, rounded to 4 decimal places.

RAF_t is calculated as $\text{RAF}_t = 1 - \left(1 - \frac{0.96}{100} \right)^{\frac{\text{CalendarDays}}{360}}$, where Calendar Days is the number of calendar days from, and including, the Optimax Plus Rebalancing Date immediately preceding the relevant Valuation Day to, but excluding, the relevant Valuation Day.

For the avoidance of doubt on each Optimax Plus Rebalancing Date RD_n the Optimax Plus Index value shall be defined as follows:

$$\text{CMDTOPER}(RD_n) = \text{CMDTOPER}(RD_{n-1}) \times \left[1 + \sum_{i \in AC} RW_i(RD_{n-1}) \times \left(\frac{\text{Level}_i(RD_n)}{\text{Level}_i(RD_{n-1})} - 1 \right) \right] \times (1 - \text{RAF}_t)$$

Where:

$\text{Level}_i(RD_n)$ is the USD Level of Constituent i at the close of RD_n .

The above calculations include the deduction of the Optimax Replication Adjustment Factor, a fee assessed at a rate of ninety-six basis points per year (0.96%) and deducted from the reported value of the Optimax Plus Index. The fee will be deducted daily, calculated on the basis of the actual number of calendar days that have elapsed since the last preceding deemed fee deduction, divided by 360. (Rule 4.2)

Notwithstanding the forgoing, the value of the Optimax Plus Index will never fall below zero and if the application of the value calculation formula would result in a negative value, the value of the Optimax Plus Index will be defined to be zero (Ap. 2.5 of Rules Appendix 2).

Disruption and Limit Events Affecting the Optimax Plus Index Values

If any Index Valuation Day is a Disrupted Day or Limit Day in respect of any Constituent (each, an “Affected Constituent”), then the Index Valuation Day will remain the day originally scheduled, but the publication of the Optimax Plus Index value in respect of that Index Valuation Date will be delayed. The Optimax Plus Index value in respect of that Index Valuation Day will be calculated retroactively based on (a) the USD Levels of the Constituents (other than the Affected Constituents) on the originally scheduled Index Valuation Date and (b) the USD Level of each Affected Constituent on the next Scheduled Trading Day that is not a Limit Day or a Disrupted Day for that Constituent, unless, in respect of any Affected Constituent(s), the ten Scheduled Trading Days immediately following the day originally scheduled to be that Optimax Valuation Day are all Disrupted Days or Limit Days for such Affected Constituent(s). In that case, on the tenth Scheduled Trading Day following the day originally scheduled to be the relevant Optimax Plus Valuation Day, the Optimax Plus Calculation Agent shall calculate the Optimax Plus Index Value for the relevant Index Valuation Day using levels for such Affected Constituent(s) calculated by the Optimax Plus Calculation Agent acting in good faith using such information and/or methods as it determines, in its reasonable discretion, are appropriate (notwithstanding that such day is a Disrupted Day or a Limit Day for one or more Constituents). A Limit Day means, in respect of any Constituent, any day on which there is a limitation on, or suspension of, the trading of options or futures contracts on the related commodity imposed by any relevant exchange on which futures or options contracts relating to that Constituent (the “Exchange”) by reason of movements exceeding “limit up” or “limit down” levels permitted by such Exchange and which, in the opinion of the Optimax Plus Calculation Agent, is material taking into account generally prevailing trading volumes and other market conditions.

Extraordinary Events Affecting the Optimax Plus Index and its Constituents

Successor Index

In respect of any Constituent, the Constituent Sponsor is the corporation or other entity that (a) is responsible for setting and reviewing the rules and procedures and the methods of calculation and adjustments, if any, related to such Constituent and (b) announces (directly or through an agent) the USD Level of such Constituent on a regular basis. As of the date of this product supplement no. , Standard & Poor’s is the Constituent Sponsor for each of the Constituents.

If any Constituent is (a) not calculated and announced by the relevant Constituent Sponsor but is calculated and announced by a successor sponsor acceptable to the Optimax Plus Calculation Agent, or

(b) replaced by a successor index using, in the determination of the Optimax Plus Calculation Agent, the same or substantially similar formula for and method of calculation as used in the calculation of the relevant Constituent, then in each case that successor index (the "Successor Index") will be deemed to replace the relevant Constituent with effect from a date determined by the Market Neutral Calculation Agent, and the Market Neutral Calculation Agent may make an adjustment to the Index Rules, as it determines in good faith is appropriate to account for such change. (Rule 8.1)

Constituent Exclusion and Substitution

Without prejudice to the ability of the Optimax Plus Calculation Agent to amend the Rules generally as described elsewhere in this product supplement, the Optimax Plus Calculation Agent may, acting in good faith and in a commercially reasonable manner exclude, or substitute for, any Constituent in circumstances in which it reasonably considers it would be unreasonable not to so, adjust the universe of Constituents to reflect the intention of the Optimax Plus Index strategy in the altered and unanticipated circumstances which have then arisen, including (without prejudice to the generality of the foregoing) changes announced by the relevant Constituent Sponsor relating to the modification, exclusion, inclusion or substitution of any Constituent or its futures and options contracts or any perception among market participants generally that the published U.S. dollar level of the relevant Constituent is generally inaccurate (and the Constituent Sponsor of such Constituent fails to correct such U.S. dollar level), and if it so excludes or substitutes for any Constituent, then the Optimax Plus Calculation Agent may make such adjustment to the Index Rules as it determines in good faith to be appropriate to account for such exclusion or substitution on such date(s) selected by the Optimax Plus Calculation Agent. (Rule 8.2)

Material Change to Constituent

If, at any time, a Constituent Sponsor announces that it will make a material change in the formula for or the method of calculating that Constituent (including but not limited to rebasing) or in any other way materially modifies that Constituent (other than a modification prescribed in that formula or method to maintain that Constituent) or permanently cancels the Constituent and no Successor Index exists or fails to calculate and announce the U.S. dollar level of the Constituent, then the Optimax Plus Calculation Agent will remove such Constituent from the universe of Constituent and may make such adjustment to the Index Rules as it determines in good faith to be appropriate to account for such change(s) on such date(s) selected by the Optimax Plus Calculation Agent. (Rule 8.3)

Cancellation of Index License

If, at any time, the license granted to the Optimax Plus Calculation Agent by the Constituent Sponsor of any Constituent to use such Constituent for the purposes of the Optimax Plus Index terminates, or the Optimax Plus Calculation Agent's right to use the Constituent for the purposes of the Optimax Plus Index is otherwise impaired or ceases (for any reason), then the Optimax Plus Calculation Agent will remove such Constituent from the universe of Constituent and may make such adjustment to the Index Rules as it determines in good faith to be appropriate to account for such change(s) on such date(s) selected by the Optimax Plus Calculation Agent. (Rule 8.4)

Adjustments to or Cancellation of the Optimax Plus Index as a Result of a Hedge Disruption Event

If the Optimax Plus Calculation Agent determines in good faith and in a commercially reasonable manner that a Hedge Disruption Event (as defined below) has occurred in respect of one or several Constituents, the Optimax Plus Calculation Agent may, acting in good faith and in a commercially reasonable manner, exclude or replace any Constituent affected by such Hedge Disruption Event. In order to effectuate such exclusion or replacement, the Optimax Plus Calculation Agent will publish (i) its adjustments to the universe of Constituents, including but not limited to, publishing a list of the Constituents to be excluded and/or a list of new constituents to be included (as replacements for the removed Constituents) on a going forward basis, *provided* that the new constituents shall be commodity indices or a basket of commodity futures, and (ii) the date on which such adjustments will become effective. For the avoidance of doubt, upon the date that such adjustments become effective the new

constituents will be Constituents of the Optimax Plus Index and the removed Constituents will cease to be Constituents of the Optimax Plus Index.

The Optimax Plus Calculation Agent will endeavor to complete any exclusion or substitution as soon as possible in light of the prevailing circumstances and if possible on the next Rebalancing Date. The Optimax Plus Calculation Agent may, in its sole and absolute discretion, announce an interim Rebalancing Observation Date or an interim Rebalancing Date to take place on a Dealing Day, pursuant to which the Optimax Plus Calculation Agent may rebalance the Optimax Plus Index at a date earlier than the next Rebalancing Date based on the normal procedures for rebalancing the Optimax Plus Index. The Optimax Plus Calculation Agent will re-weight on the Rebalancing Observation Date (or, as the case may be, on the interim Rebalancing Observation Date) and rebalance the notional portfolio of the Optimax Plus Index on the relevant Rebalancing Date (or, as the case may be, on the relevant interim Rebalancing Date) in accordance with the normal procedures for re-weighting the Constituents and rebalancing the Optimax Plus Index. In such cases, (i) exclusion of the affected Constituents and rebalancing of the weights of the Constituents or (ii) substitution of the Constituents affected by such Hedge Disruption Event by the new constituents and rebalancing of the weights of the Constituents will take effect immediately following the close of such Rebalancing Date.

The Optimax Plus Calculation Agent is under no obligation to continue the calculation and publication of the Optimax Plus Index and, upon the occurrence or existence of a Hedge Disruption Event, the Optimax Plus Calculation Agent may decide to cancel the Optimax Plus Index if it determines, acting in good faith and in a commercially reasonable manner, that the objective of the Optimax Plus Index can no longer be achieved. (Rule 8.5)

“Hedge Disruption Event” in relation to a Constituent means:

(a) that, due to (i) the adoption of, or any change in, any applicable law, regulation or rule (including, without limitation, any tax law) or (ii) the promulgation of, or any change in, the interpretation by any court, tribunal or regulatory authority with competent jurisdiction of any applicable law, rule, regulation or order (including, without limitation, as implemented by the U.S. Commodity and Futures Trading Commission or any exchange or trading facility), the Optimax Plus Calculation Agent determines in good faith that (x) it is contrary to such law, rule, regulation or order for a market participant or market participants (individually or collectively) to hold, acquire or dispose of (in whole or in part) any commodity futures contracts underlying such Constituent or any transaction referencing commodity futures contracts underlying such Constituent or (y) holding a position in any commodity futures contracts underlying such Constituent or any transaction referencing any commodity futures contracts underlying such Constituent is (or, but for the consequent disposal or termination thereof, would otherwise be) in excess of any allowable position limit(s) applicable to a market participant or market participants (individually or collectively) under any such law, rule, regulation in relation to any commodity futures contracts underlying such Constituent traded on any exchange(s) or other trading facility (including, without limitation, any relevant exchange);

(b) the occurrence or existence of: (i) any suspension or limitation imposed on trading commodity futures contracts underlying such Constituent, whether imposed by any relevant exchange or otherwise or (ii) any other event that materially disrupts or impairs the liquidity of any commodity futures contracts underlying such Constituent or the ability of any market participants (individually or collectively) to effect transactions in any commodity futures contracts underlying such Constituent or causes (or will cause) trading in any commodity futures contracts underlying such Constituent to cease; or

(c) that the Optimax Plus Calculation Agent determines in good faith that any market participants (individually or collectively) are, for any reason, unable, after using commercially reasonable efforts to: (i) acquire, establish, re-establish, substitute, maintain, unwind or dispose of any position in commodity futures contracts underlying such Constituent or any transaction(s) referencing commodity futures contracts underlying such Constituent that a market participant or market participants (individually or collectively) deem necessary to hedge the price risk of entering into and performing its or their obligations under any transaction or (ii) realize, recover or remit the proceeds of any such position(s) or transaction(s).

Corrections

In the event that (a) the U.S. dollar level of any Constituent used to calculate the Optimax Plus Index value on any Index Valuation Day is subsequently corrected and the correction is published by the relevant Constituent Sponsor of the Constituent on or before the next following Optimax Plus Rebalancing Date or (b) the Optimax Plus Calculation Agent identifies an error or omission in any of its calculations or determinations with respect to the Optimax Plus Index, then the Optimax Plus Calculation Agent may, if practicable and the correction is deemed material by the Optimax Plus Valuation Day, adjust or correct the Optimax Plus Index value published in respect of the relevant Index Valuation Day and each subsequent Index Valuation Day and publish such corrected Optimax Plus Index value(s) as soon as it is reasonably practicable. (Rule 9)

Optimax Plus Calculation Agent; Amendment of Rules; Limitation of Liability

The Index Rules provide that the Optimax Plus Calculation Agent must act in good faith and in a commercially reasonable manner. In the event that ambiguities arise in interpreting or applying the Index Rules, the Optimax Plus Calculation Agent will resolve ambiguities in a reasonable manner and, if necessary, amend the Rules to reflect such resolution. (Rule 10)

Neither the Optimax Plus Calculation Agent nor any of its affiliates or subsidiaries or any of their respective directors, officers, employees, delegates or agents (each a "Relevant Person") shall have any responsibility to any person (whether as a result of negligence or otherwise) for any determinations made or anything done (or omitted to be determined or done) in respect of the Optimax Plus Index or in respect of the publication of the value of the Optimax Plus Index (or failure to publish such value) and any use which any person may put on the Optimax Plus Index or such value. All determinations in respect of the Optimax Plus Index shall be final, conclusive and binding, and no person shall be entitled to make any claim against any of the Relevant Persons in respect thereof. Once a determination or calculation is made or action taken by the Optimax Plus Calculation Agent or any other Relevant Person in respect of the Optimax Plus Index, neither the Optimax Plus Calculation Agent nor any other Relevant Person shall be under any obligation to revise any determination or calculation made or action taken for any reason (Rule 10). No Relevant Person makes any representation or warranty, express or implied, as to the results that may be obtained through an investment in an instrument linked to the Optimax Plus Index.

BACKGROUND ON THE S&P GSCI™ SINGLE COMMODITY INDICES

Payment on the notes is indirectly linked to the performance of certain of the S&P GSCI™ Index (“S&P GSCI™”) single commodity components (each a “component” and collectively, the “components”). The S&P GSCI™ and the components are published by Standard & Poor’s, a division of the McGraw-Hill Companies (“S&P”), and are determined, composed and calculated by S&P without regard to the notes. S&P acquired the rights to the S&P GSCI™ from Goldman, Sachs & Co. in 2007. Goldman, Sachs & Co. established and began calculating the index in May 1991. The former name of the index was the Goldman Sachs Commodity Index.

The components reflect the excess returns that are potentially available through an unleveraged investment in the futures contracts relating to the various components of the S&P GSCI™. Since the S&P GSCI™ is the parent index of the components, the methodology for compiling the S&P GSCI™ relates as well to the methodology of compiling the components.

The value of the components on any given day reflects:

- the price levels of the contracts included in the component (which represents the value of the component), and
- the “contract daily return,” which is the percentage change in the total dollar weight of the component from the previous day to the current day.

The S&P GSCI™ is an index on a world-production weighted basket of principal non-financial commodities (i.e., physical commodities) that satisfy specified criteria. The S&P GSCI™ is designed to be a measure of the performance over time of the markets for these commodities. The only commodities represented in the S&P GSCI™ are those physical commodities on which active and liquid contracts are traded on trading facilities in major industrialized countries. The commodities included in the S&P GSCI™ are weighted, on a production basis, to reflect the relative significance (in the view of S&P, in consultation with the Index Advisory Panel, as described below) of such commodities to the world economy. The fluctuations in the value of the S&P GSCI™ are intended generally to correlate with changes in the prices of such physical commodities in global markets. The S&P GSCI™ has been normalized such that its hypothetical level on January 2, 1970 was 100. Futures contracts on the S&P GSCI™, and options on such futures contracts, are currently listed for trading on the Chicago Mercantile Exchange.

Set forth below is a summary of the composition of and the methodology used to calculate the S&P GSCI™ and the components. The methodology for determining the composition and weighting of the S&P GSCI™ and for calculating its value is subject to modification in a manner consistent with the purposes of the S&P GSCI™, as described below. S&P makes the official calculations of the S&P GSCI™ and the components.

The Index Committee and the Index Advisory Panel

S&P has established an Index Committee to oversee the daily management and operations of the S&P GSCI™, and is responsible for all analytical methods and calculation of the indices. The Committee is comprised of three full-time professional members of S&P’s staff and two members of Goldman Sachs Group, Inc. At each meeting, the Committee reviews any issues that may affect index constituents, statistics comparing the composition of the indices to the market, commodities that are being considered as candidates for an addition to an index, and any significant market events. In addition, the Index Committee may revise index policy covering rules for selecting commodities, or other matters.

S&P considers information about changes to its indices and related matters to be potentially market moving and material. Therefore, all Index Committee discussions are confidential.

S&P has established an Index Advisory Panel (the “Advisory Panel”) to assist it in connection with the operation of the S&P GSCI™. The Advisory Panel meets on an annual basis and at other times at the

request of S&P. The principal purpose of the Advisory Panel is to advise S&P with respect to, among other things, the calculation of the S&P GSCI™, the effectiveness of the S&P GSCI™ as a measure of commodity futures market performance and the need for changes in the composition or in the methodology of the S&P GSCI™. The Advisory Panel acts solely in an advisory and consultative capacity; all decisions with respect to the composition, calculation and operation of the S&P GSCI™ are made by S&P.

The Advisory Panel meets on a regular basis, once during each year. Prior to the meeting, S&P determines the commodities and contracts to be included in the S&P GSCI™ for the following calendar year, as well as the weighting factors for each commodity. The Advisory Panel members receive the proposed composition of the S&P GSCI™ in advance of the meeting and discuss the composition at the meeting. S&P also consults the Advisory Panel on any other significant matters with respect to the calculation or operation of the S&P GSCI™. The Advisory Panel may, if necessary or practicable, meet at other times during the year as issues arise that warrant its consideration.

Composition of the S&P GSCI™

In order to be included in the S&P GSCI™, a contract must satisfy the following eligibility criteria:

- The contract must be in respect of a physical commodity and not a financial commodity.
- In addition, the contract must:
 - have a specified expiration or term or provide in some other manner for delivery or settlement at a specified time, or within a specified period, in the future; and
 - at any given point in time, be available for trading at least five months prior to its expiration or such other date or time period specified for delivery or settlement.

From January 2007, the trading facility on which the contract trades must allow market participants to execute spread transactions, through a single order entry, between the pairs of contract expirations (defined below) included in the S&P GSCI™ that, at any given point in time, will be involved in the rolls to be effected in the next three roll periods (defined below).

The commodity must be the subject of a contract that:

- is denominated in U.S. dollars; and
- is traded on or through an exchange, facility or other platform (referred to as a “trading facility”) that has its principal place of business or operations in a country which is a member of the Organization for Economic Cooperation and Development and that:
 - makes price quotations generally available to its members or participants (and to S&P) in a manner and with a frequency that is sufficient to provide reasonably reliable indications of the level of the relevant market at any given point in time;
 - makes reliable trading volume information available to S&P with at least the frequency required by S&P to make the monthly determinations;
 - accepts bids and offers from multiple participants or price providers; and
 - is accessible by a sufficiently broad range of participants.

With respect to inclusion on each component, a contract must be in respect to the physical commodity that is described by that specific index.

The price of the relevant contract that is used as a reference or benchmark by market participants (referred to as the “daily contract reference price”) generally must have been available on a continuous basis for at least two years prior to the proposed date of inclusion in the S&P GSCI™. In appropriate circumstances, however, S&P, in consultation with the Advisory Panel, may determine that a shorter time period is sufficient or that historical daily contract reference prices for such contract may be derived from daily contract reference prices for a similar or related contract. The daily contract reference price may be (but is not required to be) the settlement price or other similar price published by the relevant trading facility for purposes of margining transactions or for other purposes.

At and after the time a contract is included in the S&P GSCI™ the daily contract reference price for such contract must be published between 10:00 a.m. and 4:00 p.m., New York City time, on each business day relating to such contract by the trading facility on or through which it is traded and must generally be available to all members of, or participants in, such facility (and to S&P) on the same day from the trading facility or through a recognized third-party data vendor. Such publication must include, at all times, daily contract reference prices for at least one expiration or settlement date that is five months or more from the date the determination is made, as well as for all expiration or settlement dates during such five-month period.

For a contract to be eligible for inclusion in the S&P GSCI™, volume data with respect to such contract must be available for at least the three months immediately preceding the date on which the determination is made. The following eligibility criteria apply:

- A contract that is not included in the S&P GSCI™ at the time of determination and that is based on a commodity that is not represented in the S&P GSCI™ at such time must, in order to be added to the S&P GSCI™ at such time, have a total dollar value traded, over the relevant period, as the case may be and annualized, of at least U.S. \$15 billion. The total dollar value traded is the dollar value of the total quantity of the commodity underlying transactions in the relevant contract over the period for which the calculation is made, based on the average of the daily contract reference prices on the last day of each month during the period.
- A contract that is already included in the S&P GSCI™ at the time of determination and that is the only contract on the relevant commodity included in the S&P GSCI™ must, in order to continue to be included in the S&P GSCI™ after such time, have a total dollar value traded, over the relevant period, as the case may be and annualized, of at least U.S. \$5 billion and at least U.S. \$10 billion during at least one of the three most recent annual periods used in making the determination.
- A contract that is not included in the S&P GSCI™ at the time of determination and that is based on a commodity on which there are one or more contracts already included in the S&P GSCI™ at such time must, in order to be added to the S&P GSCI™ at such time, have a total dollar value traded, over the relevant period, as the case may be and annualized of at least U.S. \$30 billion.
- A contract that is already included in the S&P GSCI™ at the time of determination and that is based on a commodity on which there are one or more contracts already included in the S&P GSCI™ at such time must, in order to continue to be included in the S&P GSCI™ after such time, have a total dollar value traded, over the relevant period, as the case may be and annualized, of at least U.S. \$10 billion and at least U.S. \$20 billion during at least one of the three most recent annual periods used in making the determination.

In addition:

- A contract that is already included in the S&P GSCI™ at the time of determination must, in order to continue to be included after such time, have a reference percentage dollar weight of at least 0.10%. The reference percentage dollar weight of a contract is determined by

multiplying the CPW (defined below) of a contract by the average of its daily contract reference prices on the last day of each month during the relevant period. These amounts are summed for all contracts included in the S&P GSCI™ and each contract's percentage of the total is then determined.

- A contract that is not included in the S&P GSCI™ at the time of determination must, in order to be added to the S&P GSCI™ at such time, have a reference percentage dollar weight of at least 1.0%.
- In the event that two or more contracts on the same commodity satisfy the eligibility criteria, such contracts will be included in the S&P GSCI™ in the order of their respective total quantity traded during the relevant period (determined as the total quantity of the commodity underlying transactions in the relevant contract), with the contract having the highest total quantity traded being included first, provided that no further contracts will be included if such inclusion would result in the portion of the S&P GSCI™ attributable to such commodity exceeding a particular level.
- If additional contracts could be included with respect to several commodities at the same time, that procedure is first applied with respect to the commodity that has the smallest portion of the S&P GSCI™ attributable to it at the time of determination. Subject to the other eligibility criteria relating to the composition of the S&P GSCI™ the contract with the highest total quantity traded on such commodity will be included. Before any additional contracts on the same commodity or on any other commodity are included, the portion of the S&P GSCI™ attributable to all commodities is recalculated. The selection procedure described above is then repeated with respect to the contracts on the commodity that then has the smallest portion of the S&P GSCI™ attributable to it.

The contracts currently included in the S&P GSCI™ are all futures contracts traded on the New York Mercantile Exchange, Inc. ("NYM"), the International Petroleum Exchange ("IPE"), the Chicago Mercantile Exchange ("CME"), the Chicago Board of Trade ("CBT"), the Coffee, Sugar & Cocoa Exchange, Inc. ("CSC"), the New York Cotton Exchange ("NYC"), the Kansas City Board of Trade ("KBT"), the Commodities Exchange Inc. ("CMX"), and the London Metal Exchange ("LME").

The five-year moving average is updated annually for each commodity included in the S&P GSCI™, based on the most recent five-year period (ending approximately two years prior to the date of calculation and moving backwards) for which complete data for all commodities is available. The contract production weights, or CPWs, used in calculating the S&P GSCI™ are derived from world or regional production averages, as applicable, of the relevant commodities, and are calculated based on the total quantity traded for the relevant contract and the world or regional production average, as applicable, of the underlying commodity. However, if the volume of trading in the relevant contract, as a multiple of the production levels of the commodity, is below specified thresholds, the CPW of the contract is reduced until the threshold is satisfied. This is designed to ensure that trading in each such contract is sufficiently liquid relative to the production of the commodity.

In addition, S&P performs this calculation on a monthly basis and, if the multiple of any contract is below the prescribed threshold, the composition of the S&P GSCI™ is reevaluated, based on the criteria and weighting procedure described above. This procedure is undertaken to allow the S&P GSCI™ to shift from contracts that have lost substantial liquidity into more liquid contracts, during the course of a given year. As a result, it is possible that the composition or weighting of the S&P GSCI™ will change on one or more of these monthly evaluation dates. In addition, regardless of whether any changes have occurred during the year, S&P reevaluates the composition of the S&P GSCI™, in consultation with the Advisory Panel, at the conclusion of each year, based on the above criteria. Other commodities that satisfy such criteria, if any, will be added to the S&P GSCI™. Commodities included in the S&P GSCI™ which no longer satisfy such criteria, if any, will be deleted.

S&P, in consultation with the Advisory Panel, also determines whether modifications in the selection criteria or the methodology for determining the composition and weights of and for calculating the S&P GSCI™ are necessary or appropriate in order to assure that the S&P GSCI™ represents a measure of commodity market performance. S&P has the discretion to make any such modifications, in consultation with the Advisory Panel.

Contract Expirations

Because the S&P GSCI™ comprises actively traded contracts with scheduled expirations, it can only be calculated by reference to the prices of contracts for specified expiration, delivery or settlement periods, referred to as “contract expirations.” The contract expirations included in the S&P GSCI™ for each commodity during a given year are designated by S&P, in consultation with the Advisory Panel, provided that each such contract must be an “active contract.” An “active contract” for this purpose is a liquid, actively traded contract expiration, as defined or identified by the relevant trading facility or, if no such definition or identification is provided by the relevant trading facility, as defined by standard custom and practice in the industry.

If a trading facility deletes one or more contract expirations, the S&P GSCI™ will be calculated during the remainder of the year in which such deletion occurs on the basis of the remaining contract expirations designated by S&P. If a trading facility ceases trading in all contract expirations relating to a particular contract, S&P may designate a replacement contract on the commodity. The replacement contract must satisfy the eligibility criteria for inclusion in the S&P GSCI™. To the extent practicable, the replacement will be effected during the next monthly review of the composition of the index. If that timing is not practicable, S&P will determine the date of the replacement and will consider a number of factors, including the differences between the existing contract and the replacement contract with respect to contractual specifications and contract expirations.

Value of the S&P GSCI™

The value of the S&P GSCI™ on any given day is equal to the total dollar weight of the S&P GSCI™ divided by a normalizing constant that assures the continuity of the S&P GSCI™ over time. The total dollar weight of the S&P GSCI™ is the sum of the dollar weight of each of the underlying commodities.

The dollar weight of each such commodity on any given day is equal to:

- the daily contract reference price,
- multiplied by the appropriate CPWs, and
- during a roll period, the appropriate “roll weights” (discussed below).

The daily contract reference price used in calculating the dollar weight of each commodity on any given day is the most recent daily contract reference price made available by the relevant trading facility, except that the daily contract reference price for the most recent prior day will be used if the exchange is closed or otherwise fails to publish a daily contract reference price on that day. In addition, if the trading facility fails to make a daily contract reference price available or publishes a daily contract reference price that, in the reasonable judgment of S&P, reflects manifest error, the relevant calculation will be delayed until the price is made available or corrected; provided, that, if the price is not made available or corrected by 4:00 p.m. New York City time, S&P may, if it deems such action to be appropriate under the circumstances, determine the appropriate daily contract reference price for the applicable futures contract in its reasonable judgment for purposes of the relevant S&P GSCI™ calculation.

Contract Daily Return

The contract daily return on any given day is equal to the sum, for each of the commodities included in the S&P GSCI™ of the applicable daily contract reference price on the relevant contract multiplied by

the appropriate CPW and the appropriate “roll weight,” divided by the total dollar weight of the S&P GSCI™ on the preceding day, minus one.

The “roll weight” of each commodity reflects the fact that the positions in contracts must be liquidated or rolled forward into more distant contract expirations as they approach expiration. If actual positions in the relevant markets were rolled forward, the roll would likely need to take place over a period of days. Since the S&P GSCI™ is designed to replicate the performance of actual investments in the underlying contracts, the rolling process incorporated in the S&P GSCI™ also takes place over a period of days at the beginning of each month (referred to as the “roll period”). On each day of the roll period, the “roll weights” of the first nearby contract expiration on a particular commodity and the more distant contract expiration into which it is rolled are adjusted, so that the hypothetical position in the contract on the commodity that is included in the S&P GSCI™ is gradually shifted from the first nearby contract expiration to the more distant contract expiration.

If on any day during a roll period any of the following conditions exists, the portion of the roll that would have taken place on that day is deferred until the next day on which such conditions do not exist:

- no daily contract reference price is available for a given contract expiration;
- any such price represents the maximum or minimum price for such contract month, based on exchange price limits (referred to as a “Limit Price”);
- the daily contract reference price published by the relevant trading facility reflects manifest error, or such price is not published by 4:00 p.m., New York City time. In that event, S&P may, but is not required to, determine a daily contract reference price and complete the relevant portion of the roll based on such price; provided, that, if the trading facility publishes a price before the opening of trading on the next day, S&P will revise the portion of the roll accordingly; or
- trading in the relevant contract terminates prior to its scheduled closing time.

If any of these conditions exist throughout the roll period, the roll with respect to the affected contract, will be effected in its entirety on the next day on which such conditions no longer exist.

Calculation of the Components

The value of any of the components on any S&P GSCI™ business day is equal to the product of (1) the value of the underlying futures contracts on the immediately preceding S&P GSCI™ business day multiplied by (2) one plus the contract daily return of the applicable component on the S&P GSCI™ business day on which the calculation is made.

Information

All information contained herein relating to the S&P GSCI™ and each of the components, including their make-up, method of calculation, changes in its components and historical performance, has been derived from publicly available information.

The information contained herein with respect to each of the components and the S&P GSCI™ reflects the policies of and is subject to change by S&P.

Current information regarding the market value of the components is available from S&P and from numerous public information sources. We make no representation that the publicly available information about the components is accurate or complete.

License Agreement with Standard & Poor’s

The S&P GSCI™ and the components are licensed by Standard & Poor’s, a division of The McGraw-Hill Companies (“S&P”) for use in connection with an issuance of the notes.

The notes are not sponsored, endorsed, sold or promoted by S&P. S&P does not make any representations or warranties, express or implied, to the owners of the notes or any member of the public regarding the advisability of investing in securities generally or in the notes particularly or the ability of the S&P indices to track general stock market performance or any economic factors. S&P's only relationship to JPMorgan Chase Bank, N.A. (the "Licensee") and its affiliates is the licensing of certain trademarks and trade names of S&P and/or of the S&P GSCI™ which is determined, composed and calculated by S&P without regard to the Licensee or the notes. S&P has no obligation to take the needs of the Licensee, its affiliates or the owners of the notes into consideration in determining, composing or calculating the S&P GSCI™. S&P is not responsible for and have not participated in the determination of, the timing of, prices at, or quantities of the notes to be issued or in the determination or calculation of the equation by which the notes are to be converted into cash. S&P has no obligation or liability in connection with the administration, marketing or trading of the notes.

S&P DOES NOT GUARANTEE THE ACCURACY AND/OR THE COMPLETENESS OF THE S&P GSCI™ OR ANY DATA INCLUDED THEREIN, AND S&P SHALL HAVE NO LIABILITY FOR ANY ERRORS, OMISSIONS, OR INTERRUPTIONS THEREIN. S&P MAKES NO WARRANTIES, EXPRESS OR IMPLIED, CONDITIONS OR REPRESENTATIONS AS TO RESULTS TO BE OBTAINED BY LICENSEE, ITS AFFILIATES, OWNERS OF THE NOTES OR ANY OTHER PERSON OR ENTITY FROM THE USE OF THE S&P GSCI™ OR ANY DATA INCLUDED THEREIN. S&P MAKES NO EXPRESS OR IMPLIED WARRANTIES, AND EXPRESSLY DISCLAIM ALL WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE WITH RESPECT TO THE S&P GSCI™ OR ANY DATA INCLUDED THEREIN. WITHOUT LIMITING ANY OF THE FOREGOING, IN NO EVENT SHALL S&P HAVE ANY LIABILITY FOR ANY SPECIAL, PUNITIVE, INDIRECT, OR CONSEQUENTIAL DAMAGES (INCLUDING LOST PROFITS), EVEN IF NOTIFIED OF THE POSSIBILITY OF SUCH DAMAGES.

OTHER INDICES

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

GENERAL TERMS OF NOTES

Calculation Agent

J.P. Morgan Securities Inc. will act as the calculation agent. The calculation agent will determine, among other things, the Initial Index Level, the Ending Index Level, the Index Return, the amount we will pay you at maturity, the Index closing level on each Initial Averaging Date, if applicable, and the Index closing level on each Index Valuation Date, including, if applicable, whether a Knock-Out Event has occurred (for notes with a Knock-Out Level), whether the Ending Index Level is equal to or greater than the Initial Index Level and, if the notes bear interest, the amount of interest payable, if any, on any Interest Payment Date. In addition, the calculation agent will determine whether there has been a market disruption event or a discontinuation of the Index, whether there has been a material change in the method of calculation of the Index and, if the notes bear interest, whether a day is an Interest Payment Date. 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 and each Interest Payment Date, if applicable, on or prior to 11:00 a.m., New York City time, on the business day preceding the maturity date and each Interest Payment Date, if applicable.

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

Market Disruption Events

Certain events may prevent the Index Calculation Agent from calculating the Index closing value on any Initial Averaging Date, if applicable, or Index Valuation Date. The failure may, in turn, prevent the calculation agent from determining the amount, if any, that we will pay you at maturity. These events may include failure of the Index Calculation Agent to publish the value of the applicable Index, as well as disruptions or suspensions of trading in the markets for derivative products linked to the constituents included in the synthetic portfolio of the Index as of such Index Valuation Date, trading in the markets for commodity futures contracts underlying any constituent contained in the synthetic portfolio of the relevant commodity index, or trading in the commodity markets as a whole. In addition, certain events may prevent us or our affiliates from hedging our obligations under the notes including, but not limited to, changes in laws or regulations applicable to the commodity futures contracts underlying any constituent contained in the synthetic portfolio of the relevant commodity index. In the case of such an event we have the right, but not the obligation, to determine the Option Value of the notes on the commodity hedging disruption date and the value of the Additional Amount payable at maturity as described below under “—Consequences of a Commodity Hedging Disruption Event.” We refer to each of the events described in the following paragraph individually as a “market disruption event.”

With respect to any relevant commodity index, a “market disruption event,” unless otherwise specified in the relevant terms supplement, means:

- the termination or suspension of, or material limitation or disruption in the trading of any exchange-traded commodity futures contract then underlying any constituent contained in the synthetic portfolio of such commodity index; or

- the settlement price of any exchange-traded commodity futures contract underlying any constituent contained in the synthetic portfolio of such commodity index has increased or decreased by an amount equal to the maximum permitted price change from the previous day's settlement price; or
- the failure of the sponsor or calculation agent, as the case may be, of any component related to any constituent of the synthetic portfolio of such commodity index to calculate and publish the U.S. dollar level for such component; or
- the settlement price is not published for any individual reference contract underlying any constituent contained in the synthetic portfolio of such commodity index; or
- the failure of the sponsor or calculation agent, as the case may be, for such commodity index to calculate and publish the value of such commodity index;

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

- a determination by the calculation agent in its sole discretion that the 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.

A limitation on the hours or number of days of trading will not constitute a market disruption event if the limitation results from an announced change in the regular business hours of the relevant exchange or market.

In addition, "market disruption event" means, which in each case is also a "commodity hedging disruption event," that:

(a) due to (i) the adoption of, or any change in, any applicable law, regulation or rule or (ii) the promulgation of, or any change in, the interpretation by any court, tribunal or regulatory authority with competent jurisdiction of any applicable law, rule, regulation or order (including, without limitation, as implemented by the CFTC or any exchange or trading facility), in each case occurring on or after the pricing date, the calculation agent determines in good faith that it is contrary to such law, rule, regulation or order to purchase, sell, enter into, maintain, hold, acquire or dispose of our or our affiliates' (A) positions or contracts in securities, options, futures, derivatives or foreign exchange or (B) other instruments or arrangements, in each case, in order to hedge individually or in the aggregate on a portfolio basis our obligations under the notes ("hedge positions"), including, without limitation, if such hedge positions are (or, but for the consequent disposal thereof, would otherwise be) in excess of any allowable position limit(s) in relation to any commodity traded on any exchange(s) or other trading facility (it being within the sole and absolute discretion of the calculation agent to determine which of the hedge positions are counted towards such limit); or

(b) for any reason, we or our affiliates are unable, after using commercially reasonable efforts, to (i) acquire, establish, re-establish, substitute, maintain, unwind or dispose of any transaction(s) or asset(s) the calculation agent deems necessary to hedge the risk of entering into and performing our commodity-related obligations with respect to the notes, or (ii) realize, recover or remit the proceeds of any such transaction(s) or asset(s).

Please see the risk factor entitled "The commodity futures contracts underlying the Constituents of the JPMorgan Optimax Indices are subject to legal and regulatory regimes that may change in ways that could affect our ability to hedge our obligations under the notes, may have an adverse effect on the level of the JPMorgan Optimax Indices and/or could lead to the early determination of the Additional Amount for your notes, any of which would impact the value of your payment at maturity" for more information.

Consequences of a Commodity Hedging Disruption Event

If a commodity hedging disruption event occurs, we will have the right, but not the obligation, to adjust your payment at maturity based on determinations made by the calculation agent described below. If we choose to exercise this right, in making such adjustment, on the date on which the calculation agent determines that a commodity hedging disruption event has occurred (such date, a “commodity hedging disruption date”), the calculation agent will determine, in good faith and in a commercially reasonable manner, the forward price of the embedded option representing the Additional Amount payable on the notes at maturity (the “Option Value”). The commodity hedging disruption event may occur prior to the Observation Date or the final Ending Averaging Date, as applicable. We will provide, or cause the calculation agent to provide, written notice of our election to exercise such right to the trustee at its New York office. We (or the calculation agent) will deliver this notice as promptly as possible and in no event later than the fifth (5th) business day immediately following the commodity hedging disruption date. Additionally, we will specify in such notice the Option Value as determined on the commodity hedging disruption date.

If a commodity hedging disruption event occurs and we decide to exercise our right to adjust your payment at maturity and, in doing so, cause the calculation agent to determine the Option Value of your notes, such Option Value will be a fixed amount representing the Additional Amount payable at maturity; provided that such Additional Amount will not be less than zero (or, if applicable, the Minimum Return).

Notwithstanding the foregoing, the amount due and payable per \$1,000 principal amount note will not be less than \$1,000 for each \$1,000 principal amount note (unless the relevant terms supplement specifies a Partial Principal Protection Percentage, in which case the amount due and payable per \$1,000 principal amount note will not be less than \$1,000 x Partial Principal Protection Percentage) and will be due and payable only at maturity. For each \$1,000 principal amount note, we will pay you at maturity, instead of the amounts set forth under “Description of Notes — Payment at Maturity,” an amount equal to:

- (1) an Additional Amount equal to the Option Value; provided that such Additional Amount will not be less than zero (or, if applicable, the Minimum Return); plus
- (2) \$1,000, *or*, if the relevant terms supplement specifies a Partial Principal Protection Percentage, \$1,000 x Partial Principal Protection Percentage.

For the avoidance of doubt, the determination set forth above is only applicable to the amount due with respect to an early determination of the Additional Amount as a result of a commodity hedging disruption event.

Discontinuation of the Index; Alteration of Method of Calculation

If the index sponsor of the Index (the “Index Sponsor”) discontinues publication of the 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 index”), then the Index closing level on any relevant Initial Averaging Date, if applicable, or Index Valuation Date or any other relevant date on which the Index closing level is to be determined will be determined by reference to the level of such successor index at the close of trading on the relevant exchange for such successor index on such day.

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

If the Index Sponsor discontinues publication of the Index prior to, and such discontinuation is continuing on, an Initial Averaging Date, if applicable, an Index Valuation Date or any other relevant date on which the Index closing level is to be determined, and the calculation agent determines, in its sole discretion, that no successor index for the 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 Initial Averaging Date, Index Valuation Date or other

relevant date, then the calculation agent will determine the Index closing level on such date. The Index closing level will be computed by the calculation agent in accordance with the formula for and method of calculating the Index or successor 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 the Index or successor index, as applicable. Notwithstanding these alternative arrangements, discontinuation of the publication of the Index or its successor index, as applicable, may adversely affect the value of the notes.

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

Events of Default

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

Alternate Additional Amount Calculation in Case of an Event of Default

Unless otherwise specified in the relevant terms supplement, in case an event of default with respect to the notes shall have occurred and be continuing, the amount declared due and payable per \$1,000 principal amount note upon any acceleration of the notes will be equal to \$1,000 (or a portion of \$1,000 if there is a Partial Principal Protection Percentage set forth in the relevant terms supplement), plus the Additional Amount, which will be calculated as if the date of acceleration were the final Index Valuation Date, plus, if applicable, any accrued and unpaid interest on the notes. If the notes have more than one Index Valuation Date, then for each Index Valuation Date scheduled to occur after the date of acceleration, the trading days immediately preceding the date of acceleration (in such number equal to the number of Index Valuation Dates in excess of one) will be the corresponding Index Valuation Dates, unless otherwise specified in the relevant terms supplement. Upon any acceleration of the notes, any interest will be calculated on the basis of a 360-day year of twelve 30-day months and the actual number of days elapsed from and including the previous Interest Payment Date for which interest was paid.

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

For the avoidance of doubt, the determination set forth above is only applicable to the amount due with respect to an acceleration of the notes as a result of an event of default.

Modification

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

Defeasance

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

Listing

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

Book-Entry Only Issuance — The Depository Trust Company

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

Registrar, Transfer Agent and Paying Agent

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

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

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

Governing Law

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

CERTAIN U.S. FEDERAL INCOME TAX CONSEQUENCES

The following is a summary of the material U.S. federal income tax consequences of the ownership and disposition of the notes. This summary applies to you if you are an initial holder of notes purchasing the notes at their issue price for cash and if you hold the notes as capital assets 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 the U.S. federal income and estate taxation of the notes that may be relevant to you in light of your particular circumstances or if you are a holder of notes who is subject to special treatment under the U.S. federal income tax laws, such as:

- one of certain financial institutions;
- 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 notes as part of a hedging transaction, "straddle," conversion transaction or integrated transaction, or who has entered into a "constructive sale" with respect to a note;
- a U.S. Holder (as defined below) whose functional currency is not the U.S. dollar;
- a trader in securities who elects to apply a mark-to-market method of tax accounting; or
- a partnership or other entity classified as a partnership for U.S. federal income tax purposes.

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

Tax Treatment of the Notes

The tax treatment of the notes will depend upon the facts at the time of the relevant offering. Generally, for U.S. federal income tax purposes, we expect that the notes will be treated as indebtedness, and that notes with a term of more than one year will be treated as "contingent payment debt instruments." We expect to seek an opinion from Davis Polk & Wardwell, our special tax counsel, regarding this treatment. The relevant terms supplement will describe Davis Polk & Wardwell's 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. The following discussion describes the treatment of the notes assuming that the notes for U.S. federal income tax purposes are indebtedness and, in the case of notes with a term of more than one year, are "contingent payment debt instruments."

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 with a Term of Not More than One Year

If the term of the notes (including either the issue date or the last possible date that the notes could be outstanding, but not both) is not more than one year, the following discussion applies. No statutory, judicial or administrative authority directly addresses the treatment of these notes or instruments similar thereto for U.S. federal income tax purposes, and no ruling will be requested from the IRS with respect to the notes. As a result, certain aspects of the U.S. federal income tax consequences of an investment in these notes are uncertain.

Tax Treatment Prior to Maturity

Because the term of these notes is not more than one year, they will be treated as short-term debt obligations. Cash-method holders will not be required to recognize income with respect to the notes prior to maturity, other than with respect to amounts received as stated interest, if any, or received pursuant to a sale or exchange, as described below. Although accrual-method holders and certain other holders are generally required to accrue interest on short-term notes on a straight-line basis, because the amount of interest that will be received with respect to the notes is uncertain, it is not clear how these accruals should be determined. If the amount of interest that will be received has become fixed (or the likelihood of interest not being a fixed amount has become “remote”) prior to maturity, it is likely that the amount of interest to be accrued will be determined based on the fixed amount. You should consult your tax adviser regarding the determination of the amount of any interest accruals on the notes.

Sale, Exchange or Redemption of a Note

Upon a sale or exchange of a short-term note (including redemption at maturity), you should recognize gain or loss in an amount equal to the difference between the amount you receive and your adjusted basis in the note. Your adjusted basis in the note should equal the sum of the amount you paid to acquire the note and interest that you have previously included in income but not received, if any.

The amount of any resulting loss will be treated as a capital loss, which may be subject to special reporting requirements if the loss exceeds certain thresholds. Gain resulting from redemption at maturity should be treated as ordinary interest income. It is not clear, however, whether or to what extent gain from a sale or exchange prior to maturity should be treated as capital gain or ordinary interest income. If the amount of interest to be received at maturity has become fixed (or the likelihood of this amount not being a fixed amount has become “remote”) prior to a sale or exchange, it is likely that the portion of gain on the sale or exchange that should be treated as accrued interest (and, therefore, taxed as ordinary income) will be determined based on the fixed amount. You should consult your tax adviser regarding the proper treatment of any gain or loss recognized upon a sale or exchange of a short-term note (including redemption at maturity).

Interest on Indebtedness Incurred to Purchase a Note

To the extent you have not previously included interest income with respect to a short-term note, you may be required to defer deductions for interest paid on indebtedness incurred to purchase or carry the note until maturity or until you dispose of the note in a taxable transaction. You should consult your tax adviser regarding the possibility of this deferral.

Notes with a Term of More than One Year

If the term of the notes (including either the issue date or the last possible date that the notes could be outstanding, but not both) is more than one year, we expect that the notes will be treated as “contingent payment debt instruments” for U.S. federal income tax purposes and the following discussion so assumes. Under this treatment, the notes will generally be subject to the original issue discount

("OID") provisions of the Code and the Treasury regulations issued thereunder, and you will be required to accrue as interest income the OID on the notes as described below.

We are required to determine a "comparable yield" for the notes. 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 notes. Solely for purposes of determining the amount of interest income that you will be required to accrue, we are also required to construct a "projected payment schedule" in respect of the notes representing a payment or 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 notes, and the related projected payment schedule, in the final terms supplement for these notes, which we will file with the Securities and Exchange Commission (the "SEC").

Neither the comparable yield nor the projected payment schedule constitutes a representation by us regarding the actual amount, if any, that we will pay on the notes.

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

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

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

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

Upon a sale or exchange of a note (including redemption at maturity), you generally will recognize taxable gain or loss equal to the difference between the amount received from the sale, exchange or redemption and your adjusted tax basis in the note. Your adjusted tax basis in the note will equal the cost thereof, increased by the amount of interest income previously accrued by you in respect of the note (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 note. You generally must treat any gain 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 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.

If a Hedging Disruption Event occurs or in the case of notes with a Knock-Out feature, if a Knock-Out Event occurs during the term of the notes, your payment at maturity will become fixed, and special rules may apply. Under these rules, you would be required to account for the difference between the originally projected payment at maturity and the fixed payment at maturity in a reasonable manner over the period to which the difference relates. In addition, you would be required to make adjustments to, among other things, your accrual periods and your adjusted basis in your notes. The character of any gain or loss on a sale or exchange of your notes would also be affected. You should consult your tax adviser concerning the application of these special rules.

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 nonresident alien fiduciary of 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).

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 discussed above, you generally will be subject to regular 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 interest on 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) will be subject to information reporting if you are not an “exempt recipient” (such as a domestic corporation) 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

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 Inc., as agent (an “Agent” or “JPMSI”), and certain other agents that may be party to the Master Agency Agreement, as amended or supplemented, from time to time (each an “Agent” and collectively with JPMSI, the “Agents”), JPMSI has agreed and any additional Agents will agree to use reasonable efforts to solicit offers to purchase the principal amount of notes set forth in the cover page of the relevant terms supplement. We will have the sole right to accept offers to purchase the notes and may reject any offer in whole or in part. Each Agent may reject, in whole or in part, any offer it solicited to purchase notes. We will pay an Agent, in connection with sales of these notes resulting from a solicitation that Agent made or an offer to purchase the Agent received, a commission as set forth in the relevant terms supplement. An Agent will allow a concession to other dealers, or we may pay other fees, in the amount set forth on the cover page of the relevant terms supplement.

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

We own, directly or indirectly, all of the outstanding equity securities of JPMSI. The underwriting arrangements for this offering comply with the requirements of NASD Rule 2720 regarding a FINRA member firm’s underwriting of securities of an affiliate. In accordance with NASD Rule 2720, no underwriter may make sales in this offering to any discretionary account without the prior written approval of the customer.

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

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

No action has been or will be taken by us, JPMSI or any dealer that would permit a public offering of the notes or possession or distribution of this product supplement no. 157-A-I, any related index supplement or the accompanying prospectus supplement, prospectus or terms supplement, other than in the United States, where action for that purpose is required. No offers, sales or deliveries of the notes, or distribution of this product supplement no. 157-A-I, any related index supplement or the accompanying prospectus supplement, prospectus or terms supplement or any other offering material relating to the notes, may be made in or from any jurisdiction except in circumstances which will result in compliance with any applicable laws and regulations and will not impose any obligations on us, the Agents or any dealer.

Each Agent has represented and agreed, and each dealer through which we may offer the notes has represented and agreed, that it (i) will comply with all applicable laws and regulations in force in each non-U.S. jurisdiction in which it purchases, offers, sells or delivers the notes or possesses or distributes this product supplement no. 157-A-I, any related index supplement and the accompanying prospectus supplement, prospectus and terms supplement and (ii) will obtain any consent, approval or permission required by it for the purchase, offer or sale by it of the notes under the laws and regulations in force in each non-U.S. jurisdiction to which it is subject or in which it makes purchases, offers or sales of the notes. We shall not have responsibility for any Agent's or any dealer's compliance with the applicable laws and regulations or obtaining any required consent, approval or permission. For additional information regarding selling restrictions, please see "Notice to Investors" in this product supplement.

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

NOTICE TO INVESTORS

We are offering to sell, and are seeking offers to buy, the notes only in jurisdictions where offers and sales are permitted. Neither this product supplement no. 157-A-I nor any related index supplement, the accompanying prospectus supplement, prospectus or terms supplement constitutes an offer to sell, or a solicitation of an offer to buy, any notes by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation. Neither the delivery of this product supplement no. 157-A-I nor any related index supplement, the accompanying prospectus supplement, prospectus or terms supplement nor any sale made hereunder implies that there has been no change in our affairs or that the information in this product supplement no. 157-A-I, any related index supplement and accompanying prospectus supplement, prospectus and terms supplement is correct as of any date after the date hereof.

You must (i) comply with all applicable laws and regulations in force in any jurisdiction in connection with the possession or distribution of this product supplement no. 157-A-I, any related index supplement and the accompanying prospectus supplement, prospectus and terms supplement and the purchase, offer or sale of the notes and (ii) obtain any consent, approval or permission required to be obtained by you for the purchase, offer or sale by you of the notes under the laws and regulations applicable to you in force in any jurisdiction to which you are subject or in which you make such purchases, offers or sales.

Argentina

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

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

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

The Bahamas

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

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

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

Bermuda

This product supplement no. 157-A-I, any related index supplement and the accompanying prospectus supplement, prospectus and terms supplement have not been registered or filed with any regulatory authority in Bermuda. The offering of the notes pursuant to this product supplement no. 157-A-I, any related index supplement, and the accompanying prospectus supplement, prospectus and any terms supplement to persons resident in Bermuda is not prohibited, *provided* we are not thereby carrying on business in Bermuda.

Brazil

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

British Virgin Islands

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

Cayman Islands

This product supplement no. 157-A-I, any related index supplement and the accompanying prospectus supplement, prospectus and terms supplement, and the notes offered hereby and thereby have not been, and will not be, registered under the laws and regulations of the Cayman Islands, nor has any regulatory authority in the Cayman Islands passed comment upon or approved the accuracy or adequacy of this product supplement no. 157-A-I, any related index supplement and the accompanying prospectus supplement, prospectus and terms supplement. The notes have not been, and will not be, offered or sold, directly or indirectly, in the Cayman Islands.

Chile

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

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

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

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

Colombia

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

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

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

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

El Salvador

The notes may not be offered to the general public in El Salvador, and according to Article 2 of the *Ley de Mercado de Valores* (Securities Market Law) of the Republic of El Salvador, Legislative Decree number 809 dated 16 February 1994, published on the *Diario Oficial* (Official Gazette) number 73-BIS, Number 323, dated 21 April 1994, and in compliance with the aforementioned regulation, each Agent has represented and agreed that it will not make an invitation for subscription or purchase of the notes to indeterminate individuals, nor will it make known this product supplement no. 157-A-I, any related index supplement and the accompanying prospectus supplement, prospectus and terms supplement in the territory of El Salvador through any mass media communication such as television, radio, press, or any similar medium, other than publications of an international nature that are received in El Salvador, such as internet access or foreign cable advertisements, which are not directed to the Salvadoran public. The offering of the notes has not been registered with an authorized stock exchange in the Republic of El Salvador. Any negotiation for the purchase or sale of notes in the Republic of El Salvador shall only be negotiated on an individual basis with determinate individuals or entities in strict compliance with the

aforementioned Article 2 of the Salvadoran Securities Market Law, and shall in any event be effected in accordance with all securities, tax and exchange control of the Dominican Republic, Central America, and United States Free Trade Agreements, and other applicable laws or regulations of the Republic of El Salvador.

European Economic Area

In relation to each Member State of the European Economic Area which has implemented the Prospectus Directive (each, a “Relevant Member State”), each Agent has represented and agreed that with effect from and including the date on which the Prospectus Directive is implemented in that Relevant Member State (the “Relevant Implementation Date”) it has not made and will not make an offer of notes which are the subject of the offering contemplated by this product supplement no. 157-A-I and the accompanying prospectus supplement to the public in that Relevant Member State prior to the publication of a prospectus in relation to the notes which has been approved by the competent authority in that Relevant Member State or, where appropriate, approved in another Relevant Member State and notified to the competent authority in that Relevant Member State, all in accordance with the Prospectus Directive except that it may, with effect from and including the Relevant Implementation Date, make an offer of such notes to the public in that Relevant Member State:

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

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

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

Hong Kong

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

Jersey

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

Mexico

The notes have not been, and will not be, registered with the Mexican National Registry of Securities maintained by the Mexican National Banking and Securities Commission nor with the Mexican Stock Exchange and therefore, may not be offered or sold publicly in the United Mexican States. This product supplement no. 157-A-I, any related index supplement and the accompanying prospectus supplement, prospectus and terms supplement may not be publicly distributed in the United Mexican States. The notes may be privately placed in Mexico among institutional and qualified investors, pursuant to the private placement exemption set forth in Article 8 of the Mexican Securities Market Law.

The Netherlands

An offer to the public of any notes which are the subject of the offering and placement contemplated by this product supplement no. 157-A-I, any related index supplement and the accompanying prospectus supplement, prospectus and terms supplement may not be made in The Netherlands and each Agent has represented and agreed that it has not made and will not make an offer of such notes to the public in The Netherlands, unless such an offer is made exclusively to one or more of the following categories of investors in accordance with the Dutch Financial Markets Supervision Act (*Wet op het financieel toezicht*, the "FMSA"):

1. Regulated Entities: (a) any person or entity who or which is subject to supervision by a regulatory authority in any country in order to lawfully operate in the financial markets (which includes: credit institutions, investment firms, financial institutions, insurance companies, collective investment schemes and their management companies, pension funds and their management companies, commodity dealers) ("Supervised Entities"); and (b) any person or entity who or which engages in a regulated activity on the financial markets but who or which is not subject to supervision by a regulatory authority because it benefits from an exemption or dispensation ("Exempt Entities");
2. Investment Funds and Entities: any entity whose corporate purpose is solely to invest in securities (which includes, without limitation, hedge funds);
3. Governmental institutions: the Dutch State, the Dutch Central Bank, Dutch regional, local or other decentralized governmental institutions, international treaty organizations and supranational organizations;
4. Self-certified Small and Medium-Sized Enterprises ("SMEs"): any company having its registered office in The Netherlands which does not meet at least two of the three criteria mentioned in (6) below and which has (a) expressly requested the Netherlands Authority for the Financial Markets (the "AFM") to be considered as a qualified investor, and (b) been entered on the register of qualified investors maintained by the AFM;
5. Self-certified Natural Persons: any natural person who is resident in The Netherlands if this person meets at least two (2) of the following criteria:
 - (i) the investor has carried out transactions of a significant size on securities markets at an average frequency of, at least, ten (10) per quarter over the previous four (4) quarters;
 - (ii) the size of the investor's securities portfolio exceeds €500,000;
 - (iii) the investor works or has worked for at least one (1) year in the financial sector in a professional position which requires knowledge of investment in securities,

provided this person has:

- (a) expressly requested the AFM to be considered as a qualified investor; and

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

For the purposes of this provision, the expression:

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

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

Panama

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

Peru

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

Singapore

Neither this product supplement no. 157-A-I nor any related index supplement nor the accompanying prospectus supplement, prospectus or terms supplement has been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this product supplement no. 157-A-I, any related index supplement, the accompanying prospectus supplement, prospectus or terms supplement, and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the notes may not be circulated or distributed, nor may the notes be offered or sold, or be made the subject of

an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore (the “SFA”), (ii) to a relevant person, or any person pursuant to Section 275(1A), and in accordance with the conditions, specified in Section 275 of the SFA or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Switzerland

The notes have not been and will not be offered or sold, directly or indirectly, to the public in Switzerland, and this product supplement no. 157-A-I, any related index supplement and the accompanying prospectus supplement, prospectus and terms supplement do not constitute a public offering prospectus as that term is understood pursuant to article 652a or article 1156 of the Swiss Federal Code of Obligations.

We have not applied for a listing of the notes on the SWX Swiss Exchange or on any other regulated securities market and, consequently, the information presented in this product supplement no. 157-A-I, any related index supplement and the accompanying prospectus supplement, prospectus and terms supplement does not necessarily comply with the information standards set out in the relevant listing rules.

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

United Kingdom

Each Agent has represented and agreed that:

- (a) it is a person whose ordinary activities involve it in acquiring, holding, managing or disposing of investments (as principal or agent) for the purposes of its business and (ii) it has not offered or sold and will not offer or sell the notes other than to persons whose ordinary activities involve them in acquiring, holding, managing or disposing of investments (as principal or as agent) for the purposes of their businesses or who it is reasonable to expect will acquire, hold, manage or dispose of investments (as principal or agent) for the purposes of their businesses where the issue of the notes would otherwise constitute a contravention of Section 19 of the Financial Services and Markets Act 2000 (the “FSMA”) by the Issuer;
- (b) it has only communicated or caused to be communicated and will only communicate or cause to be communicated an invitation or inducement to engage in investment activity (within the meaning of Section 21 of the FSMA) received by it in connection with the issue or sale of the notes in circumstances in which Section 21(1) of the FSMA does not apply to us; and
- (c) it has complied and will comply with all applicable provisions of the FSMA with respect to anything done by it in relation to the notes in, from or otherwise involving the United Kingdom.

Uruguay

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

Venezuela

The notes comprising this offering have not been registered with the Venezuelan National Securities Commission (*Comisión Nacional de Valores*) and are not being publicly offered in Venezuela. No document related to the offering of the notes shall be interpreted to constitute a public offer of securities in Venezuela. This document has been sent exclusively to clients of the Agents and the information contained herein is private, confidential and for the exclusive use of the addressee. Investors wishing to

acquire the notes may use only funds located outside of Venezuela, which are not of mandatory sale to the Central Bank of Venezuela (*Banco Central de Venezuela*) or are not otherwise subject to restrictions or limitations under the exchange control regulation currently in force in Venezuela.

BENEFIT PLAN INVESTOR CONSIDERATIONS

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

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

Certain prohibited transaction class exemptions (“PTCEs”) issued by the U.S. Department of Labor may provide exemptive relief for direct or indirect prohibited transactions resulting from the purchase or holding of the notes. Those class exemptions are PTCE 96-23 (for certain transactions determined by in-house asset managers), PTCE 95-60 (for certain transactions involving insurance company general accounts), PTCE 91-38 (for certain transactions involving bank collective investment funds), PTCE 90-1 (for certain transactions involving insurance company separate accounts), and PTCE 84-14 (for certain transactions determined by independent qualified asset managers). In addition, ERISA Section 408(b)(17) and Section 4975(d)(20) of the Code 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 any Plan involved in the transaction and provided further that the Plan pays no more than adequate consideration in connection with the transaction (the so-called “service provider exemption”).

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) 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.

Employee benefit plans that are governmental plans (as defined in Section 3(32) of ERISA), certain church plans (as defined in Section 3(33) of ERISA) and non-U.S. plans (as described in Section 4(b)(4) of ERISA) 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 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.

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

The JPMorgan Optimax

Index Rules

J.P.Morgan

2 December 2008

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1. Introduction

This document comprises the rules (the *Rules*) of the JPMorgan Optimax, a family of notional rules-based proprietary commodity indices that are based on a momentum investment strategy subject to certain Constraints. These Rules apply in full to each individual index (each referred to as *Optimax*) save that in the relevant Appendix of these Rules, there is one Appendix specific to each index. These Rules may be amended from time to time at the discretion of J.P. Morgan Securities Limited (*JPM SL*) and will be promptly re-published following such amendment. In particular, the Rules can be amended at any time to add a new Appendix describing an Optimax index.

These Rules are published by JPMSL of 125 London Wall, London EC2Y 5AJ, UK in its capacity as Optimax Calculation Agent.

ALL PERSONS READING THIS DOCUMENT SHOULD REFER TO THE RISK FACTORS, DISCLAIMERS AND CONFLICTS SECTIONS (SET OUT IN THE RELEVANT APPENDIX, ANNEX 4 AND ANNEX 5) AND CONSIDER THE INFORMATION CONTAINED IN THIS DOCUMENT IN LIGHT OF SUCH RISK FACTORS, DISCLAIMERS AND CONFLICTS.

NOTHING HEREIN CONSTITUTES AN OFFER TO BUY OR SELL ANY SECURITIES, PARTICIPATE IN ANY TRANSACTION OR ADOPT ANY INVESTMENT STRATEGY OR LEGAL, TAX, REGULATORY OR ACCOUNTING ADVICE.

2. General Notes on Optimax

Optimax is a notional dynamic portfolio comprised of Constituents representing assets within the global commodities market. The Constituents are described in the relevant Appendix of these Rules. The weight assigned to each Constituent will be determined from time to time in accordance with these Rules and may be zero, as more fully described in paragraph 5 (*Optimax Weights*) and in the relevant Appendix. Optimax is rebalanced on a monthly basis using an investment strategy based on the momentum theory and the modern portfolio theory. The rebalancing methodology therefore seeks to capitalize on both positive and negative trends in the USD Level of the Constituents on the assumption that if certain Constituents performed well in the past they will continue to perform well in the future and if they performed badly they will continue to do so.

No assurance can be given that the investment strategy used to construct Optimax will be successful or that Optimax will outperform any alternative portfolio or investment strategy that might be constructed from the Constituents.

On the Rebalancing Observation Date, the Optimax Calculation Agent will determine the weight to be assigned to each Constituent on the relevant Rebalancing Date, in accordance with the methodology set out in the relevant Appendix of this document. The calculation of the weights to be assigned to the Constituents in respect of each Rebalancing Date will depend on (a) the returns of the Constituents over the previous 252 Constituent Publication Days, including the Rebalancing Observation Date if that day is a Constituent Publication Day (approximately 12 months) as well as (b) the standard deviation and correlation of daily returns of each Constituent over (i) the previous 252 Constituent Publication Days, including the Rebalancing Observation Date if that day is a Constituent Publication Day (approximately 12 months) and (ii) the previous 63 Constituent Publication Days, including the Rebalancing Observation Date if that day is a Constituent Publication Day (approximately 3 months).

In the case of each Optimax index, some or all of the Constituents may be assigned a zero weighting on any Rebalancing Date.

It should be noted that Optimax is described as a notional portfolio of assets because there is no actual portfolio of assets to which any person is entitled or in which any person has any ownership interest. Optimax merely identifies certain assets in the market, the performance of which will be used as a reference point for the purposes of calculating the value of Optimax. Notwithstanding the foregoing, the Optimax Calculation Agent expects that the Component of the Optimax indices will be tradeable indices, despite the fact that there is no actual portfolio of assets. Therefore, the Optimax indices may be adjusted as a result of a Hedge

Disruption Event. For more information on adjustments as a result of hedge disruption, please see Section 8.5 of these Rules.

3. Optimax Calculation Agent

JPMSL or any affiliate or subsidiary designated by it will act as calculation agent for Optimax (the *Optimax Calculation Agent*). The Optimax Calculation Agent's determinations in respect of Optimax and interpretation of the Rules shall be final. Please refer to the statement of responsibility set out in paragraph 10 (*Responsibility*) below for further information.

4. Optimax Index Values

4.1 Calculation Timeline

Subject to the occurrence or existence of a Disrupted Day or a Limit Day, the Optimax Calculation Agent will calculate the Optimax Index Values on every Dealing Day for the purposes of reporting such value (although the Optimax Calculation Agent may calculate the Optimax Index Value with greater frequency and share this calculation with its affiliates for internal purposes), based on the USD Levels of the Constituents as of such Dealing Day (each such Dealing Day, an *Optimax Valuation Day*).

Optimax Index Values will be published on Bloomberg® at the pages indicated in the relevant Appendix, provided that the Optimax Calculation Agent shall not be obliged to publish the Optimax Index Value on any day which is a Disrupted Day (see below paragraph 7.2 for further information).

4.2 Calculation Method

Optimax Index Values will be calculated by the Optimax Calculation Agent using the algorithms set out in the relevant Appendix and Annex 1 (*Performance and Tracking Factor Calculation*) of these Rules. Optimax Index Values will be calculated and reported in USD.

The calculation method of the Optimax Index Value comprises a replication adjustment factor (the *Replication Adjustment Factor*). The Replication Adjustment Factor shall be calculated daily on an Actual/360 basis and notionally deducted daily (in arrears) from the Optimax Index Values on each Optimax Valuation Day, in accordance with the calculation formulae included in Annex 1 (*Replication Adjustment Factor*) of these Rules. The Replication Adjustment Factor is equal to ninety-six basis points per year (0.96%).

4.3 Calculation Precision

Optimax Index Values will be calculated using 64-bit double precision floating-point arithmetic as defined by the IEEE 754 standard.

5. Optimax Weights

Optimax assigns rebalancing weights (the *Rebalancing Weights*) to the Constituents in accordance with the methodology set out in the relevant Appendix of these Rules.

The Rebalancing Weights will conform to various Constraints (as described in the relevant Appendix for each Optimax index) except that due to the effect of rounding (as described in the relevant Appendix for each Optimax index) the Rebalancing Weights may contravene the intended Constraints by a small amount, in any case no greater than 0.09%.

The dollar weights of the Constituents of Optimax may fluctuate during the period from (and excluding) one Rebalancing Date to (and including) the following Rebalancing Date due to movements in the USD Level of each of those Constituents. This may have the effect of the dollar weights violating any of the Constraints of the Optimax index between Rebalancing Dates.

6. Rebalancing Methodology

Subject to the occurrence or existence of a Disrupted Day or a Limit Day, Optimax will be rebalanced on a monthly basis on the relevant Rebalancing Date (specified in the relevant Appendix), based on the performance of the Constituents over a period approximately equal to the previous 12 months, as more fully described in the relevant Appendix. For the avoidance of doubt, each Optimax index has its own Rebalancing Date. The rebalancing will be carried out using the algorithm(s) and methodology set out in the relevant Appendix of these Rules.

7. Market Disruption and Limit Events

7.1 *Relevant Observation Period for the purpose of the Weighting Algorithm as described in the Appendices*

If the Index Sponsor fails to publish the USD Level for any Constituent on any Constituent Publication Day in the Relevant Observation Period, then the USD Level of each such Constituent will be that at the close of the latest preceding day for which the relevant Index Sponsor has calculated and published the USD Level for that Constituent.

7.2 *Optimax Index Value*

If any Optimax Valuation Day (irrespective of whether it is a Rebalancing Date) is a Disrupted Day or a Limit Day in respect of any Constituent (each, an *Affected Constituent*), then that Optimax Valuation Day shall remain the day originally scheduled, but publication of the Optimax Index Value in respect of that Optimax Valuation Day will be delayed. The Optimax Index Value in respect of that Optimax Valuation Day will be calculated retroactively based on (a) the USD Levels of the Constituents (other than the Affected Constituent(s)) on the originally scheduled Optimax Valuation Day and (b) the USD Level of each Affected Constituent on the next Scheduled Trading Day that is not a Limit Day or a Disrupted Day for that Constituent, unless, in respect of any Affected Constituent(s), the ten Scheduled Trading Days immediately following the day originally scheduled to be that Optimax Valuation Day are all Disrupted Days or Limit Days for such Affected Constituent(s), in which case on the tenth Scheduled Trading Day following the day originally scheduled to be the relevant Optimax Valuation Day the Optimax Calculation Agent shall calculate the Optimax Index Value for the relevant Optimax Valuation Day using levels for such Affected Constituent(s) calculated by the Optimax Calculation Agent acting in good faith using such information and/or methods as it determines, in its reasonable discretion, are appropriate (notwithstanding that such day is a Disrupted Day or a Limit Day for one or more Constituents).

Notwithstanding the previous paragraph, the Optimax Calculation Agent shall not be obliged to publish the Optimax Index Value for any day which is a Disrupted Day for any Constituent.

8. Extraordinary Events

8.1 *Successor Constituent*

If any Constituent is (a) not calculated and announced by the relevant Index Sponsor but is calculated and announced by a successor sponsor acceptable to the Optimax Calculation Agent, or (b) replaced by a successor index using, in the determination of the Optimax Calculation Agent, the same or substantially similar formula and method of calculation as used in the calculation of the relevant Constituent, then in each case that successor index (the *Successor Constituent*) will be deemed to replace the relevant Constituent with effect from a date determined by the Optimax Calculation Agent, and the Optimax Calculation Agent may make such adjustment to these Rules, as it determines in good faith is appropriate to account for such change.

8.2 *Alteration of Constituents*

Without prejudice to the ability of the Optimax Calculation Agent to amend the Rules generally as referred to in paragraph 1 (*Introduction*) above, the Optimax Calculation Agent may, acting in good faith and in a commercially reasonable manner, exclude, or substitute for, any Constituent in circumstances in which it reasonably considers it would be unreasonable not to do so, adjust the universe of Constituents to reflect the intention of the Optimax strategy in the altered and un-anticipated circumstances which have then arisen,

including (without prejudice to the generality of the foregoing) changes announced by the Index Sponsor relating to the modification, exclusion, inclusion or substitution of one Constituent or its futures and options contracts in the Standard & Poor's Goldman Sachs Commodity Index (previously the Goldman Sachs Commodity Index), or any perception among market participants generally that the published USD Level of the relevant Constituent is generally inaccurate (and the Index Sponsor of such Constituent fails to correct such USD Level), and if it so excludes or substitutes for any Constituent, then the Optimax Calculation Agent may make such adjustment to these Rules as it determines in good faith to be appropriate to account for such exclusion or substitution on such date(s) selected by the Optimax Calculation Agent.

8.3 Material Change

If, at any time, the Index Sponsor of a Constituent announces that it will make a material change in the formula or the method of calculating that Constituent (including but not limited to rebasing) or in any other way materially modifies that Constituent (other than a modification prescribed in that formula) or permanently cancels the Constituent and no successor index exists or fails to calculate and announce the USD Level of the Constituent, then the Optimax Calculation Agent may remove such Constituent from the universe of the Constituents and may make such adjustment to these Rules as it determines in good faith to be appropriate to account for such change(s) on such date(s) selected by the Optimax Calculation Agent.

8.4 Cancellation of Index Licence

If, at any time, the licence granted to the Optimax Calculation Agent by the Index Sponsor of any Constituent to use such Constituent for the purposes of Optimax terminates, or the Optimax Calculation Agent's right to use the Constituent for the purposes of Optimax is otherwise impaired or ceases (for any reason), then the Optimax Calculation Agent will remove such Constituent from the universe of the Constituents and may make such adjustment to these Rules as it determines in good faith to be appropriate to account for such change(s) on such date(s) selected by the Optimax Calculation Agent.

8.5 Adjustments or Cancellation of an Optimax index as a Result of a Hedge Disruption Event

If the Optimax Calculation Agent determines in good faith and a commercially reasonable manner that a Hedge Disruption Event has occurred in respect of one or several Constituents, the Optimax Calculation Agent may, acting in good faith and in a commercially reasonable manner, exclude or replace any Constituent affected by such Hedge Disruption Event. In order to effectuate such exclusion or replacement, the Optimax Calculation Agent will publish (i) its adjustments to the universe of Constituents, including but not limited to, publishing a list of the Constituents to be excluded and/or a list of new constituents to be included (as replacements for the removed Constituents) on a going forward basis, provided that the new constituents shall be commodity indices or basket of commodity futures and (ii) the date on which such adjustments will become effective.

The Optimax Calculation Agent will endeavour to complete any exclusion or substitution as soon as possible in light of the prevailing circumstances and if possible on the next Rebalancing Date. The Optimax Calculation Agent may also publish of its desire to have an interim Rebalancing Observation Date or an interim Rebalancing Date, pursuant to which the Optimax Calculation Agent may rebalance the Optimax indices at a date earlier than the next Rebalancing Date based on the procedures set forth in the relevant Annex. The Optimax Calculation Agent will re-weight on the Rebalancing Observation Date (or as the case may be on the interim Rebalancing Observation Date) and rebalance the notional portfolio of each Optimax indices on the relevant Rebalancing Date (or as the case may be on the relevant interim Rebalancing Date) in accordance with the procedures set forth in the relevant Appendix. In such cases, (i) exclusion of the affected Constituents and rebalancing of the weights of the Constituents or (i) substitution of the Constituents affected by such Hedge Disruption Event by the new constituents (the "New Constituents") and rebalancing of the weights of the Constituents will take effect immediately following the close of such Rebalancing Date.

The Optimax Calculation Agent is under no obligation to continue the calculation and publication of any Optimax indices and upon the occurrence or existence of a Hedge Disruption Event, the Optimax Calculation Agent may decide to cancel any Optimax indices if it determines, acting in good faith and in a commercially reasonable manner, that the objective of the relevant Optimax index can no longer be achieved.

9. Corrections

In the event that (a) the USD Level of any Constituent used to calculate the Optimax Index Value on any Optimax Valuation Day is subsequently corrected and the correction is published by the relevant Index Sponsor before the next following Rebalancing Date or (b) the Optimax Calculation Agent identifies an error or omission in any of its calculations or determinations in respect of Optimax, then the Optimax Calculation Agent may, if practicable and the correction is deemed material by the Optimax Calculation Agent, adjust or correct the Optimax Index Value published in respect of the relevant Optimax Valuation Day and each subsequent Optimax Valuation Day and publish such corrected Optimax Index Value(s) as soon as it is reasonably practicable.

10. Responsibility

The Optimax Calculation Agent shall act in good faith and in a commercially reasonable manner.

Whilst these Rules are intended to be comprehensive, ambiguities may arise. In such circumstances the Optimax Calculation Agent will resolve such ambiguities in a reasonable manner and, if necessary, amend these Rules to reflect such resolution.

Neither the Optimax Calculation Agent nor any of its affiliates or subsidiaries or any of their respective directors, officers, employees, delegates or agents (each a *Relevant Person*) shall have any responsibility to any person (whether as a result of negligence or otherwise) for any determinations made or anything done (or omitted to be determined or done) in respect of Optimax or in respect of the publication of the Optimax Index Value (or failure to publish such value) and any use to which any person may put Optimax or Optimax Index Values. All determinations of the Optimax Calculation Agent in respect of Optimax shall be final, conclusive and binding and no person shall be entitled to make any claim against any of the Relevant Persons in respect thereof. Once a determination or calculation is made or action taken by the Optimax Calculation Agent or any other Relevant Person in respect of Optimax, neither the Optimax Calculation Agent nor any other Relevant Person shall be under any obligation to revise any determination or calculation made or action taken for any reason.

Appendix 1: JPMorgan Optimax Market-Neutral Index

Ap.1.1 Rebalancing Methodology

The JPMorgan Optimax Market-Neutral Index (henceforth the *Optimax Market-Neutral Index*) is rebalanced every month on the rebalancing date (the *Rebalancing Date*). The Rebalancing Date for the Optimax Market-Neutral Index will occur on the 17th Dealing Day of every month, subject to the occurrence of a Hedge Disruption Event and the specification of an interim Rebalancing Date. On each Rebalancing Observation Date, the Optimax Calculation Agent will determine for each Constituent a Rebalancing Weight (which may be positive, negative or zero, but which will not be less than the Minimum Asset Weight or greater than the Maximum Asset Weight) using the algorithms set out in this Appendix 1. The Rebalancing Observation Date for the Optimax Market-Neutral Index will occur on the 16th Dealing Day of every month, subject to the occurrence of a Hedge Disruption Event and the specification of an interim Rebalancing Observation Date.

Ap.1.2 Constraints

The set of Rebalancing Weights for the portfolio of Constituents comprising the Optimax Market-Neutral Index is subject to a number of Constraints outlined below. The algorithms set out in this Appendix 1 are designed to calculate a set of Rebalancing Weights that satisfy all such Constraints, subject to the proviso that the effect of rounding may induce minor violations of certain Constraints.

Ap.1.2.1 Allocation Constraints

The Allocation Constraints seek to ensure that the set of Rebalancing Weights for the portfolio of Constituents satisfies objectives regarding diversification (Asset Weight Constraint, Sector Weight Constraint), market-neutrality (Net Weight Constraint) and total exposure (Gross Weight Constraint).

Ap.1.2.1.1 Asset Weight Constraint

The Asset Weight Constraint seeks to ensure that the Rebalancing Weight for each Constituent lies between the Minimum Asset Weight (henceforth *MinAW*) and the Maximum Asset Weight (henceforth *MaxAW*) both inclusive.

Ap.1.2.1.2 Sector Weight Constraint

The Sector Weight Constraint seeks to ensure that the sum of the Rebalancing Weights for each Constituent in a Sector lies between the Minimum Sector Weight (henceforth *MinSW*) and the Maximum Sector Weight (henceforth *MaxSW*) both inclusive.

Ap.1.2.1.3 Net Weight Constraint

The Net Weight Constraint seeks to ensure that the sum of the Rebalancing Weights for each Constituent is equal to zero.

Ap.1.2.1.4 Gross Weight Constraint

The Gross Weight Constraint seeks to ensure that the sum of the absolute values of the Rebalancing Weights for each Constituent is no greater than the Gross Cap (henceforth *GrossCap*).

Ap.1.2.2 Short Term Volatility Constraint

The Short Term Volatility Constraint seeks to ensure that the Short Term Volatility of the portfolio of Constituents is no greater than the Volatility Cap (henceforth *VolCap*).

Ap.1.2.3 Long Term Volatility Constraint

The Long Term Volatility Constraint seeks to ensure that the Long Term Volatility of the portfolio of Constituents is no greater than the VolCap.

Ap.1.2.4 Constraint Values

The value for each Constraint is shown in Table Ap.1 - 1: Constraint Values below.

Constraint	Value
MinAW	-10%
MaxAW	+10%
MinSW	-20%
MaxSW	+20%
GrossCap	100%
VolCap	5%

Table Ap.1 - 1: Constraint Values

Ap.1.3 Weighting Algorithm

The Weighting Algorithm is designed to seek, for a given Rebalancing Observation Date, a set of Rebalancing Weights that maximises the Estimated Portfolio Return given the Constituent Predicted Return (henceforth CPR_i) for each Constituent i , subject to the Constraints.

The Weighting Algorithm consists of four successive steps:

- Step 1: Determining Constituent Predicted Returns and Covariance,
- Step 2: Determining Efficient Weights,
- Step 3: Scaling Weights to Satisfy the Long Term Volatility Constraint, and
- Step 4: Rounding the Weights.

Ap.1.3.1 Step1: Measuring Constituent Predicted Returns and Covariance

Ap.1.3.1.1 Measuring Constituent Predicted Returns

For each Constituent i , the Constituent Predicted Return (CPR_i) will be calculated by the Optimax Calculation Agent according to the following formula:

$$CPR_i = \sum_{h=1}^{12} SW_i(h) \times \ln \left(\frac{Level_i(h \times 21)}{Level_i((h-1) \times 21)} \right)$$

Where Seasonal Weighting (henceforth $SW_i(h)$) means:

$$SW_i(h) = \begin{cases} 1/9 & \text{if } i \in \text{SeasonalConstituents and } h \in \{1,2,3,10,11,12\} \\ 1/18 & \text{if } i \in \text{SeasonalConstituents and } h \in \{4,5,6,7,8,9\} \\ 1/12 & \text{Otherwise} \end{cases}$$

Where the set Seasonal Constituents is defined in Table Ap.1 - 4: Seasonal Constituents;

Where $\ln(\cdot)$ means the natural logarithm; and

Where $Level_i(d)$ means the USD Level of Constituent i at the close of the d^{th} Constituent Publication Day of the Relevant Observation Period, where the earliest Constituent Publication Day of the Relevant Observation Period shall be the 0^{th} Constituent Publication Day, and the latest Constituent Publication Day of the Relevant Observation Period shall be the 252^{nd} Constituent Publication Day.

Ap.1.3.1.2 Measuring Covariance

The Constituent Short Term Covariance for each pair of Constituents i,j (henceforth the $CSTC_{i,j}$) shall be calculated by the Optimax Calculation Agent according to the following formula:

$$CSTC_{i,j} = \frac{252}{63} \sum_{d=1}^{63} (CDR_i(189+d) - CSTRM_i) \times (CDR_j(189+d) - CSTRM_j)$$

Where the Constituent Short Term Return Mean for Constituent i (henceforth $CSTRM_i$) shall be calculated by the Optimax Calculation Agent according to the following formula:

$$CSTRM_i = \frac{1}{63} \sum_{d=1}^{63} CDR_i(189+d)$$

And where the Constituent Daily Return for Constituent i on Constituent Publication Day d (henceforth $CDR_i(d)$) is defined as:

$$CDR_i(d) = \frac{Level_i(d)}{Level_i(d-1)} - 1$$

Ap.1.3.2 Step 2: Determining the Efficient Weights

Step 2 can be divided into 2 parts (i) the Intermediate Rebalancing Weights Procedure and, (ii) the Efficient Weights Procedure. For a given value of Theta, the Intermediate Rebalancing Weights Procedure aims to produce a portfolio of Constituents that maximises the Intermediate Utility (as defined below) subject to the Allocation Constraints. The Efficient Weights Procedure repeats the Intermediate Rebalancing Weights Procedure for various values of Theta seeking a portfolio that satisfies the Short Term Volatility Constraint whilst having the greatest possible Estimated Portfolio Return.

Ap.1.3.2.1 Intermediate Rebalancing Weights Procedure

The Intermediate Rebalancing Weights Procedure proceeds by iteration, considering various weights (W_i) and applying modifications to such W_i with the aim of increasing the Intermediate Utility subject to the Allocation Constraints. Intermediate Utility is defined as:

$$\text{Intermediate Utility} = \text{EPR} - \text{Tan}(\text{Theta}) \times \sum_{i \in AC} \sum_{j \in AC} W_i \times CSTC_{i,j} \times W_j$$

Where Estimated Portfolio Return (henceforth EPR) means:

$$\text{EPR} = \sum_{i \in AC} W_i \times \text{CPR}_i ;$$

Where $\text{Tan}(\cdot)$ is the tangent function of trigonometry; and

Where for each Constituent i, W_i is the weight of that Constituent in the portfolio under consideration.

The Intermediate Utility is not directly used to calculate W_i in the Intermediate Rebalancing Weights Procedure. However, the mathematical derivative of the Intermediate Utility, MIU_i (as defined below), is used to identify the pair of Constituents i,j whose weight may be increased and decreased respectively in equal amounts without contravening the Allocation Constraints, whilst improving the Intermediate Utility at the greatest rate.

Ap.1.3.2.1.1 Intermediate Rebalancing Weights Procedure: Initial Weights

The initial value of all weights W_i shall be set to zero.

Ap.1.3.2.1.2 Intermediate Rebalancing Weights Procedure: Calculating the Marginal Intermediate Utility

The Marginal Intermediate Utility for each Constituent i (henceforth MIU_i) shall be calculated for the current set of weights W_i as follows:

$$MIU_i = \text{Round}(CPR_i - \text{Tan}(\text{Theta}) \times 2 \times \sum_{j \in AC} CSTC_{i,j} \times W_j, 12)$$

Where Round(x,y) is defined in Annex 2. Rounding is performed so that if very similar values of MIU_i are obtained for different values of i, only one pair of Constituents can be chosen for modification regardless of who performs the calculation.

Ap.1.3.2.1.3 Intermediate Rebalancing Weights Procedure: Calculating PairSlack_{i,j}

For each Constituent pair i,j, PairSlack_{i,j} (as defined) specifies the maximum amount by which the weight of Constituent i may be increased and the weight of Constituent j may be decreased.

GrossPairSlack_{i,j} prevents the weights of Constituents i and j from switching from strictly positive to strictly negative or vice versa in a single iteration. This restriction is applied for simplicity since the impact on the gross weight of increasing or decreasing a weight changes as a weight switches from positive to negative or vice versa. In any case, as a weight is increased from negative to zero or decreased from positive to zero in one iteration the same weight may be eligible for a further change in the same direction in the following iteration since it will no longer be strictly negative or strictly positive respectively.

For a pair of Constituents i,j the PairSlack_{i,j} shall be calculated as:

$$\text{PairSlack}_{i,j} = \text{Min}(\text{AssetPairSlack}_{i,j}, \text{SectorPairSlack}_{i,j}, \text{GrossPairSlack}_{i,j})$$

Where:

$$\text{AssetPairSlack}_{i,j} = \text{Min}(\text{MaxAW} - W_i, W_j - \text{MinAW})$$

Where:

$$\text{SectorPairSlack}_{i,j} = \begin{cases} \text{Min}(\text{MaxSW} - \text{SectorWeight}(i), \text{SectorWeight}(j) - \text{MinSW}) & \text{if Sector}(i) \neq \text{Sector}(j) \\ 1000 & \text{Otherwise} \end{cases}$$

Where:

$$\text{SectorWeight}(i) = \sum_{j \in \text{Sector}(i)} W_j$$

Where 1000 has been arbitrarily selected so that in the case that i, j are in the same Sector the SectorPairSlack_{i,j} shall not be operative in the formula for PairSlack_{i,j} (since in this case increasing the weight of i and decreasing the weight of j can have no impact on the total weight of Constituents in the relevant Sector). For each Constituent i, Sector(i) is the set of Constituents in the same Sector as Constituent i as defined in Table Ap.1 - 3: Sectors,

Where:

$$\text{GrossPairSlack}_{i,j} = \begin{cases} \text{Min}(-W_i, W_j) & \text{if } W_i < 0 \text{ and } W_j > 0 \\ -W_i & \text{if } W_i < 0 \text{ and } W_j \leq 0 \\ W_j & \text{if } W_i \geq 0 \text{ and } W_j > 0 \\ 0.5 \times (\text{GrossCap} - \text{CurrentGross}) & \text{if } W_i \geq 0 \text{ and } W_j \leq 0 \end{cases}$$

Where:

$$\text{CurrentGross} = \sum_{i \in \text{AC}} \text{Abs}(W_i)$$

And where $\text{Abs}(\cdot)$ is the absolute function defined as:

$$\text{Abs}(x) = \begin{cases} x & \text{if } x \geq 0 \\ -x & \text{Otherwise} \end{cases}$$

Ap.1.3.2.1.4 Intermediate Rebalancing Weights Procedure: Selecting the best pair of Constituents i, j

The Pair Marginal Intermediate Utility (henceforth $\text{PairMIU}_{i,j}$) for the pair of Constituents i,j reflects the rate of change of the Intermediate Utility as W_i and W_j are increased and decreased respectively. In the event that $\text{PairSlack}_{i,j}$ is zero or virtually zero (see ConstraintEpsilon below) i.e. it is not feasible to increase W_i and decrease W_j , $\text{PairMIU}_{i,j}$ shall be zero.

The pair of Constituents i,j with the Maximum Pair Marginal Intermediate Utility (henceforth $\text{MaxPairMIU}_{i,j}$) is the pair which produces the maximum positive change in the Intermediate Utility per unit of weight added to W_i and subtracted from W_j . If there is more than one pair of Constituents with the Maximum Pair Marginal Intermediate Utility, the pair for which Constituent i is first in the list in Table Ap.1 - 2: Constituents of the Optimax Market-Neutral Index shall be selected. If there is still more than one pair of Constituents with the Maximum Pair Marginal Intermediate Utility, the pair for which Constituent j is first in the list in Table Ap.1 - 2: Constituents of the Optimax Market-Neutral Index shall be selected. Hereafter, i_{best} and j_{best} will designate the Constituent i and the Constituent j thus selected.

For each pair of Constituents i,j the $\text{PairMIU}_{i,j}$ shall be calculated as:

$$\text{PairMIU}_{i,j} = \begin{cases} \text{MIU}_i - \text{MIU}_j & \text{if } \text{PairSlack}_{i,j} > \text{ConstraintEpsilon} \\ 0 & \text{Otherwise} \end{cases}$$

Where ConstraintEpsilon is defined to be 0.000000001.

The MaxPairMIU shall be calculated as:

$$\text{MaxPairMIU} = \text{Max}_{i \in \text{AC}, j \in \text{AC}} \text{PairMIU}_{i,j}$$

Ap.1.3.2.1.5 Intermediate Rebalancing Weights Procedure: Setting the modification vector

The Modification Vector (henceforth S) shall mean:

$$S_i = \begin{cases} 1 & \text{if } i = i_{\text{best}} \\ -1 & \text{if } i = j_{\text{best}} \\ 0 & \text{Otherwise} \end{cases}$$

S shall be used to modify the weights of the Constituents i_{best} and j_{best} in accordance with section Ap.1.3.2.1.6 below.

Ap.1.3.2.1.6 Intermediate Rebalancing Weights Procedure: Revising the weights

An upper bound for the amount by which the weight of i_{best} and j_{best} could be changed is set out in section Ap.1.3.2.1.3 above. The actual amount by which the weight of i_{best} and j_{best} will be changed is determined by X:

$$X = \begin{cases} \text{Min}\left(\text{PairSlack}_{i_{best},j_{best}}, \frac{k_0}{2 \times k_1}\right) & \text{if } k_1 \neq 0 \\ \text{PairSlack}_{i_{best},j_{best}} & \text{Otherwise} \end{cases}$$

Where:

$$k_0 = \sum_{i \in AC} S_i \times \left(\text{CPR}_i - \text{Tan}(\text{Theta}) \times 2 \times \sum_{j \in AC} \text{CSTC}_{i,j} \times W_j \right)$$

And where:

$$k_1 = \text{Tan}(\text{Theta}) \times \sum_{i \in AC} \sum_{j \in AC} S_i \times \text{CSTC}_{i,j} \times S_j$$

Then the weights W_i are each modified as follows (noting that for Constituent i other than i_{best} or j_{best} this modification has no impact):

$$W_i \mapsto W_i + S_i \times X$$

Note that throughout this document the symbol ' \mapsto ' represents assignment, meaning that the variable on the left hand side of the symbol is revised to be (i.e. its value is overwritten to take) the value on the right hand side. This symbol has been used in preference to the symbol '=' to avoid confusion in cases where the expression on the right hand side refers to the old value of the variable on the left hand side.

Ap.1.3.2.1.7 Intermediate Rebalancing Weights Procedure: Rounding the W_i

Finally, the weights for i_{best} and j_{best} are rounded as follows:

$$W_i \mapsto \text{Round}(W_i, 15)$$

Note that as only the weights for Constituents i_{best} and j_{best} have been modified, only these weights will be affected by this rounding.

Ap.1.3.2.1.8 Intermediate Rebalancing Weights Procedure: Iteration and Termination

The steps described in sections Ap.1.3.2.1.2 to Ap.1.3.2.1.7 will be repeated for the given value of Theta until any of the Intermediate Rebalancing Weights Procedure Termination Conditions (henceforth the *IRWPTCs*), described in sections Ap.1.3.2.1.8.1 to Ap.1.3.2.1.8.3, is met.

Ap.1.3.2.1.8.1 Intermediate Rebalancing Weights Procedure Termination Condition 1

Intermediate Rebalancing Weights Procedure Termination Condition 1 is met if the net effect of the two steps described in sections Ap.1.3.2.1.6 and Ap.1.3.2.1.7 is to leave all weights W_i equal to the values they had before performing those steps.

That is, either the value of X was zero, so that step Ap.1.3.2.1.6 had no effect, or the value of X was sufficiently small that after the rounding in step Ap.1.3.2.1.7 the net effect was zero.

Ap.1.3.2.1.8.2 Intermediate Rebalancing Weights Procedure Termination Condition 2

Intermediate Rebalancing Weights Procedure Termination Condition 2 is met if in the step described in section Ap.1.3.2.1.4, MaxPairMIU is less than MIUEpsilon (defined to be 0.00001).

Ap.1.3.2.1.8.3 Intermediate Rebalancing Weights Procedure Termination Condition 3

Intermediate Rebalancing Weights Procedure Termination Condition 3 is met if the steps described in sections Ap.1.3.2.1.2 to Ap.1.3.2.1.7 have been repeated 1000 times.

Ap.1.3.2.1.8.4 Consequences of Intermediate Rebalancing Weights Procedure Termination Conditions

As soon as one of the Intermediate Rebalancing Weights Procedure Termination Condition has been met for the given value of Theta, the Intermediate Rebalancing Weights Procedure finishes and for each Constituent i, $IRW_i(\Theta) = W_i$. (For the avoidance of doubt, W_i refers to the W_i under consideration when any of the Intermediate Rebalancing Weights Procedure Termination Conditions has been met.)

Ap.1.3.2.2 Efficient Weights Procedure

The Efficient Weights Procedure is an iterative process that repeats the Intermediate Rebalancing Weights Procedure for various values of Theta, seeking a portfolio that satisfies the Short Term Volatility Constraint whilst having the greatest possible Estimated Portfolio Return. The first values for Theta will be zero and $\pi/2$. Each new value considered for Theta will be half way between the two previous values known to be too high (corresponding to a Short Term Volatility that is too low) and too low (corresponding to a Short Term Volatility that is too high).

Given a set of weights $IRW_i(\Theta)$ produced by the Intermediate Rebalancing Weights Procedure, the Short Term Volatility (henceforth $STV(\Theta)$) of the portfolio of Constituents with those weights is defined as:

$$STV(\Theta) = \sqrt{\sum_{i \in AC} \sum_{j \in AC} IRW_i(\Theta) \times CSTC_{i,j} \times IRW_j(\Theta)}$$

$STV(\pi/2)$ shall be deemed to have value 0. The Short Term Volatility Constraint will be considered to be satisfied for a set of weights $IRW_i(\Theta)$ if $STV(\Theta)$ is less than or equal to the VolCap.

The Efficient Weights Procedure is executed as follows:

Ap.1.3.2.2.1 Efficient Weights Procedure: Theta = 0 Case

The Intermediate Rebalancing Weights Procedure is first executed for $\Theta = 0$. In the case that the Short Term Volatility Constraint is satisfied, the Efficient Weights Procedure has finished, resulting in the efficient weights for each Constituent i (*Efficient Weights* or EW_i) being equal to $IRW_i(0)$.

Otherwise, the High Volatility Theta (henceforth *HighVolTheta*) shall be set to 0, and the Low Volatility Theta (henceforth *LowVolTheta*) shall be set to $\pi/2$. These values form upper and lower bounds respectively for the optimal value of Theta since for $\Theta = 0$ it has been determined that the corresponding Short Term Volatility is too high and for $\Theta = \pi/2$ the portfolio has only zero weights and hence zero Expected Portfolio Return.

Step Ap.1.3.2.2.2 will then be repeated until any of the Efficient Weights Procedure Termination Conditions (henceforth the *EWPTC*) is met, as described in section Ap.1.3.2.2.3.

Ap.1.3.2.2.2 Efficient Weights Procedure: Finding the optimal value of Theta

Theta shall be set as follows:

$$\text{Theta} \mapsto \frac{1}{2}(\text{LowVolTheta} + \text{HighVolTheta})$$

and the Intermediate Rebalancing Weights Procedure shall be executed for this value of Theta.

LowVolTheta and HighVolTheta will then be set as follows:

$$\text{LowVolTheta} \mapsto \begin{cases} \text{Theta} & \text{if } \text{STV}(\text{Theta}) \leq \text{VolCap} \\ \text{LowVolTheta} & \text{Otherwise} \end{cases}$$

$$\text{HighVolTheta} \mapsto \begin{cases} \text{HighVolTheta} & \text{if } \text{STV}(\text{Theta}) \leq \text{VolCap} \\ \text{Theta} & \text{Otherwise} \end{cases}$$

Ap.1.3.2.2.3 Efficient Weights Procedure Termination Conditions

Ap.1.3.2.2.3.1 Efficient Weights Procedure Termination Condition 1

The Efficient Weights Procedure Termination Condition 1 is met if:

$$\text{STV}(\text{HighVolTheta}) - \text{STV}(\text{LowVolTheta}) \leq \text{VolEpsilon}$$

Where the Short Term Volatility Epsilon (henceforth *VolEpsilon*) is defined to be 0.0001

Ap.1.3.2.2.3.2 Efficient Weights Procedure Termination Condition 2

The Efficient Weights Procedure Termination Condition 2 is met if:

$$\text{LowVolTheta} - \text{HighVolTheta} \leq \text{ThetaEpsilon}$$

Where ThetaEpsilon is defined to be 0.0000000001.

Ap.1.3.2.2.3.3 Consequences of Efficient Weights Procedure Termination Conditions

When any of the Efficient Weights Procedure Termination Conditions has been met, the efficient weights for each Constituent *i* resulting from the Efficient Weights Procedure (*Efficient Weights* or *EW_i*) are:

$$\text{EW}_i = \text{ITW}_i(\text{HighVolTheta}) \quad \text{if } \text{STV}(\text{HighVolTheta}) \leq \text{VolCap}$$

$$\text{EW}_i = \text{ITW}_i(\text{LowVolTheta}) \quad \text{Otherwise}$$

Ap.1.3.3 Step 3: Scaling Weights To Satisfy The Long Term Volatility Constraint

Ap.1.3.3.1 Determining the Long Term Volatility

The Long Term Volatility of the portfolio of Constituents produced by the Efficient Weights Procedure shall be calculated as:

$$\text{LTV} = \sqrt{252} \times \sqrt{\frac{1}{251} \left(\sum_{d=1}^{252} \text{PDR}(d)^2 - \frac{1}{252} \left(\sum_{d=1}^{252} \text{PDR}(d) \right)^2 \right)}$$

Where the Portfolio Daily Return on Constituent Publication Day d (henceforth $PDR(d)$) shall be calculated as:

$$PDR(d) = \frac{PL(d)}{PL(d-1)} - 1$$

And Where the Portfolio Level on Constituent Publication Day d , where d may vary between 0 and 252, both inclusive (henceforth $PL(d)$) shall be calculated as:

$$PL(d) = \begin{cases} 100 & \text{if } d = 0 \\ PL(d-1) \times \left(1 + \sum_{i \in AC} EW_i \times CDR_i(d) \right) & \text{Otherwise} \end{cases}$$

Ap.1.3.3.2 *Scaling the Weights*

If the Long Term Volatility Constraint is satisfied, then the Efficient Weights shall not be scaled.

Otherwise, the Efficient Weights will be reduced so that such portfolio of Constituents complies with the Long Term Volatility Constraint. The Efficient Weights shall be modified as follows:

$$EW_i \mapsto EW_i \times LTVRC$$

Where the Long Term Volatility Rescaling Constraint (henceforth $LTVRC$) is calculated as follows:

$$LTVRC = \frac{VolCap}{LTV}$$

The EW_i thus produced are the result of the Weights Scaling Procedure.

Ap.1.3.4 *Step 4: Rounding the Weights*

The Rebalancing Weight for each Constituent i in the set of Constituents, which pertains to the n^{th} rebalancing date (henceforth $RW_i(RD_n)$) shall be calculated from the Efficient Weight EW_i resulting from the Weights Scaling Procedure as follows:

$$RW_i(RD_n) = \text{RoundDown}(EW_i, 4)$$

Where the function $\text{RoundDown}(x, y)$ is defined in Annex 2.

Ap.1.4 *The Constituents of the Optimax Market-Neutral Index*

Table Ap.1 - 2: Constituents of the Optimax Market-Neutral Index below sets out the Constituents of the Optimax Market-Neutral Index, each a single component sub-index of the S&P GSCI excess return (USD) index. Table Ap.1 - 2 also shows the Bloomberg® ticker for each Constituent (where applicable) for ease of identification.

Constituent	Bloomberg® ticker
Natural gas	SPGCNGP
Lead	SPGCILP
Gas oil	SPGCGOP
Brent Crude	SPGCBRP
Gold	SPGCGCP
Wheat	SPGCWHP
Soybean	SPGCSOP

Sugar	SPGCSBP
Coffee	SPGCKCP
Copper	SPGCICP
Aluminium	SPGCIAP
ULR Gasoline	SPGCHUP
Heating oil	SPGCHOP
Corn	SPGCCNP
WTI Crude Oil	SPGCCLP
Silver	SPGCSIP
Zinc	SPGCIZP
Nickel	SPGCIKP

Table Ap.1 - 2: Constituents of the Optimax Market-Neutral Index

Table Ap.1 - 3: Sectors below sets out the Sectors associated with the Constituents for the purposes of evaluating the function Sector(i) described in this appendix.

Constituent	Sector
WTI Crude Oil	Energy
Brent Crude Oil	
ULR Gasoline	
Natural Gas	
Gas Oil	
Heating Oil	
Gold	Precious Metals
Silver	
Corn	Agriculture
Soybeans	
Wheat	
Coffee	
Sugar	
Lead	Industrial Metals
Zinc	
Nickel	
Aluminium	
Copper	

Table Ap.1 - 3: Sectors

Table Ap.1 - 4: Seasonal Constituents below shows the set of Seasonal Constituents.

<i>Seasonal Constituents</i>
Corn
Soybeans
Wheat
Coffee
Sugar
Gas Oil
Heating Oil
ULR Gasoline
Natural Gas

Table Ap.1 - 4: Seasonal Constituents

Notwithstanding anything to the contrary, the Constituents set forth in Tables Ap. 1-2, Ap. 1-3 and Ap. 1-4 may be amended from time to time in accordance with the provisions set forth under Section 8 (*Extraordinary Events*) of these Rules.

For the avoidance of doubt, if on any Rebalancing Date, Constituents in the Basket are to be substituted by New Constituents, any references in the Weighting Algorithm performed on the Rebalancing Observation Date immediately preceding such Rebalancing Date to Constituent i or Constituent j shall be deemed to be to the New Constituents.

Ap.1.5 JPMorgan Optimax Market-Neutral Index Value Calculation

The Optimax Market-Neutral Index was first calculated on 6th May 2008 (the *First Optimax Valuation Day*) with a starting value of 100:

$$\text{CMDTOMER}(t_0) = 100$$

In accordance with the formulae below, the JPMorgan Optimax Market-Neutral Index Value (henceforth the *Optimax Market-Neutral Index Value*) on the zero-th Rebalancing Date ($\text{RD}_0 = 23^{\text{rd}}$ April 2008) is defined as:

$$\text{CMDTOMER}(\text{RD}_0) = 100.2324$$

At the close of each Optimax Valuation Day t (the *Relevant Optimax Valuation Day*) the Optimax Market-Neutral Index Value shall be calculated by the Optimax Calculation Agent in accordance with the following formula:

$$\text{CMDTOMER}(t) = \text{CMDTOMER}(\text{RD}_{n-1}) \times \left[1 + \sum_{i \in \text{AC}} \text{RW}_i(\text{RD}_{n-1}) \times \left(\frac{\text{Level}_i(t)}{\text{Level}_i(\text{RD}_{n-1})} - 1 \right) \right] \times (1 - \text{RAF}_t)$$

Where:

$\text{CMDTOMER}(t)$ is the Optimax Market-Neutral Index Value on the Relevant Optimax Valuation Day.

n is the number of Rebalancing Dates from, and including, the zero-th Rebalancing Date to, and including, RD_{n-1} .

RD_{n-1} is the Rebalancing Date immediately preceding the Relevant Optimax Valuation Day.

$\text{Level}_i(t)$ is the USD Level of Constituent i at the close of the Relevant Optimax Valuation Day t .

$\text{Level}_i(\text{RD}_{n-1})$ is the USD Level of Constituent i at the close of the Rebalancing Date immediately preceding the Relevant Optimax Valuation Day.

$\text{RW}_i(\text{RD}_{n-1})$ is the Rebalancing Weight of the Constituent i implemented at the close of the Rebalancing Date immediately preceding the Relevant Optimax Valuation Day.

RAF_t is defined in Annex 1.

$\text{CMDTOMER}(\text{RD}_{n-1})$ is the Optimax Market-Neutral Index Value on the Rebalancing Date immediately preceding the Relevant Optimax Valuation Day, rounded to 4 decimal places.

For the avoidance of doubt on each Rebalancing Date RD_n the Optimax Market-Neutral Index Value shall be defined as follows:

$$\text{CMDTOMER}(\text{RD}_n) = \text{CMDTOMER}(\text{RD}_{n-1}) \times \left[1 + \sum_{i \in \text{AC}} \text{RW}_i(\text{RD}_{n-1}) \times \left(\frac{\text{Level}_i(\text{RD}_n)}{\text{Level}_i(\text{RD}_{n-1})} - 1 \right) \right] \times (1 - \text{RAF}_t)$$

Where:

Level_i (RD_n) is the USD Level of Constituent i at the close of RD_n.

* The above calculations include the Optimax Replication Adjustment Factor, which is deducted from the Optimax Market-Neutral Index Value on each Optimax Valuation Day at a rate of 96 basis points per annum on an actual/360 basis, and the specific calculation of which is expressed in Annex 1.

Notwithstanding the forgoing formulae, the Optimax Market-Neutral Index Value shall never fall below zero. In the case that the forgoing formulae would determine a negative value, the Optimax Market-Neutral Index Value shall be defined to be zero.

Ap.1.6 Publication of the Optimax Market-Neutral Index Value

The Optimax Market-Neutral Index Value will be published on the Bloomberg[®] ticker CMDTOMER provided that, as described in paragraph 7.2 (*Optimax Valuation Day*) of these Rules, the Optimax Calculation Agent shall not be obliged to publish the Optimax Market-Neutral Index Value for any day which is a Disrupted Day in respect of any Constituent. The Optimax Market-Neutral Index Value will be reported to four (4) decimal places (although the Optimax Calculation Agent may maintain a record of the Optimax Market-Neutral Index Value with greater precision for internal purposes) on every Optimax Valuation Day. For the avoidance of doubt, the Optimax Calculation Agent will be under no obligation to any person to provide the Optimax Market-Neutral Index Value by any alternative method if CMDTOMER is subject to any delay in or interruptions of publication or any act of God, act of governmental authority, or act of public enemy, or due to war, the outbreak or escalation of hostilities, fire, flood, civil commotion, insurrection, labour difficulty including, without limitation, any strike, other work stoppage, or slow-down, severe or adverse weather conditions, power failure, communications line or other technological failure may occur or any other event beyond the control of the Optimax Calculation Agent.

Ap.1.7 Additional Risk Factors specific to the Optimax Market-Neutral Index

In addition to the general risk factors set out in Annex 4 of these Rules, the following risk factors are relevant to the Optimax Market-Neutral Index:

Ap.1.7.1 The use of a “long-short strategy”

The Optimax Market-Neutral Index employs a technique generally known as “long-short” strategy. This means the Optimax Market-Neutral Index could include a number of notional long positions and a number of notional short positions. Unlike long positions, short positions are theoretically subject to unlimited risk of loss because there is no limit on the amount by which the price of the relevant asset may appreciate before the short position is closed. The Optimax Market-Neutral Index may engage in notional short positions in accordance with the Optimax Market-Neutral Index Calculation Algorithms set out in this Appendix and it is therefore possible that during the time from, but excluding, one Rebalancing Date to, and including, the next following Rebalancing Date any notional short position included in the Optimax Market-Neutral Index may appreciate substantially with an adverse impact on the Optimax Market-Neutral Index Value.

Also, due to the short positions, the Optimax Market-Neutral Index Value could potentially fall to zero without any of the Constituents falling to zero.

Ap.1.7.2 Market Neutral

The Optimax Market-Neutral Index has been denominated “*Market Neutral*” because the sum of the Rebalancing Weights of all Constituents immediately after rebalancing is zero. However, because the dollar weights of the Constituents may fluctuate in between rebalancings, the net weight of the portfolio of Constituents that comprise the Optimax Market-Neutral Index may not always sum to zero. Please refer to Annex 4 and in particular paragraph An.4.7 thereof for further information.

Appendix 2: JPMorgan Optimax Plus Index

Ap.2.1 Rebalancing Methodology

The JPMorgan Optimax Plus Index (henceforth the *Optimax Plus Index*) is rebalanced every month on the rebalancing date (the *Rebalancing Date*). The Rebalancing Date for the Optimax Plus Index will occur on the 18th Dealing Day of every month, subject to the occurrence of a Hedge Disruption Event and the specification of an interim Rebalancing Date. On each Rebalancing Observation Date, the Optimax Calculation Agent will determine for each Constituent a Rebalancing Weight (which may be positive, negative or zero, but which will not be less than the Minimum Asset Weight or greater than the Maximum Asset Weight) using the algorithms set out in this Appendix 2. The Rebalancing Observation Date for the Optimax Plus Index will occur on the 16th Dealing Day of every month, subject to the occurrence of a Hedge Disruption Event and the specification of an interim Rebalancing Observation Date.

Ap.2.2 Constraints

The set of Rebalancing Weights for the portfolio of Constituents comprising the Optimax Plus Index is subject to a number of Constraints outlined below. The algorithms set out in this Appendix 2 are designed to calculate a set of Rebalancing Weights that satisfy all such Constraints, subject to the proviso that the effect of rounding may induce minor violations of certain Constraints.

Ap.2.2.1 Allocation Constraints

The Allocation Constraints seek to ensure that the set of Rebalancing Weights for the portfolio of Constituents satisfies objectives regarding diversification (Asset Weight Constraint), market exposure (Net Weight Constraint) and total exposure (Gross Weight Constraint).

Ap.2.2.1.1 Asset Weight Constraint

The Asset Weight Constraint seeks to ensure that the Rebalancing Weight for each Constituent lies between the Minimum Asset Weight (henceforth *MinAW*) and the Maximum Asset Weight (henceforth *MaxAW*) both inclusive.

Ap.2.2.1.2 Net Weight Constraint

The Net Weight Constraint seeks to ensure that the sum of the Rebalancing Weights for each Constituent lies between the Minimum Net Weight (henceforth *MinNW*) and the Maximum Net Weight (henceforth *MaxNW*) both inclusive.

Ap.2.2.1.3 Gross Weight Constraint

The Gross Weight Constraint seeks to ensure that the sum of the absolute values of the Rebalancing Weights for each Constituent is no greater than the Gross Cap (henceforth *GrossCap*).

Ap.2.2.2 Short Term Volatility Constraint

The Short Term Volatility Constraint seeks to ensure that the Short Term Volatility of the portfolio of Constituents is no greater than the Volatility Cap (henceforth *VolCap*).

Ap.2.2.3 Long Term Volatility Constraint

The Long Term Volatility Constraint seeks to ensure that the Long Term Volatility of the portfolio of Constituents is no greater than the VolCap.

Ap.2.2.4 Constraint Values

The value for each Constraint is shown in Table Ap.2 - 1: Constraint Values below.

Constraint	Value
MinAW	-25%
MaxAW	+25%
MinNW	-100%
MaxNW	100%
GrossCap	250%
VolCap	12%

Table Ap.2 - 1: Constraint Values

Ap.2.3 Weighting Algorithm

The Weighting Algorithm is designed to seek, for a given Rebalancing Observation Date, a set of Rebalancing Weights that maximises the Estimated Portfolio Return given the Constituent Predicted Return (henceforth CPR_i) for each Constituent i , subject to the Constraints.

The Weighting Algorithm consists of four successive steps:

- Step 1: Determining Constituent Predicted Returns and Covariance,
- Step 2: Determining Efficient Weights,
- Step 3: Scaling Weights to Satisfy the Long Term Volatility Constraint, and
- Step 4: Rounding the Weights.

Ap.2.3.1 Step 1: Measuring Constituent Predicted Returns and Covariance

Ap.2.3.1.1 Measuring Constituent Predicted Returns

For each Constituent i , the Constituent Predicted Return will be calculated by the Optimax Calculation Agent according to the following formula:

$$CPR_i = \sum_{h=1}^{12} SW_i(h) \times \ln \left(\frac{Level_i(h \times 21)}{Level_i((h-1) \times 21)} \right)$$

Where the Seasonal Weighting ($SW_i(h)$) means:

$$SW_i(h) = \begin{cases} 1/9 & \text{if } i \in \text{SeasonalConstituents and } h \in \{1,2,3,10,11,12\} \\ 1/18 & \text{if } i \in \text{SeasonalConstituents and } h \in \{4,5,6,7,8,9\} \\ 1/12 & \text{Otherwise} \end{cases}$$

Where the set Seasonal Constituents is defined in Table Ap.2 - 3: Seasonal Constituents;

Where $\ln(.)$ means the natural logarithm; and

Where $Level_i(d)$ means the USD Level of Constituent i at the close of the d^{th} Constituent Publication Day of the Relevant Observation Period, where the earliest Constituent Publication Day of the Relevant Observation Period shall be the 0^{th} Constituent Publication Day, and the latest Constituent Publication Day of the Relevant Observation Period shall be the 252^{nd} Constituent Publication Day.

Ap.2.3.1.2 Measuring Covariance

The Constituent Short Term Covariance for each pair of Constituents i,j (henceforth the $CSTC_{i,j}$) shall be calculated by the Optimax Calculation Agent according to the following formula:

$$CSTC_{i,j} = \frac{252}{63} \sum_{d=1}^{63} (CDR_i(189+d) - CSTRM_i) \times (CDR_j(189+d) - CSTRM_j)$$

Where the Constituent Short Term Return Mean for Constituent i (henceforth $CSTRM_i$) shall be calculated by the Optimax Calculation Agent according to the following formula:

$$CSTRM_i = \frac{1}{63} \sum_{d=1}^{63} CDR_i(189+d)$$

And where the Constituent Daily Return for Constituent i on Constituent Publication Day d (henceforth $CDR_i(d)$) is defined as:

$$CDR_i(d) = \frac{Level_i(d)}{Level_i(d-1)} - 1$$

Ap.2.3.2 Step 2: Determining the Efficient Weights

Step 2 can be divided into 2 parts (i) the Intermediate Rebalancing Weights Procedure and, (ii) the Efficient Weights Procedure. For a given value of Theta, the Intermediate Rebalancing Weights Procedure aims to produce a portfolio of Constituents that maximises the Intermediate Utility (as defined below) subject to the Allocation Constraints. The Efficient Weights Procedure repeats the Intermediate Rebalancing Weights Procedure for various values of Theta seeking a portfolio that satisfies the Short Term Volatility Constraint whilst having the greatest possible Estimated Portfolio Return.

Ap.2.3.2.1 Intermediate Rebalancing Weights Procedure

The Intermediate Rebalancing Weights Procedure proceeds by iteration, considering various weights (W_i) and applying modifications to such W_i with the aim of increasing the Intermediate Utility subject to the Allocation Constraints. Intermediate Utility is defined as:

$$\text{Intermediate Utility} = \text{EPR} - \text{Tan}(\text{Theta}) \times \sum_{i \in AC} \sum_{j \in AC} W_i \times CSTC_{i,j} \times W_j$$

Where Estimated Portfolio Return (henceforth EPR) means:

$$\text{EPR} = \sum_{i \in AC} W_i \times \text{CPR}_i ;$$

Where $\text{Tan}(\cdot)$ is the tangent function of trigonometry; and

Where for each Constituent i, W_i is the weight of that Constituent in the portfolio under consideration.

The Intermediate Utility is not directly used to calculate W_i in the Intermediate Rebalancing Weights Procedure. However, the mathematical derivative of the Intermediate Utility, MIU_i (as defined below), is used to identify either i) the pair of Constituents i,j whose weight may be increased and decreased respectively in equal amounts without contravening the Allocation Constraints and simultaneously improving the Intermediate Utility at the greatest rate or ii) a single Constituent i whose weight may be increased without contravening the Allocation Constraints and simultaneously improving the Intermediate Utility at the greatest rate or iii) a single Constituent j whose weight may be decreased without contravening the Allocation Constraints, whilst improving the Intermediate Utility at the greatest rate. Whichever of the modifications to the weight(s) described in i), ii) and iii) above improves the Intermediate Utility at the greatest rate shall be selected.

Ap.2.3.2.1.1 Intermediate Rebalancing Weights Procedure: Initial Weights

The initial value of all weights W_i shall be set to zero.

Ap.2.3.2.1.2 Intermediate Rebalancing Weights Procedure: Calculating the Marginal Intermediate Utility

The Marginal Intermediate Utility for each Constituent i (henceforth MIU_i) shall be calculated for the current set of weights W_i as follows:

$$MIU_i = \text{Round}(CPR_i - \text{Tan}(\text{Theta}) \times 2 \times \sum_{j \in AC} CSTC_{i,j} \times W_j, 12)$$

Where $\text{Round}(x,y)$ is defined in Annex 2. Rounding is performed so that if very similar values of MIU_i are obtained for different values of i , only one (pair of) Constituent(s), as the case may be, can be chosen for modification regardless of who performs the calculation.

Ap.2.3.2.1.3 Intermediate Rebalancing Weights Procedure: Calculating PairSlack_{i,j}

For each Constituent pair i,j , $\text{PairSlack}_{i,j}$ (as defined) specifies the maximum amount by which the weight of Constituent i may be increased and the weight of Constituent j may be decreased.

$\text{GrossPairSlack}_{i,j}$ prevents the weights of Constituents i and j from switching from strictly positive to strictly negative or vice versa in a single iteration. This restriction is applied for simplicity since the impact on the gross weight of increasing or decreasing a weight changes as a weight switches from positive to negative or vice versa. In any case, as a weight is increased from negative to zero or decreased from positive to zero in one iteration the same weight may be eligible for a further change in the same direction in the following iteration since it will no longer be strictly negative or strictly positive respectively.

For a pair of Constituents i,j the $\text{PairSlack}_{i,j}$ shall be calculated as:

$$\text{PairSlack}_{i,j} = \text{Min}(\text{AssetPairSlack}_{i,j}, \text{GrossPairSlack}_{i,j})$$

Where:

$$\text{AssetPairSlack}_{i,j} = \text{Min}(\text{MaxAW} - W_i, W_j - \text{MinAW})$$

Where:

$$\text{GrossPairSlack}_{i,j} = \begin{cases} \text{Min}(-W_i, W_j) & \text{if } W_i < 0 \text{ and } W_j > 0 \\ -W_i & \text{if } W_i < 0 \text{ and } W_j \leq 0 \\ W_j & \text{if } W_i \geq 0 \text{ and } W_j > 0 \\ 0.5 \times (\text{GrossCap} - \text{CurrentGross}) & \text{if } W_i \geq 0 \text{ and } W_j \leq 0 \end{cases}$$

Where:

$$\text{CurrentGross} = \sum_{i \in AC} \text{Abs}(W_i)$$

And where $\text{Abs}(\cdot)$ is the absolute function defined as:

$$\text{Abs}(x) = \begin{cases} x & \text{if } x \geq 0 \\ -x & \text{Otherwise} \end{cases}$$

Ap.2.3.2.1.4 Intermediate Rebalancing Weights Procedure: Selecting the best pair of Constituents i, j

The Pair Marginal Intermediate Utility (henceforth PairMIU_{i,j}) for the pair of Constituents i,j reflects the rate of change of the Intermediate Utility as W_i and W_j are increased and decreased respectively. In the event that PairSlack_{i,j} is zero or virtually zero (see ConstraintEpsilon below) i.e. it is not feasible to increase W_i and decrease W_j, PairMIU_{i,j} shall be zero.

The pair of Constituents i,j with the Maximum Pair Marginal Intermediate Utility (henceforth MaxPairMIU_{i,j}) is the pair which produces the maximum positive change in the Intermediate Utility per unit of weight added to W_i and subtracted from W_j. If there is more than one pair of Constituents with the Maximum Pair Marginal Intermediate Utility, the pair for which Constituent i is first in the list in Table Ap.2 - 2: Constituents of Optimax Plus Index shall be selected. If there is still more than one pair of Constituents with the Maximum Pair Marginal Intermediate Utility, the pair for which Constituent j is first in the list in Table Ap.2 - 2: Constituents of Optimax Plus Index shall be selected. Hereafter, i_{best} and j_{best} will designate the Constituent i and the Constituent j thus selected.

For each pair of Constituents i,j the PairMIU_{i,j} shall be calculated as:

$$\text{PairMIU}_{i,j} = \begin{cases} \text{MIU}_i - \text{MIU}_j & \text{if } \text{PairSlack}_{i,j} > \text{ConstraintEpsilon} \\ 0 & \text{Otherwise} \end{cases}$$

Where ConstraintEpsilon is defined to be 0.000000001.

The MaxPairMIU shall be calculated as:

$$\text{MaxPairMIU} = \text{Max}_{i \in \text{AC}, j \in \text{AC}} \text{PairMIU}_{i,j}$$

Ap.2.3.2.1.5 Intermediate Rebalancing Weights Procedure: Calculating UpSlack_i

For each Constituent i, UpSlack_i (as defined) specifies the maximum amount by which the weight of Constituent i may be increased.

GrossUpSlack_i prevents the weight of Constituents i from switching from strictly negative to strictly positive in a single iteration. This restriction is applied for simplicity since the impact on the gross weight of increasing a weight changes as a weight switches from negative to positive. In any case, as a weight is increased from negative to zero in one iteration the same weight will be eligible for a further change in the same direction in the following iteration since it will no longer be strictly negative.

For a Constituent i the UpSlack_i shall be calculated as:

$$\text{UpSlack}_i = \text{Min}(\text{AssetUpSlack}_i, \text{GrossUpSlack}_i, \text{NetUpSlack}_i)$$

Where:

$$\text{AssetUpSlack}_i = \text{MaxAW} - W_i$$

Where:

$$\text{GrossUpSlack}_i = \begin{cases} -W_i & \text{if } W_i < 0 \\ \text{GrossCap} - \text{CurrentGross} & \text{Otherwise} \end{cases}$$

Where:

$$\text{CurrentGross} = \sum_{i \in AC} \text{Abs}(W_i)$$

Where Abs(.) is the absolute function defined as:

$$\text{Abs}(x) = \begin{cases} x & \text{if } x \geq 0 \\ -x & \text{Otherwise} \end{cases}$$

Where:

$$\text{NetUpSlack}_i = \text{MaxNW} - \text{CurrentNet}$$

And where:

$$\text{CurrentNet} = \sum_{i \in AC} W_i$$

Ap.2.3.2.1.6 Intermediate Rebalancing Weights Procedure: Selecting i_{bestUp}

The Up Marginal Intermediate Utility (henceforth UpMIU_i) for the Constituent i reflects the rate of change of the Intermediate Utility as W_i is increased without any change to the weight of any other Constituent. In the event that UpSlack_i is zero or virtually zero (see ConstraintEpsilon below) i.e. it is not feasible to increase W_i , UpMIU_i shall be zero.

The Constituent i with the Maximum Up Marginal Intermediate Utility (henceforth MaxUpMIU) is the Constituent which produces the maximum positive change in the Intermediate Utility per unit of weight added to W_i . If there is more than one Constituent with the Maximum Up Marginal Intermediate Utility, the Constituent i which is first in the list in Table Ap.2 - 2: Constituents of Optimax Plus Index shall be selected. Hereafter, i_{bestUp} will designate the Constituent i thus selected.

For each Constituent i the UpMIU_i shall be calculated as:

$$\text{UpMIU}_i = \begin{cases} \text{MIU}_i & \text{if } \text{UpSlack}_i > \text{ConstraintEpsilon} \\ 0 & \text{Otherwise} \end{cases}$$

Where ConstraintEpsilon is defined to be 0.000000001.

The MaxUpMIU shall be calculated as:

$$\text{MaxUpMIU} = \text{Max}_{i \in AC} \text{UpMIU}_i$$

Ap.2.3.2.1.7 Intermediate Rebalancing Weights Procedure: Calculating DownSlack_j

For each Constituent j , DownSlack_j (as defined) specifies the maximum amount by which the weight of Constituent j may be decreased.

GrossDownSlack_j prevents the weight of Constituents j from switching from strictly positive to strictly negative in a single iteration. This restriction is applied for simplicity since the impact on the gross weight of decreasing a weight changes as a weight switches from positive to negative. In any case, as a weight is decreased from positive to zero in one iteration the same weight will be eligible for a further change in the same direction in the following iteration since it will no longer be strictly positive.

For a Constituent j the $DownSlack_j$ shall be calculated as:

$$DownSlack_j = \text{Min}(AssetDownSlack_j, GrossDownSlack_j, NetDownSlack_j)$$

Where:

$$AssetDownSlack_j = W_j - \text{MinAW}$$

Where:

$$GrossDownSlack_j = \begin{cases} + W_j & \text{if } W_j > 0 \\ GrossCap - CurrentGross & \text{Otherwise} \end{cases}$$

Where:

$$CurrentGross = \sum_{i \in AC} Abs(W_i)$$

Where $Abs(.)$ is the absolute function defined as:

$$Abs(x) = \begin{cases} x & \text{if } x \geq 0 \\ -x & \text{Otherwise} \end{cases}$$

Where:

$$NetDownSlack_j = CurrentNet - MaxNW$$

And where:

$$CurrentNet = \sum_{i \in AC} W_i$$

Ap.2.3.2.1.8 Intermediate Rebalancing Weights Procedure: Selecting $j_{bestDown}$

The Down Marginal Intermediate Utility (henceforth $DownMIU_j$) for the Constituent j reflects the rate of change of the Intermediate Utility as W_j is decreased without any change to the weight of any other Constituent. In the event that $DownSlack_j$ is zero or virtually zero (see $ConstraintEpsilon$ below) i.e. it is not feasible to decrease W_j , $DownMIU_j$ shall be zero.

The Constituent j with the Maximum Down Marginal Intermediate Utility (henceforth $MaxDownMIU$) is the Constituent which produces the maximum positive change in the Intermediate Utility per unit of weight subtracted from W_j . If there is more than Constituent with the Maximum Down Marginal Intermediate Utility, the Constituent j which is first in the list in Table Ap.2 - 2: Constituents of Optimax Plus Index shall be selected. Hereafter, $j_{bestDown}$ will designate the Constituent j thus selected.

For each Constituent j the $DownMIU_j$ shall be calculated as:

$$DownMIU_j = \begin{cases} MIU_j & \text{if } DownSlack_j > ConstraintEpsilon \\ 0 & \text{Otherwise} \end{cases}$$

Where ConstraintEpsilon is defined to be 0.000000001.

The MaxDownMIU shall be calculated as:

$$\text{MaxDownMIU} = \text{Max}_{j \in AC} \text{DownMIU}_j$$

Ap.2.3.2.1.9 Intermediate Rebalancing Weights Procedure: Choosing the Type Of Modification

The Type of Modification (henceforth *ModType*) shall be set as follows:

$$\text{ModType} = \begin{cases} \text{PairMod} & \text{if } \text{MaxPairMIU} \geq \text{MaxUpMIU} \text{ AND } \text{MaxPairMIU} \geq \text{MaxDownMIU} \\ \text{UpMod} & \text{if } \text{MaxPairMIU} < \text{MaxUpMIU} \text{ AND } \text{MaxUpMIU} \geq \text{MaxDownMIU} \\ \text{DownMod} & \text{Otherwise} \end{cases}$$

Where PairMod, UpMod and DownMod enumerate the choice of modification to made to the current weights in the following, and otherwise have no numerical significance. The choice of ModType reflects a preference to apply the type of modification that will improve the Intermediate Utility at the greatest rate, with the proviso that in the event of a tie, preference is given to PairMod over UpMod and DownMod, and to UpMod over DownMod.

PairMod means that the algorithm will increase $W_{i_{\text{best}}}$ and decrease $W_{j_{\text{best}}}$.

UpMod means that the algorithm will increase $W_{i_{\text{bestUp}}}$ without any change to the weight of any other Constituent.

DownMod means that the algorithm will decrease $W_{j_{\text{bestDown}}}$ without any change to the weight of any other Constituent.

Ap.2.3.2.1.10 Intermediate Rebalancing Weights Procedure: Setting the modification vector

The Modification Vector (henceforth *S*) shall mean:

$$S_i = \begin{cases} 1 & \text{if } (\text{ModType} = \text{PairMod} \text{ AND } i = i_{\text{best}}) \text{ OR } (\text{ModType} = \text{UpMod} \text{ AND } i = i_{\text{bestUp}}) \\ -1 & \text{if } (\text{ModType} = \text{PairMod} \text{ AND } i = j_{\text{best}}) \text{ OR } (\text{ModType} = \text{DownMod} \text{ AND } i = j_{\text{bestDown}}) \\ 0 & \text{Otherwise} \end{cases}$$

S shall be used to modify the weights, increasing the weight assigned to Constituent i_{best} or i_{bestUp} and/or decreasing the weight assigned to Constituent j_{best} or j_{bestDown} .

Ap.2.3.2.1.11 Intermediate Rebalancing Weights Procedure: Revising the weights

An upper bound for the amount by which the weight of i_{best} and j_{best} , i_{bestUp} or j_{bestDown} could be changed is set out in sections Ap.2.3.2.1.3, Ap.2.3.2.1.5 and Ap.2.3.2.1.7 respectively. The actual amount by which the weights will be changed is determined by *X*:

$$X = \begin{cases} \text{Min}\left(\text{RelevantSlack}, \frac{k_0}{2 \times k_1}\right) & \text{if } k_1 \neq 0 \\ \text{RelevantSlack} & \text{Otherwise} \end{cases}$$

Where:

$$\text{RelevantSlack} = \begin{cases} \text{PairSlack}_{i_{\text{best}}, j_{\text{best}}} & \text{if } \text{ModType} = \text{PairMod} \\ \text{UpSlack}_{i_{\text{bestUp}}} & \text{if } \text{ModType} = \text{UpMod} \\ \text{DownSlack}_{j_{\text{bestDown}}} & \text{if } \text{ModType} = \text{DownMod} \end{cases}$$

Where:

$$k_0 = \sum_{i \in AC} S_i \times \left(\text{CPR}_i - \text{Tan}(\text{Theta}) \times 2 \times \sum_{j \in AC} \text{CSTC}_{i,j} \times W_j \right)$$

And where:

$$k_1 = \text{Tan}(\text{Theta}) \times \sum_{i \in AC} \sum_{j \in AC} S_i \times \text{CSTC}_{i,j} \times S_j$$

Then the weight(s) W_i is(are) each modified as follows, noting that this modification has no impact for Constituent i other than i_{best} and j_{best} if PairMod is applicable, or other than i_{bestUp} if UpMod is applicable or other than j_{bestDown} if DownMod is applicable :

$$W_i \mapsto W_i + S_i \times X$$

Note that throughout this document the symbol ' \mapsto ' represents assignment, meaning that the variable on the left hand side of the symbol is revised to be (i.e. its value is overwritten take) the value on the right hand side. This symbol has been used in preference to the symbol '=' to avoid confusion in cases where the expression on the right hand side refers to the old value of the variable on the left hand side.

Ap.2.3.2.1.12 Intermediate Rebalancing Weights Procedure: Rounding the W_i

Finally, the weight(s) is(are) rounded as follows:

$$W_i \mapsto \text{Round}(W_i, 15)$$

Note that in the case that ModType equals PairMod, only the weights of Constituents i_{best} and j_{best} have been modified; in the case that ModType equals UpMod, only the weight of Constituent i_{bestUp} has been modified; in the case that ModType equals DownMod, only the weight of Constituent j_{bestDown} has been modified. Correspondingly only this(these) weight(s) will be affected by rounding.

Ap.2.3.2.1.13 Intermediate Rebalancing Weights Procedure: Iteration and Termination

The steps described in sections Ap.2.3.2.1.2 to Ap.2.3.2.1.12 will be repeated for the given value of Theta until any of the Intemediate Rebalancing Weights Procedure Termination Conditions (henceforth the IRWPTCs), described in sections Ap.2.3.2.1.13.1 to Ap.2.3.2.1.13.3, is met.

Ap.2.3.2.1.13.1 Intermediate Rebalancing Weights Procedure Termination Condition 1

Intermediate Rebalancing Weights Procedure Termination Condition 1 is met if the net effect of the two steps described in sections Ap.2.3.2.1.11 and Ap.2.3.2.1.12 is to leave all weights W_i equal to the values they had before performing those steps.

That is, either the value of X was zero, so that step Ap.2.3.2.1.11 had no effect, or the value of X was sufficiently small that after the rounding in step Ap.2.3.2.1.12 the net effect was zero.

Ap.2.3.2.1.13.2 Intermediate Rebalancing Weights Procedure Termination Condition 2

Intermediate Rebalancing Weights Procedure Termination Condition 2 is met if, MaxPairMIU, MaxUpMIU and MaxDownMIU are all less than MIUEpsilon (defined to be 0.00001).

Ap.2.3.2.1.13.3 Intermediate Rebalancing Weights Procedure Termination Condition 3

Intermediate Rebalancing Weights Procedure Termination Condition 3 is met if the steps described in sections Ap.2.3.2.1.2 to Ap.2.3.2.1.12 have been repeated 1000 times.

Ap.2.3.2.1.13.4 Consequences of Intermediate Rebalancing Weights Procedure Termination Conditions

As soon as one of the Intermediate Rebalancing Weights Procedure Termination Condition has been met for the given value of Theta, the Intermediate Rebalancing Weights Procedure finishes and for each Constituent i, $IRW_i(\Theta) = W_i$. (For the avoidance of doubt, W_i refers to the W_i under consideration when any of the Intermediate Rebalancing Weights Procedure Termination Conditions has been met.)

Ap.2.3.2.2 Efficient Weights Procedure

The Efficient Weights Procedure is an iterative process that repeats the Intermediate Rebalancing Weights Procedure for various values of Theta, seeking a portfolio that satisfies the Short Term Volatility Constraint whilst having the greatest possible Estimated Portfolio Return. The first values for Theta will be zero and $\pi/2$. Each new value considered for Theta will be half way between the two previous values known to be too high (corresponding to a Short Term Volatility that is too low) and too low (corresponding to a Short Term Volatility that is too high).

Given a set of weights $IRW_i(\Theta)$ produced by the Intermediate Rebalancing Weights Procedure, the Short Term Volatility (henceforth $STV(\Theta)$) of the portfolio of Constituents with those weights is defined as:

$$STV(\Theta) = \sqrt{\sum_{i \in AC} \sum_{j \in AC} IRW_i(\Theta) \times CSTC_{i,j} \times IRW_j(\Theta)}$$

$STV(\pi/2)$ shall be deemed to have value 0. The Short Term Volatility Constraint will be considered to be satisfied for a set of weights $IRW_i(\Theta)$ if $STV(\Theta)$ is less than or equal to the VolCap.

The Efficient Weights Procedure is executed as follows:

Ap.2.3.2.2.1 Efficient Weights Procedure: Theta = 0 Case

The Intermediate Rebalancing Weights Procedure is first executed for $\Theta = 0$. In the case that the Short Term Volatility Constraint is satisfied, the Efficient Weights Procedure has finished, resulting in the efficient weights for each Constituent i (*Efficient Weights* or EW_i) being equal to $IRW_i(0)$.

Otherwise, the High Volatility Theta (henceforth *HighVolTheta*) shall be set to 0, and the Low Volatility Theta (henceforth *LowVolTheta*) shall be set to $\pi/2$. These values form upper and lower bounds respectively for the optimal value of Theta since for $\Theta = 0$ it has been determined that the corresponding Short Term Volatility is too high and for $\Theta = \pi/2$ the portfolio has only zero weights and hence zero Expected Portfolio Return. Step Ap.2.3.2.2.2 will then be repeated until any of the Efficient Weights Procedure Termination Conditions (henceforth the *EWPTC*) is met, as described in section Ap.2.3.2.2.3.

Ap.2.3.2.2.2 Efficient Weights Procedure: Finding the optimal value of Theta

Theta shall be set as follows:

$$\text{Theta} \mapsto \frac{1}{2}(\text{LowVolTheta} + \text{HighVolTheta})$$

and the Intermediate Rebalancing Weights Procedure shall be executed for this value of Theta.

LowVolTheta and HighVolTheta will then be set as follows:

$$\text{LowVolTheta} \mapsto \begin{cases} \text{Theta} & \text{if } \text{STV}(\text{Theta}) \leq \text{VolCap} \\ \text{LowVolTheta} & \text{Otherwise} \end{cases}$$
$$\text{HighVolTheta} \mapsto \begin{cases} \text{HighVolTheta} & \text{if } \text{STV}(\text{Theta}) \leq \text{VolCap} \\ \text{Theta} & \text{Otherwise} \end{cases}$$

Ap.2.3.2.2.3 Efficient Weights Procedure Termination Conditions

Ap.2.3.2.2.3.1 Efficient Weights Procedure Termination Condition 1

The Efficient Weights Procedure Termination Condition 1 is met if:

$$\text{STV}(\text{HighVolTheta}) - \text{STV}(\text{LowVolTheta}) \leq \text{VolEpsilon}$$

Where the Short Term Volatility Epsilon (henceforth *VolEpsilon*) is defined to be 0.0001

Ap.2.3.2.2.3.2 Efficient Weights Procedure Termination Condition 2

The Efficient Weights Procedure Termination Condition 2 is met if:

$$\text{LowVolTheta} - \text{HighVolTheta} \leq \text{ThetaEpsilon}$$

Where ThetaEpsilon is defined to be 0.00000000001.

Ap.2.3.2.2.3.3 Consequences of Efficient Weights Procedure Termination Conditions

When any of the Efficient Weights Procedure Termination Conditions has been met, the efficient weights for each Constituent *i* resulting from the Efficient Weights Procedure (*Efficient Weights* or *EW_i*) are:

$$\text{EW}_i = \text{ITW}_i(\text{HighVolTheta}) \quad \text{if } \text{STV}(\text{HighVolTheta}) \leq \text{VolCap}$$

$$\text{EW}_i = \text{ITW}_i(\text{LowVolTheta}) \quad \text{Otherwise}$$

Ap.2.3.3 Step 3: Scaling Weights To Satisfy The Long Term Volatility Constraint

Ap.2.3.3.1 Determining the Long Term Volatility

The Long Term Volatility of the portfolio of Constituents produced by the Efficient Weights Procedure shall be calculated as:

$$LTV = \sqrt{252} \times \sqrt{\frac{1}{251} \left(\sum_{d=1}^{252} PDR(d)^2 - \frac{1}{252} \left(\sum_{d=1}^{252} PDR(d) \right)^2 \right)}$$

Where the Portfolio Daily Return on Constituent Publication Day d (henceforth $PDR(d)$) shall be calculated as:

$$PDR(d) = \frac{PL(d)}{PL(d-1)} - 1$$

And where the Portfolio Level on Constituent Publication Day d , where d may vary between 0 and 252, both inclusive (henceforth $PL(d)$) shall be calculated as:

$$PL(d) = \begin{cases} 100 & \text{if } d = 0 \\ PL(d-1) \times \left(1 + \sum_{i \in AC} EW_i \times CDR_i(d) \right) & \text{Otherwise} \end{cases}$$

Ap.2.3.3.2 Scaling the Weights

If the Long Term Volatility Constraint is satisfied, then the Efficient Weights shall not be scaled.

Otherwise, the Efficient Weights will be reduced so that such portfolio of Constituents complies with the Long Term Volatility Constraint. The Efficient Weights shall be modified as follows:

$$EW_i \mapsto EW_i \times LTVRC$$

Where the Long Term Volatility Rescaling Constraint (henceforth $LTVRC$) is calculated as follows:

$$LTVRC = \frac{VolCap}{LTV}$$

The EW_i thus produced are the result of the Weights Scaling Procedure.

Ap.2.3.4 Step 4: Rounding the Weights

The Rebalancing Weight for each Constituent i in the set of Constituents, which pertains to the n^{th} rebalancing date (henceforth $RW_i(RD_n)$) shall be calculated from the Efficient Weight EW_i resulting from the Weights Scaling Procedure as follows:

$$RW_i(RD_n) = RoundDown(EW_i, 4)$$

Where the function $RoundDown(x, y)$ is defined in Annex 2.

Ap.2.4 The Constituents of Optimax Plus Index

Table Ap.2 - 2: Constituents of Optimax Plus Index below sets out the Constituents of the Optimax Plus Index, each a single component sub-index of the S&P GSCI excess return (USD) index. Table Ap.2 - 2 also shows the Bloomberg® ticker for each Constituent (where applicable) for ease of identification.

Constituent	Bloomberg® ticker
Natural gas	SPGCNGP
Lead	SPGCILP
Gas oil	SPGCGOP
Brent Crude	SPGCBRP
Gold	SPGCGCP
Wheat	SPGCWHP
Soybean	SPGCSOP
Sugar	SPGCSBP
Coffee	SPGCKCP
Copper	SPGCICP
Aluminium	SPGCIAP
ULR Gasoline	SPGCHUP
Heating oil	SPGCHOP
Corn	SPGCCNP
WTI Crude Oil	SPGCCLP
Silver	SPGCSIP
Zinc	SPGCIZP
Nickel	SPGCIKP

Table Ap.2 - 2: Constituents of Optimax Plus Index

Table Ap.2 - 3: Seasonal Constituents below shows the set of Seasonal Constituents.

Seasonal Constituents
Corn
Soybeans
Wheat
Coffee
Sugar
Gas Oil
Heating Oil
ULR Gasoline
Natural Gas

Table Ap.2 - 3: Seasonal Constituents

Notwithstanding anything to the contrary, the Constituents set forth in Tables Ap. 2-2 and Ap. 2-3 may be amended from time to time in accordance with the provisions set forth under Section 8 (*Extraordinary Events*) of these Rules.

For the avoidance of doubt, if on any Rebalancing Date, Constituents in the Basket are to be substituted by New Constituents, any references in the Weighting Algorithm performed on the Rebalancing Observation Date immediately preceding such Rebalancing Date to Constituent i or Constituent j shall be deemed to be to the New Constituents.

Ap.2.5 JPMorgan Optimax Plus Index Value Calculation

The Optimax Plus Index was first calculated on 6th May 2008 (the *First Optimax Valuation Day*) with a starting value of 100:

$$\text{CMDTOPER}(t_0) = 100$$

In accordance with the formulae below, the JPMorgan Optimax Plus Index Value (henceforth the *Optimax Plus Index Value*) on the zero-th Rebalancing Date ($\text{RD}_0 = 24^{\text{th}}$ April 2008) is defined as:

$$\text{CMDTOPER}(\text{RD}_0) = 100.0027$$

At the close of each Optimax Valuation Day t (the *Relevant Optimax Valuation Day*) the Optimax Plus Index Value shall be calculated by the Optimax Calculation Agent in accordance with the following formula:

$$\text{CMDTOPER}(t) = \text{CMDTOPER}(\text{RD}_{n-1}) \times \left[1 + \sum_{i \in \text{AC}} \text{RW}_i(\text{RD}_{n-1}) \times \left(\frac{\text{Level}_i(t)}{\text{Level}_i(\text{RD}_{n-1})} - 1 \right) \right] \times (1 - \text{RAF}_t)$$

Where:

$\text{CMDTOPER}(t)$ is the Optimax Plus Index Value on the Relevant Optimax Valuation Day.

n is the number of Rebalancing Dates from, and including, the zero-th Rebalancing Date to, and including, RD_{n-1} .

RD_{n-1} is the Rebalancing Date immediately preceding the Relevant Optimax Valuation Day.

$\text{Level}_i(t)$ is the USD Level of Constituent i at the close of the Relevant Optimax Valuation Day t .

$\text{Level}_i(\text{RD}_{n-1})$ is the USD Level of Constituent i at the close of the Rebalancing Date immediately preceding the Relevant Optimax Valuation Day.

$\text{RW}_i(\text{RD}_{n-1})$ is the Rebalancing Weight of the Constituent i implemented at the close of the Rebalancing Date immediately preceding the Relevant Optimax Valuation Day.

RAF_t is defined in Annex 1

$\text{CMDTOPER}(\text{RD}_{n-1})$ is the Optimax Plus Index Value on the Rebalancing Date immediately preceding the Relevant Optimax Valuation Day, rounded to 4 decimal places.

For the avoidance of doubt on each Rebalancing Date RD_n the Optimax Plus Index Value shall be defined as follows:

$$\text{CMDTOPER}(\text{RD}_n) = \text{CMDTOPER}(\text{RD}_{n-1}) \times \left[1 + \sum_{i \in \text{AC}} \text{RW}_i(\text{RD}_{n-1}) \times \left(\frac{\text{Level}_i(\text{RD}_n)}{\text{Level}_i(\text{RD}_{n-1})} - 1 \right) \right] \times (1 - \text{RAF}_t)$$

Where:

$\text{Level}_i(\text{RD}_n)$ is the USD Level of Constituent i at the close of RD_n

* The above calculations include the Optimax Replication Adjustment Factor, which is deducted from the Optimax Plus Index Value on each Optimax Valuation Day at a rate of 96 basis points per annum on an actual/360 basis, and the specific calculation of which is expressed in Annex 1.

Notwithstanding the forgoing formulae, the Optimax Plus Index Value shall never fall below zero. In the case that the forgoing formulae would determine a negative value, the Optimax Plus Index Value shall be defined to be zero.

Ap.2.6 Publication of the Optimax Plus Index Value

The Optimax Plus Index Value will be published on the Bloomberg[®] ticker CMDTOPER provided that, as described in paragraph 7.3 (*Optimax Valuation Day*) of these Rules, the Optimax Calculation Agent shall not be obliged to publish the Optimax Plus Index Value for any day which is a Disrupted Day in respect of any Constituent. The Optimax Plus Index Value will be reported to four (4) decimal places (although the Optimax Calculation Agent may maintain a record of the Optimax Plus Index Value with greater precision for internal purposes) on every Optimax Valuation Day. For the avoidance of doubt, the Optimax Calculation Agent will be under no obligation to any person to provide the Optimax Plus Index Value by any alternative method if CMDTOPER is subject to any delay in or interruptions of publication or any act of God, act of governmental authority, or act of public enemy, or due to war, the outbreak or escalation of hostilities, fire, flood, civil commotion, insurrection, labour difficulty including, without limitation, any strike, other work stoppage, or slow-down, severe or adverse weather conditions, power failure, communications line or other technological failure may occur or any other event beyond the control of the Optimax Calculation Agent.

Ap.2.7 Additional Risk Factors specific to the Optimax Plus Index

In addition to the general risk factors set out in Annex 4 of these Rules, the following risk factors are all relevant to the Optimax Plus Index:

Ap.2.7.1 The use of a “long-short strategy”

The Optimax Plus Index employs a technique generally known as “long-short” strategy. This means the Optimax Plus Index could include a number of notional long positions and a number of notional short positions. Unlike long positions, short positions are theoretically subject to unlimited risk of loss because there is no limit on the amount by which the price of the relevant asset may appreciate before the short position is closed. The Optimax Plus Index may engage in notional short positions in accordance with the Optimax Plus Index Calculation Algorithms set out in this Appendix and it is therefore possible that during the time from, but excluding, one Rebalancing Date to, and including, the next following Rebalancing Date any notional short position included in the Optimax Plus Index may appreciate substantially with an adverse impact on the Optimax Plus Index Value.

Also, due to the short positions the Optimax Plus Index Value could potentially fall to zero without any of the Constituents falling to zero.

Ap.2.7.2 Use of Leverage

The Optimax Plus Index allows the sum of the absolute values of the Rebalancing Weights to exceed 100% (limited to 250% by the Gross Weight Constraint described in Section Ap.2.2.1.3). This is described as leverage.

The maximum of the sum of the positive Rebalancing Weights is effectively constrained to be 175% by the combined effect of the Gross Weight Constraint and the Net Weight Constraint. This sum is so constrained, since if the sum were greater than 175%, the sum of the negative Rebalancing Weights would have to be less than -75% (in order to satisfy the Net Weight Constraint) leading to a Gross Weight greater than 250%, which would violate the Gross Weight Constraint. Similarly the minimum of the sum of the negative Rebalancing Weights is effectively constrained to be -175%. These effective constraints are subject to the caveats described in An.4.7 Satisfaction of Constraints.

The Optimax Plus Index Value could potentially change by a greater percentage than the percentage change in any of the Constituents over a given period of time. For example, it might be that the Rebalancing Weights

included a total of 125% from the Long Leg (as defined below) and -125% from the Short Leg (as defined below) and that the USD Levels of all Constituents in the Long Leg went down by 5% and the USD Levels of all Constituents in the Short Leg went up by 5%, leading to the Optimax Plus Index Value going down by 12.5%. Here the Short Leg means the set of Constituents which have been given negative Rebalancing Weights, and the Long Leg means the set of Constituents which have been given positive Rebalancing Weights.

Also, due to the leverage the Optimax Plus Index Value could potentially fall to zero without any of the Constituents falling to zero.

Ap.2.7.3 Diversification of Sectors

It is generally considered that diversification among sectors within an asset class may reduce the volatility of a portfolio since the correlation between sectors is generally lower than between assets in the same sector (where a sector is a conventional grouping of Constituents of a similar nature or use, such as Industrial Metals or Energy). The Optimax Plus Index does not include any Constraint on sector diversification. This means that the net exposure to a single sector is limited only indirectly by the Constraints.

Although the rules for the Optimax Plus Index do not define sectors, it is possible that at any time the Rebalancing Weights of the Optimax Plus Index may be significantly greater for the Constituents that the market generally regards as belonging to a particular sector than for the Constituents that the market generally regards as belonging to other sectors. In such circumstances, a change in the USD Level for such Constituents may significantly outweigh the effect of a change in the USD Level of the Constituents belonging to other sectors. For example, there are six Constituents which are generally regarded as belonging to the energy sector (WTI Crude Oil, Brent Crude, Natural Gas, Gas Oil, Heating Oil and ULR Gasoline). The Rebalancing Weight for each of these Constituents may be as high as 25% (or as low as -25%) resulting in a total weight among such Constituents of 150% (or -150%) as determined by the Asset Weight Constraint. In this case a change in USD Level of each Constituent in the energy sector of, for example, 10% could impact the Optimax Plus Index Level by 15% either positively or negatively.

It is possible that at any time the Rebalancing Weights of the Optimax Plus Index shall be non-zero for Constituents from a single sector and zero for all Constituents from other sectors. In this case, for any potential losses due to changes in the USD Levels of Constituents with non-zero Rebalancing Weights there is no possibility that there might be offsetting gains due to changes in the USD Levels of Constituents from other sectors.

Ap.2.7.4 Level of VolCap

Generally, volatility measures the variability of returns of an asset and in some sense provides a measure of the risk of holding that asset.

The Optimax Plus Index targets a volatility of 12% (the VolCap). In addition to the risk factor described in An.4.5, it should be noted that the level of VolCap might be considered high in relation to the historical realised volatility of certain other assets.

Annex 1 Replication Adjustment Factor Calculation

An.1.1 Replication Adjustment Factor Calculation

On each Optimax Valuation Day, the Replication Adjustment Factor (the *Optimax Replication Adjustment Factor*) is defined as:

$$RAF_t = 1 - \left(1 - \frac{0.96}{100} \right)^{\frac{\text{CalendarDays}}{360}}$$

Where:

Calendar Days is the number of calendar days from, and including, the Rebalancing Date immediately preceding the Relevant Optimax Valuation Day to, but excluding, the Relevant Optimax Valuation Day.

Annex 2 The functions Round(x,y) and RoundDown(x,y)

Round(x,y) shall be the function that rounds the decimal number x to the y^{th} digit after the decimal place, as illustrated in Table An.2 - 1: Round(x,y) below, rounding to the nearest available number. Where the last (non-zero) digit of x is a 5 and is at the $(y+1)^{\text{th}}$ decimal place, x shall be rounded up in the case that x is positive, and down in the case that x is negative.

x	y	Round(x,y)
0.1234567	3	0.123
0.1234567	4	0.1235
0.1234567	5	0.12346
0.1234567	6	0.123457
-0.15	1	-0.2
-0.05	1	-0.1
0.05	1	0.1
0.15	1	0.2

Table An.2 - 1: Round(x,y)

RoundDown(x, y) shall be the function that rounds down (in magnitude) the decimal number x to the y^{th} digit after the decimal place, i.e. RoundDown(x, y) is the unique number that i) has no (non-zero) digits after the y^{th} decimal place and ii) has the same sign as x (or is zero) and iii) has the greatest possible magnitude (given the foregoing) not exceeding the magnitude of x . RoundDown(x, y) is illustrated in Table An.2 - 2: RoundDown(x, y) below.

x	y	RoundDown(x,y)
0.1234567	3	0.123
0.1234567	4	0.1234
0.1234567	5	0.12345
0.1234567	6	0.123456
-0.15	1	-0.1
-0.05	1	0
0.05	1	0
0.15	1	0.1

Table An.2 - 2: RoundDown(x, y)

Annex 3 Definitions

Terms not otherwise defined in this document shall have the following meanings:

- “AC”** means the set of all Constituents;
- “Constituent”** means a constituent of Optimax as described in the relevant Appendix of these Rules;
- “Constituent Publication Day”** means each day for which the Index Sponsor has published the USD Level of at least half of the Constituents;
- “Constraint” or “Constraints”** means, the Allocation Constraints, Short-Term Volatility Constraint and Long-Term Volatility Constraint (individually or collectively as the context requires);
- “Dealing Day”** means each day (other than a Saturday or a Sunday) (i) on which commercial banks in both New York and London are open generally for business (including for dealings in foreign exchange and foreign currency deposits), and (ii) which is a Scheduled Trading Day for all the Constituents of Optimax;
- “Disrupted Day”** means, in respect of any Constituent, a day on which a Market Disruption Event occurs or exists for such Constituent;
- “Exchange”** means, in respect of any Constituent, any exchange on which futures or options contracts relating to that Constituent are traded;
- “Hedge Disruption Event”** means, in relation to a Constituent of Optimax:
- (a) due to:
 - (i): the adoption of, or any change in, any applicable law, regulation or rule (including, without limitation, any tax law); or
 - (ii) the promulgation of, or any change in, the interpretation by any court, tribunal or regulatory authority with competent jurisdiction of any applicable law, rule, regulation or order (including, without limitation, as implemented by the U.S. Commodity and Futures Trading Commission or exchange or trading facility),
- in each case on or after the date of these Rules, the Optimax Calculation Agent determines in good faith that (x) it is contrary to such law, rule, regulation or order for a market participant or market participants (individually or collectively) to hold, acquire or dispose of (in whole or in part) any commodity futures contracts underlying such Constituent or any transaction referencing commodity futures contracts underlying such Constituent or, (y) holding a position in any commodity futures contracts underlying such Constituent or any transaction referencing any commodity futures contracts underlying such Constituent is (or, but for the consequent disposal or

termination thereof, would otherwise be) in excess of any allowable position limit(s) applicable to a market participant or market participants (individually or collectively) under any such law, rule, regulation in relation to any commodity futures contracts underlying such Constituent traded on any exchange(s) or other trading facility (including, without limitation, any Relevant Exchange);

- (b) the occurrence or existence of:
 - (i) any suspension or limitation imposed on trading commodity futures contracts underlying such Constituent, whether imposed by any Relevant Exchange or otherwise;
 - (ii) any other event that materially disrupts or impairs the liquidity of any commodity futures contracts underlying such Constituent or the ability of any market participants (individually or collectively) to effect transactions in any commodity futures contracts underlying such Constituent or causes (or will cause) trading in any commodity futures contracts underlying such Constituent to cease; or
- (c) the Optimax Calculation Agent determines in good faith that any market participants (individually or collectively) are, for any reason, unable, after using commercially reasonable efforts to:
 - (i) acquire, establish, re-establish, substitute, maintain, unwind or dispose of any position in commodity futures contracts underlying such Constituent or any transaction(s) referencing commodity futures contracts underlying such Constituent that a market participant or market participants (individually or collectively) deem necessary to hedge the price risk of entering into and performing its or their obligations under any transaction; or
 - (ii) realise, recover or remit the proceeds of any such position(s) or transaction(s).

“Index Sponsor”

means, in respect of a Constituent, the corporation or other entity that (a) is responsible for setting and reviewing the rules and procedures and the methods of calculation and adjustments, if any, related to such Constituent and (b) announces (directly or through an agent) the USD Level of such Constituent on a regular basis (as of the date of these Rules, the Index Sponsor is Standard & Poor’s);

“Limit Day”

means, in respect of a Constituent, any day on which there is a limitation on, or suspension of, the trading of options or futures contracts on the related commodity imposed by any

relevant Exchange by reason of movements exceeding “limit up” or “limit down” levels permitted by such Exchange and which, in the opinion of the Optimax Calculation Agent, is material taking into account generally prevailing trading volumes and other market conditions;

“Market Disruption Event”

means, in respect of a Constituent and a Dealing Day, the failure by the relevant Index Sponsor to calculate and publish the USD Level for such Constituent;

“Optimax”

means the Optimax family of indices collectively as described in these Rules or the relevant Optimax index, including the relevant Appendix of these Rules, as the circumstances may require;

“Optimax Calculation Agent”

has the meaning given to such term in paragraph 3 (*Optimax Calculation Agent*) of these Rules;

“Optimax Index Value”

means the Optimax Index Value in respect of the Optimax index set out in the relevant Appendix, determined in accordance with the relevant Appendix and Annex 1 (*Replication Adjustment Factor Calculation*);

“Optimax Replication Adjustment Factor”

has the meaning given to such term in paragraph 4.2 (*Calculation Method*) of these Rules;

“Optimax Valuation Day”

has the meaning given to such term in paragraph 4.1 (*Calculation Timeline*) of these Rules;

“Rebalancing Date”

means (subject to the occurrence of a Market Disruption Event) the Dealing Day of every month specified in the relevant Appendix; *provided, however* that if the Optimax Calculation Agent has declared a Hedge Disruption Event and has specified an interim Rebalancing Date, there will be an additional Rebalancing Date which will be the Dealing Day determined by the Optimax Calculation Agent in its sole and absolute discretion. Rebalancing will take effect immediately following the close of such Rebalancing Date;

“Rebalancing Observation Date”

means the sixteenth Dealing Day of every month; *provided, however* that if the Optimax Calculation Agent has declared a Hedge Disruption Event and has specified an interim Rebalancing Date, there will be an additional Rebalancing Observation Date which will be the Dealing Day determined by the Optimax Calculation Agent in its sole and absolute discretion;

“Relevant Observation Period”

means, in respect of the Rebalancing Observation Date, the chronologically ordered set of the preceding 253 Constituent Publication Days, up to and including the Rebalancing Observation Date. For the avoidance of doubt, in the case that a Rebalancing Observation Date fails to be a Constituent Publication Date, the Relevant Observation Period will still consist of 253 days, being those 253 Constituent Publication Days most recently preceding the Rebalancing Observation Date for which are not Disrupted Days for at least half of all Constituents;

“PI”	means the mathematical constant π , which for the purposes of the Weighting Algorithm shall take the value 3.14159265358979;
“Rules”	means the rules of Optimax as set out in this document (including the relevant Appendix and the Annexes), as the same may be amended, supplemented and/or restated from time to time;
“Scheduled Trading Day”	means, in respect of a Constituent, a day on which the relevant Index Sponsor is scheduled to publish the USD Level of such Constituent and the principal exchange for futures and options contracts on such Constituent is scheduled to be open for trading for its regular trading session;
“Sector”	means one of the sets of Constituents described in the relevant Appendix;
“Successor Constituent”	has the meaning given to such term in paragraph 8.1 (<i>Successor Constituent</i>) of these Rules;
Table An.x – y	means the table y in Annex x;
Table Ap.x – y	means the table y in Appendix x;
“USD”	means the lawful currency of the United States of America; and
“USD Level”	means, in respect of a Constituent i, <ul style="list-style-type: none"> a) for the purpose of calculating the Optimax Index Value: (i) the closing level of such Constituent i as calculated and published by the relevant Index Sponsor on the Relevant Optimax Valuation Day or Rebalancing Date, or (ii) in the event of circumstances set out in paragraph 7.2 of these Rules, the level on such Relevant Optimax Valuation Day or Rebalancing Date as reasonably calculated and published by the Optimax Calculation Agent, or (iii) in the event of circumstances set out in paragraph 8.1 of these Rules, the level on such Relevant Optimax Valuation Day or Rebalancing Date as calculated and published by the sponsor of the relevant Successor Constituent; and b) for the purpose of determining the Rebalancing Weights via the Weighting Algorithm: (i) the closing level of such Constituent as calculated and published by the relevant Index Sponsor on such Constituent Publication Day, or (ii) in the event of circumstances set out in paragraph 7.1 of these Rules, the closing level of such Constituent on the latest preceding day for which the relevant Index Sponsor has calculated and published the USD Level for that Constituent, or (iii) in the event of the circumstances set out in paragraph 8.1 of these Rules, the level of the Constituent on such Constituent Publication Day as calculated and published by the sponsor of the relevant Successor Constituent.

Annex 4 Risk Factors

The following list of risk factors does not purport to be a complete enumeration or explanation of all the risks associated with Optimax and should be read in conjunction with the relevant Appendix.

An.4.1 Lack of operating history

Optimax is only recently established and therefore has no history to evaluate its likely performance.

Any back-testing or similar analysis performed by any person in respect of Optimax must be considered illustrative only and may be based on estimates or assumptions not used by the Optimax Calculation Agent when determining the Optimax Index Values pursuant to these Rules.

Further, the past performance of an Optimax index should not be used as a guide to future performance of that Optimax index.

An.4.2 Synthetic Exposure to Commodities

The returns of the Constituents are calculated on an uncollateralised basis with full reinvestment. Each Constituent reflects a long position in the relevant commodity future(s). Unlike a passive equity portfolio, the commodity future(s) underlying the Constituents are rolled before maturity into longer dated contracts. They need to be rolled because although the commodity future(s) underlying the Constituents have specific maturities, the Constituents themselves have an indefinite life. Generally the commodity futures underlying the Constituents, will be the nearby futures contract (as defined by the Index Sponsor in the S&P GSCI index rules) and will be rolled on a monthly basis, except for some commodities (e.g. agricultural products) for which only a few future contracts months each year trade with sufficient liquidity.

Rolling the commodity futures underlying the Constituents will generate a profit or a loss known as the roll return that will be reflected in the USD Level of the Constituents. This roll return will be affected by a number of factors including, without limitation, whether the prices of the relevant longer dated contracts are higher or lower than the prices of the shorter dated contracts. It has to be noted that the risk of aberrational liquidity or pricing around the maturity date of a commodity futures contract is greater than in the case of other futures contracts because (amongst other factors) a number of market participants take delivery of the underlying commodities.

Prices for commodities are affected by a variety of factors, including, without limitation, changes in supply and demand relationships, governmental programmes and policies, national and international political and economic events, wars and acts of terror, changes in interest and exchange rates, trading and speculative activities in commodities and related contracts, weather, and agricultural, trade, fiscal, monetary and exchange control policies. The price volatility of each commodity also affects the value of the futures and forward contracts related to that commodity and therefore its price at any such time. The price of any one commodity may be correlated to a greater or lesser degree with any other commodity and factors affecting the general supply and demand as well as the prices of other commodities may affect the particular commodity in question. It should be noted that in respect of commodities in the energy sector, due to the significant level of its continuous consumption, limited reserves, and oil cartel controls, energy prices are subject to rapid price increases in the event of perceived or actual shortages. These factors (when combined or in isolation) may affect the price of futures contracts and, as a consequence, the performance of the Constituents and the Optimax Index Value.

The commodities markets are subject to temporary distortions or other disruptions due to various factors, including the lack of liquidity in the markets, the participation of financial investors, speculators and government regulation and intervention. These circumstances could adversely affect the price of futures contracts and, therefore, the performance of the Constituents and the Optimax Index Value.

An.4.3 Investment Strategy on which Optimax is based

Optimax is constructed using what is generally known as a momentum investment strategy, subject to certain Constraints. The assumption is that if certain assets performed well in the past they will continue to perform well in the future and if they performed poorly in the past they will continue to do so. This theory influences the Constituent Predicted Returns which are in turn used by the Weighting Algorithm to determine the Rebalancing Weight to be assigned to each Constituent (which may be positive, negative or zero). However, no assurance can be given that the theory used to determine the Constituent Predicted Returns will be effective.

No assurance can be given that the investment strategy used to construct Optimax will be successful or that Optimax will outperform any alternative portfolio that might be constructed from the Constituents.

Furthermore, it should be noted that the results that may be obtained from investing in any security or investment or otherwise participating in any transaction linked to Optimax might well be significantly different from the results that could theoretically be obtained from an investment in the Constituents, or the futures contracts underlying the Constituents or the physical commodities underlying the Constituents or any related derivatives. Such differences may arise for a number of reasons including, but not limited to, the Replication Adjustment Factor (if any) deducted from the Optimax Index Values.

An.4.4 Estimation of Returns

The Constituent Predicted Returns are notional predicted returns based on the assumption that the returns of the Constituents over the last 12-month period will have some predictive power regarding future returns. For Seasonal Constituents only, the returns of the first and last 3 months will be overweighted in comparison to the other 6 months of the 12-month period. There is no guarantee that the past returns of Constituents will be repeated in the future.

The Weighting Algorithm seeks to find the highest value of the Estimated Portfolio Return, subject to the Constraints. The Estimated Portfolio Return is based on the past returns of the Constituents and may not resemble the actual return realised by Optimax which is likely to be significantly less.

Past returns are not indicative of future returns.

An.4.5 Estimation of Volatility

The Short Term Volatility and Long Term Volatility are not a guarantee of the actual volatility which will be realised by the relevant Optimax index. Both figures are calculated on the basis of past volatilities and correlations of the Constituents and are used only as guides to the composition and total size of exposure to the Constituents. There is no guarantee that past volatilities and correlations of the Constituents will offer a good prediction of future volatilities and correlations of the Constituents.

In particular, due to the nature of the Weighting Algorithm, Rebalancing Weights will be chosen to fit the profile of volatilities and correlations of the Constituents exhibited over the past 63 Constituent Publication Days (approximately three months). In addition to variations in levels of volatility across all Constituents from time to time, variations in the relative volatilities of Constituents and in the correlations between each pair of Constituents will mean that the volatility of the relevant Optimax index may be more likely than not to exceed the relevant Volatility Cap.

An.4.6 The Weighting Algorithm

The Weighting Algorithm of each Optimax index is designed to seek the Rebalancing Weights that maximise the Estimated Portfolio Return subject to the Constraints. However, no assurance is given that the Rebalancing Weights will maximise the Estimated Portfolio Return subject to the Constraints. Indeed it is possible that an alternative algorithm applied to the same inputs would achieve a portfolio which satisfied the Constraints with a greater Estimated Portfolio Return.

An.4.7 Satisfaction of Constraints

The Weighting Algorithm is designed to respect the Constraints when selecting the Rebalancing Weights. However, rounding may introduce a minor violation of any of the Constraints, with the exception of the Gross

Weight Constraint which shall be preserved by rounding all Rebalancing Weights down (where in the case of negative weights rounding down is rounding towards zero, tending to reduce the absolute size of the individual weights and hence the gross exposure). All other Constraints may be subject to minor violations due to rounding.

In addition, since Optimax is rebalanced on a monthly basis (assuming the Optimax Calculation Agent does not select an interim Rebalancing Date with respect to a Hedge Disruption Event), between Rebalancing Dates as the performance of the Constituents vary amongst themselves, the effective dollar weights will vary from the Rebalancing Weights assigned on the Rebalancing Date. The dollar weight of a Constituent at a given point in time is the size of the position in that Constituent as a percentage of the notional size of the relevant Optimax index. Thus, immediately following the Rebalancing Date, for 1 unit of the Optimax index the exposure to Constituent i is RW_i units (i.e. the dollar weight is equal to the Rebalancing Weight), but between Rebalancing Dates, as the return of Constituent i since the previous Rebalancing Date will in general be different to the return of the whole portfolio (i.e. the Optimax index), the exposure to Constituent i will be a different percentage of the notional value of the Optimax index (i.e. the dollar weight is no longer equal to the Rebalancing Weight). In this way any of the Constraints may be violated between Rebalancing Dates.

An.4.8 Diversification

There can be no assurance that Optimax will be sufficiently diversified at any time to reduce or minimize the risks or perceived risks associated with an investment in a portfolio of risky assets. In particular, as all Constituents of Optimax are indices based on futures contracts linked to commodities, Optimax is not diversified across asset classes. Moreover, subject to the Constraints, it is possible that the weight of each Constituent of the relevant Optimax index may be zero at a given point in time.

An.4.9 Optimax Calculation Agent Discretion

The Optimax Calculation Agent is entitled to exercise certain discretions in relation to Optimax, including but not limited to:

- the determination of whether a day is a Limit Day (as further described in the Limit Day definition),
- the determination of the USD Levels to be used when calculating the Optimax Index Values in the event that there are 10 consecutive Scheduled Trading Days which are either a Disrupted Day or a Limit Day for the same Constituent,
- the publication of Optimax Index Values if a day is a Disrupted Day for any Constituent,
- substitution or exclusion of Constituents in accordance with paragraph 8,
- existence of a Hedge Disruption Event and consequences of such event and
- the modification, interpretation and adjustment of these Rules.

Although the Optimax Calculation Agent will make all determinations and take all action in relation to Optimax acting in good faith, it should be noted that such discretion could have an impact, positive or negative, on the Optimax Index Values as well as on the Constituents of any Optimax index.

An.4.10 Potential Conflicts of Interest

Potential conflicts of interest may exist in the structure and operation of Optimax and the conduct of normal business activities by the Optimax Calculation Agent and any of its affiliates or subsidiaries or any of their respective directors, officers, employees, representatives, delegates or agents (each a *Relevant Person*). Please refer to the disclaimer in Annex 5 for more information.

An.4.11 Failure by the Index Sponsor to calculate and announce USD Level for a Constituent

If the Index Sponsor fails to calculate and announce the USD Level for a Constituent, this would generally have an impact on the Weighting Algorithm and on the Optimax Index Value calculation:

- in such case the Weighting Algorithm will use the latest preceding published USD Level for such Constituent provided that if more than half the Constituents are affected, such day will not be a Constituent Publication Day; and
- the Calculation Agent may either publish the Optimax Index Value retroactively or decide not to publish an Optimax Index Value for such Disrupted Day.

However, in the same situation, the Optimax Calculation Agent may also choose to remove such Constituent from the portfolio of Constituents. The Optimax Calculation Agent will generally only take this action if the Optimax Calculation Agent reasonably believes that the Index Sponsor will no longer publish a USD Level for such Constituent.

An.4.12 Publication of Optimax Index Value

An Optimax Index Value will always be published for an Optimax Valuation Day that is also a Limit Day (but not a Disrupted Day), provided that the value published in respect of such day will be calculated retroactively as described in paragraph 7.2. However, if an Optimax Valuation Day is a Disrupted Day, the Optimax Calculation Agent may or may not publish the Optimax Index Value, in accordance with paragraph 7.2.

An.4.13 Hedge Disruption Event

If a Hedge Disruption Event occurs, the Optimax Calculation Agent may remove Constituents. Such a removal may negatively affect the performance and the diversity of the synthetic portfolio, and therefore, affect the performance and realized volatility of the Optimax indices. Additionally, the Optimax Calculation Agent may replace an affected Constituent with a New Constituent. Such a substitution may change the correlations between Constituents or introduce a potentially riskier or less performing Constituent to the potential universe of constituents. Therefore, such a substitution may adversely affect the performance and realized volatility of the Optimax indices. Following the occurrence of a Hedge Disruption Event, the Optimax Calculation Agent may also decide to cancel any Optimax indices if it determines acting in good faith and a commercially reasonable manner that the objective of the relevant Optimax Index can no longer be achieved. Finally, the occurrence of a Hedge Disruption Event may also affect the Optimax indices in an unforeseen manner, and the indices may be affected by the risks described in this paragraph or other risks that are a result of a Hedge Disruption Event.

The foregoing list of risk factors, together with the additional risk factors in the relevant Appendix for each Optimax index, is not intended to be exhaustive. Anyone reading these Rules should seek such advice as they consider necessary from their professional advisors, legal, tax or otherwise, without reliance on any Relevant Person to satisfy themselves that they fully understand these Rules and the risks associated with Optimax and any particular Optimax index.

Annex 5 Notices, Disclaimers and Conflicts

An.5.1 Notices, Disclaimers and Conflicts

These Rules have been prepared solely for informational purposes and nothing herein constitutes an offer to buy or sell any securities, participate in any transaction or adopt any investment strategy or as legal, tax regulatory or accounting advice. The Rules are of the date specified above and may change at any time without prior notice.

Neither the Optimax Calculation Agent nor any of its affiliates or subsidiaries or their respective directors, officers, employees, representatives, delegates or agents (each a *Relevant Person*) make any representation or warranty, whatsoever, express or implied, as to the results that may be obtained through the use of these Rules or Optimax. Each Relevant Person hereby expressly disclaims, to the fullest extent permitted by law, all warranties of accuracy, completeness, merchantability, or fitness for a particular purpose with respect to any information contained in this document and no Relevant Person shall have any liability (direct or indirect, special, punitive, consequential or otherwise) to any person even if notified of the possibility of any such damages.

The Optimax Calculation Agent is under no obligation to continue the calculation, publication and dissemination of any Optimax index or any Optimax Index Value.

During the course of their normal business, the Optimax Calculation Agent or any other Relevant Person may enter into or promote, offer or sell transactions or investments (structured or otherwise) linked to Optimax and/or any of the Constituents. In addition, any Relevant Person may have, or may have had, interests or positions, or may buy, sell or otherwise trade positions in or relating to Optimax or any of the Constituents, or may invest or engage in transactions with other persons, or on behalf of such persons relating to any of these items. Such activity may or may not have an impact on the Optimax Index Values but all persons reading these Rules should be aware that a conflict of interest could arise where anyone is acting in more than one capacity. Neither the Optimax Calculation Agent nor any other Relevant Person has any duty to consider the circumstances of any person when participating in such transactions or to conduct themselves in a manner that is favourable to any person.

It should be noted that the Rules have been developed with the possibility of the Optimax Calculation Agent or any of the Relevant Persons entering into or promoting, offering or selling transactions or investments (structured or otherwise) linked to Optimax, and hedging the obligations that might arise under any such transactions or investments. Accordingly it should be assumed that these Rules have and will be analyzed from this point of view.

As mentioned above, it should be noted that Optimax is described as a notional portfolio of assets because there is no actual portfolio of assets to which any person is entitled or in which any person has any ownership interest. Optimax merely identifies certain assets in the market, the performance of which will be used as a reference point for the purposes of calculating the Optimax Index Values.

Also as mentioned above, it should be noted that a Replication Adjustment Factor will be deducted on each Optimax Valuation Day from the Optimax Index Value at a rate of ninety-six basis points (0.96%) per annum (the *Optimax Replication Adjustment Factor*).

There is no obligation upon the Optimax Calculation Agent to publish the Optimax Index Values by any alternative method if the relevant Bloomberg ticker (as identified in the relevant Appendix) is subject to any delay in or interruptions of publication or any act of God, act of governmental authority, or act of public enemy, or due to war, the outbreak or escalation of hostilities, fire, flood, civil commotion, insurrection, labour difficulty including, without limitation, any strike, other work stoppage, or slow-down, severe or adverse weather conditions, power failure, communications line or other technological failure may occur or any other event beyond the control of the Optimax Calculation Agent.

No one may reproduce or disseminate the information contained in these Rules or the Optimax Index Values without the prior written consent of the Optimax Calculation Agent. JPMorgan Optimax is the intellectual property of the Optimax Calculation Agent and may only be used (as an underlying for financial products or otherwise) by third parties who have entered into a license agreement with the Optimax Calculation Agent.

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