

Risk Disclosure Statements

ISDA General Disclosure Statement for Transactions 1

ISDA Disclosure Annex for Foreign Exchange Transactions 56

ISDA Disclosure Annex for Interest Rate Transactions66

ISDA Disclosure Annex for Commodity Derivative Transactions..... 82

As a registered swap dealer, PNC Bank is required under Title VII of the Dodd Frank Act to disclose to you certain material information concerning your swap, including the material risks associated with your swap (which may include market risk, credit risk, liquidity risk, foreign currency risk, legal risk, operational risk and other applicable risks). These ISDA risk disclosures delivered to you by PNC Bank are intended to enable you to assess the material risks of your swaps with PNC Bank. Please contact your PNC Bank representative with any questions.

The General Disclosure Statement should be read in conjunction with the product-specific disclosures for foreign exchange transactions, commodity derivative transactions and interest rate transactions, depending on the type or types of transactions you are entering into with PNC Bank.

These risk disclosures have been created by the International Swaps and Derivatives Association, Inc. (‘ISDA’). In no event may any copyright or trademark notice from the ISDA be removed therefrom. The use of these risk disclosures should be undertaken only after securing appropriate legal advice on their respective provisions, and ISDA makes no warranty or assurance, express or implied, concerning the suitability of these risk disclosures for use in any particular transaction and bears no responsibility or liability whatsoever, whether in tort or in contract, in respect of any use of these risk disclosures.



International Swaps and Derivatives Association, Inc.

General Disclosure Statement for Transactions

I. INTRODUCTION

A. Summary

We are providing you with this General Disclosure Statement for Transactions (“**General Disclosure Statement**”), which describes generally: (1) the material characteristics of a wide variety of Transactions (as defined below) that we may conduct with you; (2) the material risks of such Transactions; and (3) typical material incentives and conflicts of interest that we may have with respect to such Transactions. These Transactions may relate to Underliers (as defined below) and these disclosures are specific to one or more of the following classes of reference assets: interest rates, foreign exchange rates and currencies, credit instruments, asset-backed instruments, equities, and commodities. In addition, we may provide you with additional disclosure statements for Transactions in each of these Underliers to supplement the information provided herein, as well as Transaction-specific disclosures in connection with particular Transactions. This General Disclosure Statement should be read in conjunction with such disclosures and any others that we provide to you.

Please note that Transactions may give rise to significant risks and are intended primarily for knowledgeable and sophisticated parties that are willing to accept such risks and able to absorb the losses that may arise. Therefore, it is important that you or the person exercising discretion on your behalf understand these risks before entering into any Transactions, regardless of your level of prior experience in financial transactions or instruments.

In this General Disclosure Statement and any supplemental disclosure statement that expressly refers to this General Disclosure Statement:

- “we”, “our”, “ours”, and “us” refer to the provider of this General Disclosure Statement and (i) for purposes of Sections I to III only, each of its affiliates that may conduct Transactions with you, (ii) for purposes of Section IV only, all of its affiliates, and (iii) for Section V only, each of its affiliates that is registered as a swap dealer, major swap participant, security-based swap dealer or major security-based swap participant with the CFTC or SEC, as relevant;
- “you”, “your” and “yours” refer to each of the persons to which this General Disclosure Statement is delivered or addressed in connection with entering into, executing or agreeing upon the terms of Transactions with us, as indicated in any written or electronic transmittal of the same;

- “Covered Derivative” means (i) a swap, foreign exchange swap, or foreign exchange forward (each as defined in Section 1a of the Commodity Exchange Act and rules thereunder), (ii) a mixed swap (as defined in Sections 1a of the Commodity Exchange Act and 3(a) of the Securities Exchange Act of 1934 and rules thereunder), and (iii) security-based swaps (as defined in Section 3(a) of the Securities Exchange Act of 1934 and rules thereunder);
- “Transaction” means a transaction entered into, executed or agreed between us that in any such case is a Covered Derivative;
- “Transaction Economics” means the value of a Transaction, its usefulness for your intended purpose, the timing or amount of payments or deliveries and, if applicable, the likelihood that you will be able to exercise any option rights;
- “Underlier” means any rate (including interest and foreign exchange rates), currency, commodity, security, instrument of indebtedness, index, quantitative measure, occurrence or nonoccurrence of an event, or other financial or economic interest, or property of any kind, or any interest therein or based on the value thereof, in or by reference to which any payment or delivery under a Transaction is to be made or determined;
- the words “include”, “includes” and “including” shall be deemed to be followed by the phrase “without limitation”; and
- the phrase “otherwise agreed” shall be deemed to be followed by the phrase “expressly in writing”.

We are providing this General Disclosure Statement and, if applicable, any related supplemental disclosure statements pursuant to certain rules of the Commodity Futures Trading Commission (“CFTC”) and the Securities and Exchange Commission (“SEC”) that relate to Covered Derivatives. The fact that this General Disclosure Statement or any supplemental disclosure statement describes, or discusses considerations relevant to, a type of transaction should not be construed as having any implications for the characterization of that type of transaction as a Covered Derivative or its characterization under securities, bankruptcy or any other laws. You should not construe the content of this General Disclosure Statement as legal, financial, tax, accounting or other advice. More generally, unless expressly agreed in writing, we are not providing you with legal, financial, tax, accounting, or other advice in connection with any Transactions or any Underliers, and you should consult your own attorney, financial advisor, tax advisor or accountant as to legal, financial, tax, accounting and related matters concerning any Transactions, including the impact on your business and the requirements and results of conducting Transactions.

This General Disclosure Statement is only intended for eligible contract participants as such term is defined in Section 1a(18) of the Commodity Exchange Act and the regulations issued thereunder and under the Securities Exchange Act of 1934. Further this document is not intended to be an offer of a security-based swap under Section 5 of the Securities Act of 1933.

Before entering into any Transaction, you (or any agent you employ for such purpose) should conduct a thorough and independent evaluation of the terms of the Transaction in light of your particular circumstances and the nature and extent of your exposure to risk. You should also consider whether the Transaction is appropriate for you in light of your experience, objectives, financial and operational resources and other relevant circumstances. If you are acting as an advisor or agent, you should evaluate these considerations in light of circumstances applicable to your principal and the scope of your authority.

NOTHING IN THIS GENERAL DISCLOSURE STATEMENT AMENDS OR SUPERSEDES THE EXPRESS TERMS OF ANY TRANSACTION BETWEEN YOU AND US OR ANY RELATED GOVERNING DOCUMENTATION. Accordingly, descriptions in this General Disclosure Statement of the operation of Transactions and the consequences of various events are in all cases subject to the actual terms of a Transaction executed between you and us and its governing documentation (whether or not such qualification is expressly stated).

B. Table of Contents

I. INTRODUCTION 1

A. Summary..... 1

B. Table of Contents 3

II. GENERAL CHARACTERISTICS 5

A. Arm’s length contractual counterparty to Transactions..... 5

B. You should review carefully each Transaction’s particular structure, including terms incorporated by reference 6

C. Transactions generally involve a variety of risks 7

D. Value of the Transactions is derived from one or more Underliers and other market and economic factors 7

E. Entering into a Transaction is not equivalent to investment in or ownership of the Underlier 9

F. The economic return of a Transaction may not be the same as the return from the Underlier 9

G. No assurance of Transactions providing you with a desired return or result 10

H. No assurance of Transactions achieving your desired hedging objectives 11

I. Termination of Transactions 11

J. General characteristics of variance- and volatility-linked Transactions 13

K. General characteristics of correlation-linked Transactions..... 18

III. MATERIAL RISKS..... 20

A. Transactions are subject to market risk 20

B. Transactions involve liquidity risk 22

C.	Certain Transactions may be subject to restrictions on transfer under securities laws	23
D.	Engaging in Transactions may subject you to funding risk	23
E.	Credit risk of named counterparty (and any applicable guarantors or credit support providers), prime broker, clearing broker or clearinghouse	24
F.	Collateral delivered to a third party custodian is subject to that custodian’s credit and operational risk	26
G.	Operational risks related to Transactions may result in losses	27
H.	Transactions may involve legal and documentation risks	27
I.	It may be difficult or impossible to establish the value of some Transactions	29
J.	Option Transactions present special considerations	30
K.	Legislative and regulatory risk and uncertainty for persons engaged in Transactions	33
L.	Legislative and regulatory risk and uncertainty regarding Transactions, Underliers and related markets	34
M.	Emerging Market Jurisdictions	34
N.	Combination Transactions	35
O.	Index Underliers	36
P.	Dependence of Transactions on our Hedging Positions	37
Q.	Deductions	37
R.	Eligible Contract Participant Status	37
S.	Deal Contingent Swaps	38
T.	Benchmark Risks	41
IV.	CONFLICTS OF INTEREST AND MATERIAL INCENTIVES	42
A.	Our financial market activities may adversely impact Transactions	42
B.	Transaction fees and implicit spreads may increase your loss or decrease your return	46
C.	We may use third parties for marketing or solicitation	47
D.	Our own transaction fees and costs may be reflected in the price or economic terms of Transactions	47
E.	Our lobbying activities may adversely impact Transactions	47
F.	Our relative compensation may vary from one Transaction to the next	47
G.	Pre-Hedging Practices	52
V.	NOTIFICATIONS	52
A.	Scenario Analysis	52
B.	Clearing	53

C.	Daily Mark.....	54
D.	Right to Segregation of Certain Collateral.....	55
E.	Special Entities	55

II. GENERAL CHARACTERISTICS

A. Arm’s length contractual counterparty to Transactions

Unless otherwise agreed, we are acting in the capacity of an arm’s length contractual counterparty to you in connection with the Transaction and do not undertake to act as your financial or other advisor (including a “municipal advisor” within the meaning of Section 15B of the Securities Exchange Act of 1934), agent, representative, or fiduciary. Accordingly, unless we have agreed to act in one of the foregoing roles you should:

- not regard any Transaction proposals, suggestions or other written or oral communications from us as advice or a recommendation or otherwise as expressing our view as to whether a Transaction is appropriate for you or meets your financial or other objectives;
- determine whether you have the necessary information to understand the terms and risks of a Transaction and the legal, tax and accounting requirements and results of entering into the Transaction; and
- assume we have an economic incentive to be a counterparty to any Transaction with you.

We and/or our affiliates may engage in business with you in capacities other than as counterparty to Transactions. Such other capacities might include acting as your broker or futures commission merchant in executing orders for securities, futures contracts, swaps, security-based swaps, providing clearing or custody services, acting as a lender, providing banking services to you, acting as underwriter, placement or remarketing agent with respect to securities issued or purchased by you, managing investments, acting as a municipal advisor, collateral valuation agent, data provider or any of the other relevant capacities in which we or an affiliate may act in financial or commercial markets or have other conflicts of interest, as described in Section IV.A below.

There are important differences in the nature of our relationship when we act as counterparty to Transactions, as distinguished from the various other capacities in which we or our affiliates may act. As counterparty to Transactions, we enter into the Transactions as principal, and our interests are directly adverse to yours when we negotiate the terms of a Transaction or related documentation, or make determinations or exercise our rights thereunder. In contrast, in some other capacities, the primary purpose of our or our affiliate’s relationship with you may be to facilitate your transacting with other parties as principal, provide advice, or hold financial assets on your behalf. We or an affiliate may also act as your counterparty in contractual arrangements that are not Transactions. In such cases, other applicable laws, regulations, internal policies or

procedures, or rules of a self-regulatory organization may govern matters such as the handling and execution of orders, standards of care, disclosure of information, conflicts of interest, fees and compensation or the segregation and control of assets held for safekeeping on your behalf. The duties and standards to which we or an affiliate are subject when acting in such other capacities may differ materially from those that apply when we act as counterparty to Transactions, and may (or may not) afford substantially greater protections to you. **When we act in a particular capacity, we shall have only the duties and responsibilities that pertain specifically to that capacity.**

You should consult appropriate advisors for assistance in evaluating and understanding the terms or risks of a Transaction or the legal, tax and accounting requirements and results of entering into the Transaction, you should consult appropriate advisors.

B. You should review carefully each Transaction’s particular structure, including terms incorporated by reference

The Transactions result from agreements between two “counterparties” and generally involve an exchange or a series of exchanges of payments or deliveries, which may be calculated by reference to a notional or principal amount or quantity and a price, value, level or rate of return of one or more Underliers. The Transactions may be structured in various forms including, but not limited to, forwards, swaps, options (including so-called vanilla and exotic options), swaptions, caps, floors, collars or variations of these components, including embedded optionality, as well as combinations of these components with other components and non-derivative products. You should be aware that there is risk associated with each component of a multi-component Transaction, as well as with the Transaction as a whole.

The confirmation or other communication evidencing a Transaction, or a governing master agreement, may incorporate by reference various standard definitions, annexes and supplements thereto, master confirmation agreements and other market standard terms, which may in turn be amended or customized pursuant to the terms of a Transaction and its governing documentation. In some cases, the provisions of a prime brokerage agreement or the rules of a swap execution facility, security-based swap execution facility, confirmation platform or other provider of execution, clearing, confirmation or portfolio compression services may deem certain provisions to be incorporated into Transactions entered into or processed through such arrangements or services. In the case of Transactions executed between us that are accepted for clearing (“**cleared Transactions**”), the rules, by-laws and procedures of the clearinghouse will govern the cleared Transaction and define its terms. Under certain circumstances, the specifications of outstanding cleared Transactions (such as the exercise price of an option) may be modified by the clearinghouse to reflect changes in the Underlier. Before entering into any Transaction, you should obtain and review carefully any such materials incorporated by reference and, in the case of cleared Transactions, the disclosures, if any, provided by your clearing broker and the relevant clearinghouses, as well as the applicable clearinghouse rules, by-laws and procedures, as their content could materially affect your rights and obligations under the Transaction, its value and its appropriateness for your particular objectives.

C. Transactions generally involve a variety of risks

The specific risks presented by a particular Transaction necessarily depend upon the terms of the Transaction and your circumstances. In general, however, all Transactions involve one or more of the following risks — credit risk, market risk, liquidity risk, funding risk, operational risk, legal and documentation risk, regulatory risk and/or tax risk. Each of these risks is discussed below in Section III of this General Disclosure Statement. The structures of the Transactions are frequently customized by the parties to accomplish specific financial, tax, accounting, or asset, liability or risk management objectives, and the resulting risks of each Transaction necessarily depend upon the terms of the Transaction and your present and future circumstances. There can be no assurances that these objectives will be met.

D. Value of the Transactions is derived from one or more Underliers and other market and economic factors

Depending upon the nature of the Transactions, payments and/or deliveries under the Transactions may be calculated by reference to one or more Underliers and may arise upon the occurrence of certain events or circumstances, the satisfaction of certain conditions, or the exercise of certain rights. The value of Transactions may depend on prices, values, or levels of the Underliers and other market and economic factors discussed in greater detail in Part III below.

Except for certain proprietary structures, the prices, values, or levels of an Underlier are determined in the market for that Underlier. You should be aware that each market for an Underlier has its own particular characteristics and risks, including, to the extent applicable, the market's institutional structure, trading rules, market practices, liquidity, governance, regulation (or lack thereof) and participants. The terms of a Transaction may refer to such features and allocate or otherwise provide for associated risks. Alternatively, there may be known or anticipated eventualities that could affect a market that are not provided for in the terms of a Transaction or its governing documentation. Before you enter into any Transaction, you should review the publicly available information regarding the market characteristics and risks pertaining to the relevant Underliers, review all the disclosure we have provided that is relevant to Transactions in such Underliers, and (as you may deem appropriate) consult advisors with specific expertise regarding the markets for such Underliers and the Transaction.

1. Past Performance

Neither we nor you can predict the future performance of an Underlier based on historical performance. The price, value, or level of the Underlier over the term of a Transaction may bear little or no relation to the historical price, value, or level of the Underlier. Prior observed patterns, if any, in the behavior of market variables, such as correlations, may change in the future. In addition, the source or method of determining the price, value, or level of the Underlier as may be provided in the governing documentation may be subject to market factors or may

change or cease to be available during the term of a Transaction. Such matters may or may not be addressed in the governing documentation.

If the Underlier for a Transaction is an index, the Underlier may not have a performance history. If we provide you with a hypothetical historical performance analysis of an index, you should be aware that any such analysis inherently involves assumptions, estimates and approximations. You should also understand that the future performance of the index is impossible to predict and therefore no future performance of the index or any Transaction may be inferred from any of the historical simulations. Hypothetical performance data are not indicative of, and have no bearing on, the potential performance of the index or any Transaction. See Part III.O below.

2. Different Currencies

For certain Transactions, the prices, values, or levels of the Underliers may be denominated in currencies other than the settlement or payment currency and may be converted to the settlement or payment currency for purposes of determining payments or deliveries to be made under the Transactions. Such Transactions will be exposed to currency exchange rate risk with respect to each of the currencies in which an Underlier or obligation is denominated. Your net exposure to this risk will depend on the extent to which the currencies of the Underliers for a relevant Transaction strengthen or weaken against the settlement currency or one another. The Transaction may provide for allocation of this risk between the parties. Fluctuations in the currencies of the Underliers may adversely impact the values of the Transactions and the payments or deliveries to be made or received thereunder.

3. Changes in the components of baskets or indices

If the Underlier for a Transaction is a basket or index, the negative performance of one or more components of the basket or index may negate any positive performance of other components. For example, while the prices, values, or levels of some components may increase over the term of the Transaction, the prices, values, or levels of other components may not increase during the term of the Transaction to the same extent or may decline. Therefore, in respect of the value of the Transaction or the amount of any payments or deliveries to be made under the Transaction, changes in the prices, value, or levels of one or more of the components may be moderated, or offset, by lesser changes or inverse changes in the prices, values, or levels of one or more of the other components. This effect may be further amplified by differing weights of each component. More heavily weighted components will have a larger impact on the value of the Transaction or the amount of any payments or deliveries to be made under the Transaction than components with lesser weightings. Changes may also be made in accordance with an index's underlying methodology or after the occurrence of future events.

E. Entering into a Transaction is not equivalent to investment in or ownership of the Underlier

Unless specifically provided for in the terms of a Transaction or governing documentation, a Transaction will not confer ownership rights or any beneficial or legal interest in any Underlier for a Transaction. Thus, a Transaction will not confer voting rights, rights to receive interest, dividends or other distributions, rights to approve a restructuring or plan of reorganization, enforcement rights, transfer rights or any other rights or residual interest that having an ownership interest in the Underlier may confer, unless otherwise agreed.

The exposure of an index to its components is purely notional and will exist solely in the records maintained by or on behalf of the index calculation agent. With an index, there is no actual portfolio of assets to which any person is entitled or in which any person has any ownership interest. Unless specifically provided for under the terms of a Transaction or governing documentation, a counterparty to a Transaction with an index Underlier will not have the rights that investors in the index components may have and will not have an ownership interest or have any beneficial or other legal interest in, or be entitled to any rights with respect to, any of the index components.

F. The economic return of a Transaction may not be the same as the return from the Underlier

The mathematical relationship between the payments and deliveries under a Transaction and the price, level or value of the Underliers will be specified under each Transaction or its governing documentation, and in general there is no reason to expect that the economic return of a Transaction will be equivalent to, or correlated to that of an investment in the Underlier. Even if a Transaction is a total return swap, contract for differences, credit default swap, or similar instrument that you have entered into for the purpose of obtaining the equivalent of a long or short position in or exposure to an Underlier, the economic return of the Transaction may not be the same as the return from the Underlier. Such divergences may occur due to a variety of factors, including, but not limited to:

- Payments or deliveries under a Transaction may be determined based on the prices, values, or levels of the Underlier only at specified observation or valuation times;
- The Transaction may apply interim compounding to rates of return observed for the Underlier over shorter periods than the term of the Transaction;
- The Transaction terms may include or reflect an adjustment for fees or commissions, financing charges, hedging costs or breakage costs;
- The tax or accounting treatment, and the legal, tax and accounting requirements and results, of the Transaction may differ significantly from owning the Underlier;

- The Transaction may not provide the same rights to unwind or transfer the Transaction as direct ownership of the Underlier would allow in deciding when and how to dispose of the Underlier;
- The price source or valuation methodology under the Transaction may yield a different value than would be realized by disposing of the Underlier in financial or physical markets for such Underlier;
- The Transaction may include optionality, cancellation, “barrier,” leverage or other similar features that may give disproportionate effect to changes in prices, values, or levels or other factors; and/or
- The Transaction may contain terms providing for adjustments, early termination or cancellation due to corporate events, disruption of our ability to hedge in relevant markets, changes in law or other extraordinary events.

Accordingly, changes in prices, values, or levels of an Underlier may not result in a comparable payment or delivery under, or change in the value of, the Transaction. If the price, value, or level of the Underlier for a Transaction has increased on any day, the value of the Transaction on such day may not increase comparably, if at all. Such changes in value may vary throughout the day and differ based on the time of valuation. It is also possible for the price, value, or level of an Underlier to increase while the value of the Transaction declines and exposes you to substantial economic losses.

A Transaction and related Underlier may be priced in separate markets, and the values of the Transaction and Underlier may diverge for significant periods or indefinitely. Also, models we use to value Transactions, including methodologies, assumptions and inputs to those models, may change, which could cause a change to the value we attribute to the Transaction without necessarily affecting the value of the Underlier.

G. No assurance of Transactions providing you with a desired return or result

Unless the terms of the Transaction expressly guarantee a stated return, there is no assurance that a Transaction will provide you with a positive or anticipated return or achieve your objectives. It is impossible to predict whether and the extent to which the underlying rates, prices, assets, indices, or other Underliers relevant to a particular Transactions will rise or fall. The levels or performance of relevant rates, prices, assets, indices, or other Underliers may be influenced by complex and interrelated political, economic, financial and other factors.

You should be willing to accept the risk of exposure to the levels or performance of such rates, prices, assets, indices, or other Underliers and the risk of suffering substantial economic losses from or in connection with the Transactions, which may require you to make a payment to us. Even if the Transactions provide you with a positive or anticipated return, the return on the Transactions may be inferior to returns available in connection with other Transactions that you could have entered into or other arrangements that you could have made, including owning the Underliers.

H. No assurance of Transactions achieving your desired hedging objectives

In some cases, you may enter into Transactions to hedge, reduce or otherwise manage price or other risks to which you or your affiliates are exposed through owning an asset, owing a liability or being a party to other transactions or anticipated transactions. There may be imperfect correlation (sometimes referred to as “basis risk”) between changes in the value of a Transaction and the particular exposures you wish to hedge, and the amount of basis risk may increase over time. You may also be exposed to risk as a result of differences in legal documentation between a Transaction and the particular exposure you wish to hedge, including differences in how the Underlier is defined under the hedged item and the definition applicable to the Transaction, or as a result of differences in the dates or times as of which prices, values or levels are to be determined for the hedged item versus the Transaction. We do not advise on whether entering into Transactions to hedge, reduce or otherwise manage price or other risks to which you or your affiliates are exposed will have the desired effect and take no responsibility should those Transactions fail to have the desired effect.

In addition, the notional amount of a Transaction may not remain matched to the amount of exposure you wish to hedge, as would be the case, for example, if an anticipated investment, purchase, sale, acquisition, disposition or other transaction does not occur, or a loan or bond is pre-paid or called. Unless otherwise agreed, we have no obligation to terminate or modify any Transaction in response to these or other changes in your circumstances or to accommodate your hedging strategies or needs. You should carefully review the risks of entering into a Transaction before you acquire an asset, liability or other item to be hedged and the risks of any prepayment, liquidation or other disposition of an asset, liability or other hedged item before the Transaction matures.

Hedging entails economic costs reflected in the pricing of Transactions, which can be significant. Although a hedge Transaction may be structured such that no upfront purchase price is payable, you should understand that significant potential amounts could become payable for modifying the Transaction or terminating it early, depending upon then existing market conditions, as described in this General Disclosure Statement. So-called “zero cost” or “reduced premium” hedges may contain embedded options granted by you. Losses from such embedded options may be substantial and potentially unlimited and may not be matched by realizable gains from the exposures that you intended to hedge. In some cases, the terms of a Transaction may take account of events that are particular to your specific hedging circumstances, such as in a “deal-contingent hedge” under which the rights and obligations depend expressly on the outcome, for example, of a corporate acquisition transaction within specified time periods. In such Transactions, the cost of such application-specific features may be reflected in spreads or pricing terms that differ from market rates for otherwise comparable Transactions that do not include such features.

I. Termination of Transactions

Under the relevant governing documentation, a Transaction and potentially our entire relationship may be subject to early termination upon the occurrence of events that may

be characterized as “events of default” or “termination events” (some examples of which might include failures to pay, insolvency, force majeure or illegality) in relation to you, us, and/or any guarantor or other credit support provider. Certain Transactions may also be subject to early termination upon the occurrence of extraordinary events specified in the terms of such Transactions or governing documentation (some examples of which might include disruption of our ability to hedge due to, among other things, illegality resulting from a change in law or a material increase in the cost of hedging as a result of taxes, duties, expenses or fees in connection with such hedging; cancellation or modification of an index Underlier; market disruptions; extraordinary events with respect to an underlying issuer, such as mergers, nationalization, insolvency or delistings; and the price of an Underlier, including an index Underlier, falling below or rising above a predetermined level), or may provide an optional early termination right for one or both of the parties. The event or events giving rise to a right of termination may be outside your control and may occur at a time when the price, level or value of the Underlier, or the value of the Transaction otherwise, is such that you would owe a substantial termination payment. You may owe this termination payment even if we are the defaulting party. Additionally, if the Transaction terminates early, you may not be able to establish, or may incur costs in establishing, substitute arrangements for the Transaction.

We have no obligation to consider your interests in determining whether or when to terminate the Transactions following one of these or other events that entitle us to terminate Transactions. Termination and the corresponding determination of a termination amount could occur at a time when the relevant markets are volatile, illiquid or not functioning in accordance with normal market conditions.

If we determine an early termination amount, we may take into account, subject to the terms of the Transaction and other governing documentation, our and your creditworthiness, our funding costs, hedging or hedge unwind costs (which may include costs related to the failure of a custodian or hedge counterparty), loss of bargain, relevant documentation terms, market data from internal sources and other factors. Such determinations may involve subjective judgment and uncertainty, which may adversely affect the Transaction Economics. Termination amounts may differ significantly from daily marks, market values or values used for collateral requirements.

The treatment of Transactions in your or our insolvency may be more favorable to us than the treatment of alternative arrangements you might have entered into to achieve the same economic objective. For instance, if you are the subject of a bankruptcy proceeding, Transactions between you and us may qualify for special treatment intended to, among other things, facilitate prompt termination and access to collateral.

J. General characteristics of variance- and volatility-linked Transactions

Variance-linked Transactions

Variance is generally a measure of how widely dispersed the data points in a given data set are around their mean, or average, or around an assumed mean. The variance of the data points in a given data set is generally calculated by:

- (i) calculating the mean of the data points;
- (ii) determining by how much each single data point deviates from that mean;
- (iii) squaring that deviation in order to treat positive and negative deviations the same;
- (iv) calculating the sum of all the squared deviations; and
- (v) dividing that sum by the number of data points.

The result is the average squared deviation from the mean, which seeks to express, in a single number, the degree of variability of the data points in the applicable data set.

Under the terms of a variance-linked Transaction, variance will typically be calculated in a manner that is generally consistent with the description above, but with such specific terms and modifications as are specified for purposes of that Transaction. Because different variance-linked Transactions define variance in different ways, it is important to review and understand the manner in which variance is calculated under a particular variance-linked Transaction before entering into it.

A formula for the calculation of variance in a variance-linked Transaction will typically have the following components:

- *Specification of the data points to be observed.* The terms of the variance-linked Transaction will specify the price, level, rate or other value (collectively, the “**price**”) of the Underlier on which the variance calculation will be based, such as a rate, asset or index. You should be aware of several technical factors that may affect the price of the Underlier on any given observation date and, therefore, may affect the calculated variance:
 - Under the terms of certain variance-linked Transactions, if a disruption event (as defined under those terms) occurs on a date on which the price is to be observed, any published price may be disregarded and the calculation agent may have discretion to determine the price on that date. Any price so determined will be taken into account in the calculation of variance. If we are the calculation agent, we will have no obligation to take your interests into account in making that determination.

- The Underlier may change over the term of the variance-linked Transaction in a way that affects its variance. For example, if the Underlier is an index, the index may be reconstituted periodically, which may result in new components with different variance characteristics than the original components of the index.
 - The price source may change the manner in which it calculates the price, and that change may tend to increase or decrease the variance of the price.
 - If the Underlier is traded on an exchange or other market, the exchange or market may impose price limits, which would tend to reduce variance if those price limits are reached.
 - For certain Underliers or types of Underliers, there may be additional adjustments or events that could affect the calculation of variance or the prices used to calculate variance.
- *Observation period.* The variance of the Underlier will be measured at the specified observation intervals over a specified observation period. Relatively shorter observation periods and relatively longer observation periods each present their own risks. In general, a shorter observation period is more sensitive to the effects of sudden market shocks and the “volatility clustering” phenomenon, which is the tendency of days with unusually high percentage changes from the prior day to occur together, and vice versa. These sudden changes may have a significant effect on variance over a short-term period but may tend to be smoothed out over a longer period. While a longer period is less sensitive to short-term shocks, a longer period is subject to the greater uncertainty associated with a longer future time horizon and the greater potential for significant events that are unforeseeable at the time of entering into the variance-linked Transaction.
 - *Observation interval.* The terms of the variance-linked Transaction will specify how frequently the price of the Underlier will be observed for purposes of the variance calculation. Daily observations are common, but the price may be observed weekly, monthly or with some other frequency. The variance of a given Underlier over a given observation period will likely differ, perhaps significantly, depending on the interval at which the price is observed.
 - *Return.* Variance is typically calculated not by reference to the change in the absolute price of the Underlier, but rather by reference to the percentage change in the price over the relevant observation interval. This percentage change is typically expressed as a “log return,” which is calculated by applying the natural logarithm function to the ratio of one observed price to the prior observed price, rather than as a “simple return,” which is simply the percentage change from one observed price to the next. Although the log return and the simple return are similar for small changes from one observed price to the next, they will diverge from each other to a greater degree the greater the change. The log return is always less than the simple return. In the case of an increase from one observed

price to the next, this means that, other relevant variables being constant, the log return would result in a lower variance than the simple return. In the case of a decrease from one observed price to the next, other relevant variables being constant, the log return would result in a greater variance than the simple return, because the lower log return would be more negative and, when squared, would produce a greater number than the square of the greater (but less negative) simple return.

- *Variability around actual or assumed mean.* Under many variance-linked Transactions, variance is calculated based on the variability of returns around an assumed mean of zero, rather than around the actual mean of the returns. If variance is calculated for a particular variance-linked Transaction based on the average of squared log returns rather than the average of the squared deviation of each log return from the mean of log returns, then variance is being calculated with an assumed mean of zero.

If the actual mean of returns differs from zero, that may have a significant effect on the calculation of variance. Calculating variance with an assumed mean of zero will tend to produce a greater variance than if the actual mean were used—the more so the greater the difference between zero and the actual mean. If markets trend steadily in one direction or another, there is likely to be a difference between zero and the actual mean, and that difference will be greater the more steady and the more pronounced the trend. For example, a steady 1% daily increase in an Underlier price would result in an average deviation of 1% from an assumed mean of zero, but in an average deviation from the actual mean (which would be 1%) of 0%. Variance-linked Transactions with shorter observation periods are more likely to display a divergence of the actual mean from zero.

- *Average.* As discussed above, variance is the average of squared deviations from an actual or assumed mean. The average is calculated by dividing the sum of the squared deviations by a number commonly referred to under the terms of a variance-linked Transaction as “N” (or “N – 1”), which typically represents the expected number of observations that will occur over the observation period but may be a different number negotiated by the parties to the variance-linked Transaction. The terms of a variance-linked Transaction will specify whether an adjustment is made to N in the event of a disruption event.
 - Under certain variance-linked Transactions, N will not be adjusted if the actual number of observations turns out to be less than N (or N – 1, as applicable) expected as of the date the Transaction is entered into, as a result of disruption events that cause the price of the Underlier to be unavailable or otherwise disregarded for a given observation day. Instead, the price of the Underlier on the disrupted day may be assumed to be the same as it was on the previous non-disrupted day. This approach to disrupted days will tend to smooth returns and therefore reduce variance. Prolonged price disruptions may lead to a significant reduction in variance.

- Under certain other variance-linked Transactions, if a disrupted day occurs, that day will be disregarded for purposes of the variance calculation and N will be reduced by 1. This approach to disrupted days may also affect the variance calculation, tending to reduce variance in circumstances where a significant decline on a disrupted day is followed by a recovery on the next non-disrupted day, and tending to increase variance where a significant decline on a disrupted day is followed by another significant decline on the next non-disrupted day.
- *Annualization.* Variance is typically expressed on an annualized basis. This is achieved by multiplying the average variance over the applicable observation interval by an annualization factor that represents the number of such observation intervals expected to occur in one year, or that is otherwise negotiated by the parties to the variance-linked Transaction.

Variance risk may arise from many types of transactions, including Transactions referencing equities, credit, commodities, rates and foreign currencies. If your objective in entering into a variance-linked Transaction is to hedge other exposure that you have to variance risk, you should carefully compare the components of the formula for calculating variance under the variance-linked Transaction to the relevant characteristics of your other exposure. You should also be aware that otherwise similar variance-linked Transactions may use formulas for calculating variance that differ in material respects. To the extent there are differences between variance as calculated under a variance-linked Transaction and the variance risk that you seek to hedge, the effectiveness of the variance-linked Transaction for your hedging purpose may be limited. Furthermore, there can be no assurance that prior observed relationships, if any, between variance and your other exposure will continue. See II.H – “No assurance of Transactions achieving your desired hedging objectives” above.

The square root of variance is referred to as “volatility,” and variance is therefore equal to volatility squared. Because variance is volatility squared, the payout on a variance-linked Transaction is a “convex” function of volatility. This means that a variance seller will experience accelerating losses the more volatility increases, and diminishing gains the more volatility decreases. If you are a variance seller, you will be exposed to the risks of convexity. In a time of a significant increase in volatility, a variance seller may be exposed to losses under a variance-linked Transaction that are disproportionate to the increase in volatility.

At any time during the term of a variance-linked Transaction, its value will reflect the actual realized variance up to that time and an expectation about variance over the remaining term of the variance-linked Transaction, which may be determined based on the variance implied in the price of market-traded instruments referencing the applicable Underlier at that time. The value of a variance-linked Transaction will also be affected by the extent to which implied variance in out-of-the-money options on the Underlier differs from implied variance in at-the-money options on the Underlier, which is commonly referred to as “skew.” In general, a greater skew will tend to increase the

value of a variance-linked Transaction to a variance buyer, and a smaller skew will tend to increase the value of a variance-linked Transaction to a variance seller, and vice versa.

When we calculate the value of a variance-linked Transaction, our determination of implied variance may depend significantly on the methodologies and assumptions we use, and different parties using different methodologies or different assumptions may generate different values for the variance-linked Transaction. When we calculate the value of a variance-linked Transaction for any purpose, including in the event of early termination of a variance-linked Transaction, our interests will be adverse to yours. See IV.A.6 – “Conflicts of Interest and Material Incentives – Our financial market activities may adversely impact Transactions – Act as calculation agent, valuation agent, collateral agent, or determining party” below.

An important characteristic of the variance of an index or basket is that it will be determined not only by the variance of each of the underlying components of the index or basket, but also by the correlation among those components. Unless the individual components of an index or basket are perfectly correlated with each other, their fluctuations will tend to cancel each other out to a greater or lesser degree in the calculation of the level of the index or basket. In general, the variance of the level of an index or basket will be less than the average variance of its underlying components, and the more so the less correlated those components are.

Volatility-linked Transactions

Volatility is the square root of variance. Therefore, much of the discussion above regarding variance-linked Transactions is also applicable to volatility-linked Transactions.

Because volatility is the square root of variance, the payout of a volatility-linked Transaction is a “concave” function of variance. This means that a volatility buyer will experience diminishing gains the more variance increases, and accelerating losses the more variance decreases.

There may be significant differences in the liquidity of the markets for variance-linked Transactions and volatility-linked Transactions. See III.B. – “Transactions involve liquidity risk” below.

Volatility-linked Transactions may be more difficult to hedge and value than variance-linked Transactions. The value of a volatility-linked Transaction at any time is influenced by the factors described above for variance-linked Transactions and, in addition, by the volatility of the volatility of the Underlier. The volatility of volatility is difficult to estimate, which may lead different persons to calculate very different values for a volatility-linked Transaction. When we calculate the value of a volatility-linked Transaction for any purpose, including in the event of early termination of a volatility-linked Transaction, our interests will be adverse to yours. See IV.A.6 – “Conflicts of Interest and Material Incentives – Our financial market activities may adversely impact

Transactions – Act as calculation agent, valuation agent, collateral agent, or determining party” below.

If your objective in entering into a volatility-linked Transaction is to hedge other exposure that you have to volatility risk, you should carefully compare the components of the formula for calculating volatility under the volatility-linked Transaction to the relevant characteristics of your other exposure. You should also be aware that otherwise similar volatility-linked Transactions may use formulas for calculating volatility that differ in material respects. To the extent there are differences between volatility as calculated under a volatility-linked Transaction and the volatility risk that you seek to hedge, the effectiveness of the volatility-linked Transaction for your hedging purpose may be limited. Furthermore, there can be no assurance that prior observed relationships, if any, between volatility and your other exposure will continue. See II.H – “No assurance of Transactions achieving your desired hedging objectives” above.

K. General characteristics of correlation-linked Transactions

Correlation is a statistical measure of the extent to which the changes in the prices of two or more Underliers, such as rates, assets or indices, over a specified period of time are similar to each other in terms of timing, direction and magnitude. The correlation among two or more Underliers is represented by a number called the “correlation coefficient,” which is often denoted by the Greek letter ρ . The correlation coefficient will always be between -1 and 1 , where a value near 1 indicates that the Underliers are *strongly positively* correlated; a value near -1 indicates that the Underliers are *strongly inversely* correlated; and a value near 0 indicates that the Underliers are *weakly* correlated (either positively or inversely) or uncorrelated. If the prices of two Underliers tend to increase at the same time and decrease at the same time and by similar percentages, those two Underliers are strongly positively correlated with each other. If this tendency is low, the two Underliers are weakly correlated, and if the two Underliers exhibit the opposite of this tendency, they are inversely correlated. Correlation is an indication of the extent to which the prices of two or more Underliers are influenced by the same factors.

The correlation between the data points in two data series is the covariance of those data points, scaled so that it is a number between -1 and 1 . The concept of covariance builds on the concept of variance, which is described in Section II.J – “General characteristics of variance- and volatility-linked Transactions” above. Whereas variance is a measure of the variability of the data points in a single data series around their mean, covariance is a measure of how similar the variability of the data points in one data series is to the variability of the data points in another data series, in terms of the timing and direction of deviations from their respective means.

The first step in the calculation of correlation is the calculation of covariance. The calculation of covariance is similar to the calculation of variance, except that it accounts for deviations in two data series instead of just one. As an example, the covariance of the daily returns of asset A and asset B over a specified period would generally be calculated by:

- (i) calculating the mean of the daily returns of asset A and asset B;
- (ii) for each relevant day in the period, determining by how much the daily returns of asset A and asset B on that day deviate from their respective means;
- (iii) for each relevant day in the period, multiplying the deviation of the daily return of asset A from its mean (the “asset A deviation”) by the deviation of the daily return of asset B from its mean (the “asset B deviation”);
- (iv) calculating the sum of the resulting product for all relevant days in the period;
and
- (v) dividing that sum by the number of relevant days in the period.

The result (i.e., the covariance) is the average of the product on each relevant day of the asset A deviation multiplied by the asset B deviation. On any given day, this product will be positive if both deviations are positive or both are negative, and will be a greater number the greater the deviation for either. Conversely, on any given day, this product will be negative if one has a positive deviation but the other has a negative deviation, and it will be more negative the greater the absolute value of either deviation.

Once covariance has been calculated, correlation may be calculated by dividing covariance by the product of the volatility of asset A and the volatility of asset B over the relevant period. This step has the effect of normalizing covariance—that is, scaling it so that it is a number between -1 and 1 . It also causes correlation to reflect not only a relationship between the relevant assets in terms of the direction and timing of fluctuations, but also a relationship in terms of the magnitude of fluctuations. In other words, unlike covariance, correlation will tend to be greater if fluctuations in the same direction are similar in magnitude, and will tend to be lower if they are different in magnitude, even though they are in the same direction.

Under the terms of a correlation-linked Transaction, correlation will typically be calculated in a manner that is generally consistent with the description above, but with such specific terms and modifications as are specified for purposes of that Transaction. Because different correlation-linked Transactions define correlation in different ways, it is important to review and understand the manner in which correlation is calculated under a particular correlation-linked Transaction before entering into it. A formula for the calculation of correlation in a correlation-linked Transaction, including the calculation of covariance and the calculation of the relevant volatilities, will typically have the same components as those described for the calculation of variance in a variance swap under Section II.J – “General characteristics of variance- and volatility-linked Transactions” above, except for annualization. Please refer to that section for a discussion of important considerations relating to those components.

The correlation among the data points in more than two data series is typically calculated by calculating the average of the correlation among each pairing of data points. For example, the correlation among the components of an index of more than two components would typically be calculated as the average of the correlation among each

pairing of the components of the index. The terms of the correlation-linked Transaction will specify the manner in which the average is calculated. If each correlation pairing is weighted equally in calculating this average but the components are unequally weighted in the index, the calculation of correlation in this manner may lead to a significantly different result than if the calculation of the average took into account the components' actual weightings.

Correlation risk may arise from many types of transactions, including Transactions referencing equities, credit, commodities, rates and foreign currencies. If your objective in entering into a correlation-linked Transaction is to hedge other exposure that you have to correlation risk, you should carefully compare the manner in which correlation is calculated for purposes of the correlation-linked Transaction to the relevant characteristics of your other exposure. You should also be aware that otherwise similar correlation-linked Transactions may use formulas for calculating correlation that differ in material respects. To the extent there are differences between correlation as calculated under a correlation-linked Transaction and the correlation risk that you seek to hedge, the effectiveness of the correlation-linked Transaction for your hedging purpose may be limited. For example, in some cases, your other exposure may be to covariance, rather than correlation, as would be the case if your other exposure were an option on an index or basket. In that case, you should understand that a hedge of correlation will not function as a full hedge of your covariance exposure, because covariance exposure consists of volatility exposure in addition to correlation exposure. Furthermore, there can be no assurance that prior observed relationships, if any, between correlation and your other exposure will continue. See II.H – “No assurance of Transactions achieving your desired hedging objectives” above.

III. MATERIAL RISKS

A. Transactions are subject to market risk

Market risk is the risk that the value of a Transaction, or the amount of payments or deliveries to be made under a Transaction, will be adversely affected by fluctuations in the level or volatility of, or correlation or relationship between, one or more market prices, rates or indices or other market factors, by new information related to an Underlier or changes in perceptions regarding contingencies affecting an Underlier, or by illiquidity in the market for the Underlier or the Transaction or in a related market.

Depending on the terms of a specific Transaction, its value may be affected by multiple factors in addition to the prices, values, or levels of the Underliers. In general, the amount that other market participants may be willing to pay or receive to acquire and assume exposure to the cash flows or delivery obligations and rights under a Transaction depends in part on market conditions and prices, values and levels for comparable Transactions prevailing at the time of valuation. For example, because future cash flows must be discounted at an appropriate rate to determine their present value, the value of Transactions will generally depend on interest rates and yield curves in the relevant currency, which in turn will reflect expectations of future inflation and other market factors. The choice of an appropriate discount rate may be affected by the collateral or

other credit support arrangements in place for a Transaction or group of Transactions. Interest rates and yield curves may also influence the value of a Transaction through their effect on the cost of funding positions in an Underlier or related instrument in order to hedge a future payment or delivery obligation under the Transaction. Transactions with option-like payouts will generally be affected by the volatility of the price or level of the Underlier, which volatility is also subject to changing market conditions. The value of Transactions under which the payout depends on the cumulative effect of events related to multiple Underliers (such as tranching or Nth-to-default credit default swaps, as described in the Disclosure Annex for Credit Derivative Transactions, or Transactions under which the stated return is determined as the best or worst from among a set of Underliers) will generally depend on the correlations between the Underliers. The value of a portfolio of Transactions will depend on the interaction of multiple factors, including cash or collateral flows under related credit support arrangements.

In addition to prices, values, or levels of the Underliers, factors that may affect the value of a Transaction (and, in some cases, the value of the Underlier itself) include:

- actual and/or expected volatilities (i.e., the frequency and magnitude of changes) in the prices, values, or levels of the Underliers;
- correlation (i.e., the tendency to move together in the same or opposite directions) of the prices, values, or levels of the Underliers;
- market interest rates, currency exchange rates, forward rates and yield and forward price curves;
- dividend rates, expected dividend rates and corporate events relating to Underliers, if applicable;
- liquidity in the markets for Transactions and Underliers or in related markets;
- the term of the Transaction;
- optionality that a party has under the terms of a Transaction and its governing documentation, including but not limited to optional early termination rights or rights to choose which particular securities, commodities, currencies, or other assets it may deliver in satisfaction of an obligation;
- the terms of collateral or other credit support arrangements, including whether a party is permitted to re-use collateral and the rights to choose the composition of the credit support it is required to deliver;
- in the case of cleared Transactions, the clearinghouse's margining methodology, including in particular its method, if any, of adjusting for imputed interest on cumulative variation margin;
- actions of government, regulatory and tax authorities; and

- our creditworthiness or your creditworthiness, whether actual or perceived, including actual or anticipated upgrades or downgrades in a party's credit ratings or changes in other credit measures.

The market risk of a Transaction may be accentuated by complex payout calculations or other features. Transactions with such features may be subject to significant changes in value as a result of relatively small changes in the price, value, or level of an Underlier or other market factors. Such features include leverage, multipliers, option-like payouts, non-linear dependence on an underlying price, value, or level, or dependence on the path of an underlying price, value, or level. Transactions with such features may include caps, collars, floors, exotic options, Transactions with knock-in or knock-out rights, or range accrual swaps and options.

Furthermore, inflation may also reduce the value of any payments that you receive under a Transaction compared to your expectations when entering into the Transaction.

B. Transactions involve liquidity risk

Liquidity risk is the risk that a party may be unable to, or may have limited ability to, unwind or transfer a particular position in a timely manner at or near the market price or at all. Liquidity risk may vary greatly depending upon the terms of the Transaction, including, for example, notional amounts, rates, collateralization, highly customized features and other market sensitive terms.

In evaluating this risk in the context of Transactions, you should consider that a Transaction may be terminated or modified only pursuant to the terms of the Transaction or by mutual agreement of the parties. Similarly, any novation or other transfer of a Transaction may be made only pursuant to the terms of the Transaction or with the consent of the remaining party and, in either case, on terms agreed between the transferor and transferee. If our consent is required, we may not consent for a variety of reasons, which we may not be required to disclose to you.

Even though market-makers and dealers are likely to quote prices or terms for entering into or terminating particular Transactions and provide indicative prices or mid-market valuations for outstanding Transactions, there can be no assurance that another dealer will be available and willing to accept as transferee your rights and obligations under any Transaction between us, or that we would consent to such transfer. Even though market liquidity may exist generally for a particular type of uncleared Transaction at the time you enter into the Transaction, such liquidity may be diminished or unavailable in the future as more Transactions become cleared. Market liquidity for a type of Transaction may also be adversely affected by the development of updated or new industry standard terms, their adoption by market participants (including through amendments to outstanding Transactions via industry protocols) and the migration of trading interest to such new or updated standard terms.

There also can be no assurance that another dealer or market participant will be available and willing to offer you transactions that offset your Transactions with us. Even if an

offsetting transaction is available, in the case of an uncleared Transaction, engaging in such an offsetting transaction (whether bilaterally or through a swap execution facility) will not automatically close out your Transaction with us (as might occur in the case of cleared transactions carried at the same clearing broker) and may not function as an effective hedge for that Transaction. Accordingly, it may not be possible for you to modify, terminate or offset your obligations or your exposure to the risks associated with a particular Transaction prior to its scheduled termination date.

In contrast, liquidity risk may be mitigated to a degree when a Transaction is cleared on a derivatives clearing organization or other clearinghouse, insofar as your ability to close out your Transaction by entering into an offsetting transaction with other market participants would not require our consent or an existing trading relationship between us and that other market participant. However, there can be no assurance that the level of liquidity for a cleared Transaction you enter into will continue to exist. Your ability to clear Transactions on a derivatives clearing organization or other clearinghouse in the future will depend upon a variety of factors, including the willingness of futures commission merchants to offer you clearing services, which could depend, among other things, on the level of your creditworthiness and your ability to meet margin calls.

C. Certain Transactions may be subject to restrictions on transfer under securities laws

Certain Transactions (including security-based swaps generally) may be securities, or may constitute offers or sales of securities, under the U.S. Securities Act of 1933, as amended (the “Securities Act”) or other applicable securities laws. Such Transactions will not be registered under the Securities Act, or under applicable state securities laws and, therefore, the transfer of Transactions may be prohibited or restricted by such laws. Such Transactions will be entered into, modified or terminated pursuant to exemptions from registration under the Securities Act by virtue of Section 4(a)(2) of that Act and/or Regulation D or another available exemption. You may be required to represent in the terms of the Transactions or other governing documentation that you are not entering into such Transactions with a view to resale or distribution in violation of applicable securities laws.

D. Engaging in Transactions may subject you to funding risk

Funding risk is the risk that, as a result of the unpredictability of payment or delivery obligations or margin (collateral) requirements under Transactions, or mismatches or delays in the timing of cash flows due from or to a party pursuant to Transactions or related hedging, trading, collateral or other transactions or activities, a party may not have adequate cash available to fund current obligations.

For example, if you are required to post margin (collateral) and the market moves against your position or the required level of margin is increased by us or, in the case of a cleared Transaction, by a clearinghouse or your clearing broker, you could be called upon to post additional margin (collateral) within applicable notice periods (which may be short) in order to maintain your position, subject in each case to the terms of the Transaction and

other governing documentation. If you do not make a required payment or delivery under a Transaction or provide the additional required funds to meet a margin call within the prescribed time (taking into account any applicable notice requirements and grace periods), the governing documentation may provide that the Transaction and possibly your entire relationship with us may be terminated, potentially requiring a termination payment by you.

Depending upon your other arrangements with us or with your other creditors, such failure to comply or such termination may also trigger cross-default provisions in these other arrangements, which may provide us or your other creditors with rights to accelerate or terminate these other arrangements, possibly increasing your funding risk to the extent you are required to make additional payments or deliveries.

E. Credit risk of named counterparty (and any applicable guarantors or credit support providers), prime broker, clearing broker or clearinghouse

Credit risk is the risk that a party to a Transaction or, if applicable, a party's guarantor or credit support provider, will fail to perform its obligations when due, including its obligations to return collateral which it is no longer entitled to hold, or that the amount of collateral provided by that party or its credit support provider proves insufficient. Because of this credit risk, our and your creditworthiness and that of our and your guarantor or other credit support provider, if any, is a material consideration in entering into or determining the terms of a Transaction, and has an impact on the pricing, costs or credit enhancement of the Transaction. A party's exposure to credit risk, if so agreed, may be reduced by the delivery to it or to its custodian of collateral to secure the obligations of the other party or its guarantor or credit support provider, and the other party's exposure to credit risk for the return of such collateral may be reduced by delivering such collateral to such custodian to be held under mutually acceptable custodial arrangements, subject to the credit risk of the custodian as discussed below. Unless otherwise expressly agreed in writing or required by applicable law, neither your counterparty nor any guarantor or credit support provider for your counterparty will have any obligation to deliver collateral in connection with the Transactions.

We refer to the entity that is specified as your counterparty in the documentation evidencing a Transaction, and in whose name that documentation is executed, as your "named counterparty." Unless we have expressly agreed in writing to another arrangement, no affiliate of your named counterparty or any other entity will issue, endorse or guarantee, make payments or deliveries, or otherwise perform or assume any liability for obligations in respect of a Transaction. For the avoidance of doubt, this applies equally to Transactions where we act or an affiliate of ours acts as agent for a different legal entity that is the named counterparty. Accordingly, the Transactions are subject to your named counterparty's credit risk. In the event, however, that the named counterparty's payment or delivery obligations under or in connection with the Transactions are guaranteed by any guarantor or credit support provider, the satisfaction of such payment or delivery obligations is also subject to the credit risk of such guarantor or credit support provider. The value of the Transactions may be affected by the credit

ratings of the named counterparty (or any applicable guarantor or credit support provider), and the credit spreads charged by the market for taking such credit risk.

The obligations of your named counterparty and, if applicable, any guarantor or other credit support provider, in respect of the Transactions are not insured or guaranteed by the Federal Deposit Insurance Corporation, the Securities Investor Protection Corporation or any other agency of the United States, or any other domestic or foreign government.

For some Transactions, our role may be solely that of an executing dealer (i.e., we and you may agree upon the terms of Transactions for give-up to a different entity that acts as your prime broker or for submission for clearing through a different entity that acts as your clearing broker). We refer to such Transactions, if accepted by your prime broker or the designated clearinghouse, respectively, as “**prime brokerage Transactions**” and “**cleared Transactions**”. For prime brokerage Transactions, your named counterparty generally will be the prime broker and, unless otherwise agreed, we shall have no liability for your prime broker’s performance of its obligations to you. The consequences of a Transaction not being accepted by a prime broker, clearing broker or clearinghouse will be governed by applicable law and the terms of any agreement between you and us. You should be aware that an agreement on the terms of a Transaction for give-up or clearing that is not accepted by the prime broker, clearing broker or clearinghouse might result in there not being an outstanding Transaction between you and us, although governing documentation or applicable law may provide for the payment of compensation amounts to us in such circumstances.

With respect to cleared Transactions, you will have exposure to the credit and operational risks of your clearing broker and the clearinghouse. Applicable law and clearinghouse rules may afford some protection from the credit and operational risks of your clearing broker for funds that you have deposited or earned with respect to cleared Transactions. You should familiarize yourself with these protections, particularly in the event of the insolvency or bankruptcy of your clearing broker. The extent to which you may be able to recover your funds or property in the event of the insolvency of your clearing broker will depend on, among other factors, the following features of applicable laws, regulations, rules and security arrangements:

- requirements, if any, to segregate your funds from those of the clearing broker and its other customers;
- restrictions, if any, on the use of such funds by the clearinghouse and other depositories, including whether the funds may be used to satisfy obligations owed by the clearing broker or its other customers (so-called “fellow customer” risks);
- whether applicable arrangements confer a beneficial, security or other interest in property held by or due from the clearinghouse, or property under the control of the clearing broker;
- the priority of your claim to such property relative to other customers, the clearinghouse and general creditors of the clearing broker. (In this regard, you

should note that in some jurisdictions (including under the “commodity broker” and “stockbroker” provisions of the US Bankruptcy Code) property which you have contributed or earned may be pro-rated among customers for purposes of distribution in the event of a shortfall); and

- arrangements, if any, for, and legal restrictions on, the portability of Transactions and associated collateral.

You should be aware that for cleared Transactions you may not have the ability to instruct the clearinghouse regarding the disposition of your Transactions or funds, and that upon a clearing member’s default, the clearinghouse will deal with your funds and Transactions in accordance with its default management procedures, which may include the ability to terminate all cleared Transactions.

Once a Transaction is accepted for clearing and becomes a cleared Transaction, none of your executing dealer, your named counterparty (if there was a prior outstanding Transaction that was novated to the clearinghouse), or any of their respective guarantors or other credit support providers, if any, will have any further contractual obligation to you with respect to such Transaction, unless otherwise agreed.

Upon entering into any Transaction with your named counterparty, your ability to subsequently clear such Transaction on a clearinghouse or to novate your position in an uncleared Transaction to another dealer or market participant, and the cost thereof to you or the value you may receive in connection with any such novation, may be influenced by the creditworthiness of your named counterparty and, if applicable, any guarantor or other credit support provider for your named counterparty. Your ability to clear or novate a Transaction may be materially adversely impaired if one or more clearinghouses, futures commission merchants or other clearing brokers, dealers or other market participants, as the case may be, refuse to extend credit to your named counterparty (whether on a secured or margined basis or otherwise), or if credit limits, position limits, or other limits for your named counterparty (including any guarantor or other credit support provider, if applicable) would be exceeded.

F. Collateral delivered to a third party custodian is subject to that custodian’s credit and operational risk

If you or any guarantor or credit support provider posts collateral in connection with the Transactions that is held in an account at a third-party custodian, the return of such collateral is subject to the credit and operational risks of that third-party custodian, risks which the terms of the Transactions and other governing documentation may (or may not) have expressly allocated between the parties. If such third-party custodian were to default in its obligations to return that collateral when due, you (or, if applicable, your guarantor or credit support provider) could suffer substantial economic losses and/or such default may result in you defaulting under the terms of such Transactions and other governing documentation.

Similar risks, and considerations regarding their allocation, apply if your named counterparty or any guarantor or credit support provider for your named counterparty agrees to post collateral to you in connection with the Transactions that is to be held at a third-party custodian. Your ability to realize upon that collateral is subject to the credit and operational risks of that third-party custodian, and you could suffer substantial economic losses if that custodian breaches its custodial obligations. You also will be exposed to the credit risk of any issuer or obligor of any instrument comprising such collateral.

Regardless of which party may be delivering collateral, if the third party custodian commences an interpleader action, takes other action to resolve uncertainty regarding its duties with respect to the disposition of the collateral, or otherwise fails to act in a timely manner, there could be significant delays or additional costs, including as a result of custodian indemnification provisions, in obtaining the return of your collateral or your ability to realize upon our collateral.

G. Operational risks related to Transactions may result in losses

Operational risk is the risk of loss to a party arising from inadequacies in, or failures of, people, processes, procedures, systems and/or controls for conducting Transactions, including (i) recording, monitoring and quantifying the risks and contractual obligations associated with Transactions, (ii) recording and valuing Transactions and related transactions, (iii) making payments or deliveries, (iv) exercising rights before they expire, including option exercise rights, in a manner that complies with the terms of the relevant Transactions, (v) meeting regulatory filing, reporting and other requirements, or (vi) detecting human error or systems failures, including disaster recovery procedures.

Examples of operational risks include failures to record Transactions or life cycle events (including amendments, transfers, early terminations, or automatic exercises), to obtain quotations or market data needed to make payment, delivery or settlement computations, to give or respond to notices in a timely manner or to review and disaffirm erroneous confirmations before they become binding, and the loss of systems connectivity to, or the failure of, a trading facility or confirmation/affirmation platform.

Losses from operational risks can be substantial, including the loss of the entire value of a Transaction, which may be the case, for example, if an unexercised option expires in-the-money to you. The extent of your exposure to losses from the operational risks of parties not under your control may be determined, in part, by applicable law and/or contractual provisions that allocate or limit liability.

H. Transactions may involve legal and documentation risks

Legal and documentation risks include the risks that Transactions or related arrangements may not be legally enforceable, or that their documentation does not correctly reflect a party's understanding. As a result, disputes could arise as to the enforceability of Transactions or related documentation or the intended meaning of documentation terms, or ambiguous terms could be construed by a court or arbitrator in a manner that is

materially adverse to a party's expectations. Changing documentation practices, including as a result of the development of new or updated industry standard terms, and their possible non-uniform adoption by market participants, may give rise to documentation basis risk (i.e., the risk that Transactions that are intended to be economically similar may behave differently in certain circumstances due to their incorporation of different documentation terms). Accordingly, parties should monitor evolving documentation practices and be alert to the possibility that new documentation terms may be incorporated through bilateral documentation, industry protocols, or changes in the rules of a confirmation service or trading facility. An industry protocol is typically a multilateral contractual amendment mechanism that allows for various standardized amendments to be made to the relevant existing agreements between any two parties who choose to adhere to the protocol. Industry protocols require adherence on the part of *both* parties to existing agreements in order for the protocol to apply to the parties' documentation.

The terms of a Transaction may contain new or unique features that may not be fully understood or standard in the market at the time you enter into the Transaction or may no longer be part of the standard terms of a Transaction as the standards evolve. Such features and evolving standards may expose you to various risks, including litigation risk, basis risk (i.e., the risk that otherwise similar Transactions entered into at different times may have different terms) and liquidity risk with respect to your Transaction.

Legal risks also include the risks that Transactions, or activities associated with Transactions, conflict with or violate applicable law (including bankruptcy laws) or the provisions of other contracts or instruments, potentially subjecting a party to lawsuits, regulatory proceedings, legal or equitable remedies and/or sanctions.

In the event that your named counterparty to the Transactions or, if applicable, its guarantor or other credit support provider, becomes subject to an insolvency proceeding, the laws governing the insolvency proceeding will have an important bearing on your rights, obligations, remedies and claims under the Transactions. Although applicable insolvency laws may contain protections for certain contractual rights with respect to qualifying financial contracts, the consequences of our insolvency for you will depend on various factors, including our and your regulatory status, specific applicable law including any non-US insolvency laws applicable to us, the characteristics of the Transactions, the terms of any master agreements and credit support arrangements governing the Transactions, the manner in which a court or bankruptcy official exercises its statutory or equitable powers (including, where applicable, to assign or repudiate contracts), and the existence in some jurisdictions or regulatory regimes of mandatory waiting periods to allow contracts to be transferred or assumed before termination rights may be exercised.

If a third party custodian holding your collateral becomes subject to an insolvency proceeding, your ability to recover your collateral will depend on similar factors, including the applicable insolvency regimes, whether the custodian has maintained sufficient unencumbered assets to satisfy claims of other custodial customers for which it holds securities of the same type as the securities included in your collateral, the legal

characterization of your relationship with the custodian and the relative priorities and claim amounts of other claimants. Your claim for the return of cash collateral from the third-party custodian may be that of an unsecured creditor.

The protections, if any, afforded to uncleared Transactions and to collateral that you have delivered to us to secure your obligations in connection with uncleared Transactions differ from those applicable to transactions cleared on a derivatives clearing organization or other clearinghouse. In particular, you should be aware that if the governing documentation for uncleared Transactions effects an outright transfer of title in the collateral to us or permits us to re-use or rehypothecate the collateral, you may lose your proprietary interest in the collateral and have only an unsecured claim for the return of the collateral value remaining after its application to satisfy your obligations to us. Unless otherwise provided by law, you should assume that delivered cash and other collateral is not insured by any government or governmental agency (including the Federal Deposit Insurance Corporation).

The mechanics of an index Underlier may be governed by index rules. While any index rules are intended to be comprehensive, ambiguities may arise. In such circumstances, when we are the index sponsor (as defined in “III. O. Index Underliers” below) we will resolve such ambiguities in good faith and in a reasonable manner and, if necessary, amend any rules of the index to reflect such resolution.

While the index sponsor, at the time of entering into the Transaction, employs the index rules ascribed to the index, no assurance can be given that market, regulatory, judicial, financial, fiscal or other circumstances (including, but not limited to, any changes to or any suspension or termination of, or any other events affecting any constituent within, the index) will not arise that would, in the view of the index sponsor, necessitate an adjustment, modification or change of such methodology. The index sponsor may also, at any time and without notice, adjust, suspend or terminate the index. The index sponsor is also under no obligation to continue the calculation, publication and dissemination of the index. Any such adjustment, suspension, termination or non-publication may have a negative impact on the Transaction. Sponsors of an index may amend the rules governing such index from time to time pursuant to the governing documents of such index.

You should evaluate these considerations carefully, as well as all other legal, regulatory and documentation issues associated with conducting Transactions, in consultation with your legal advisors.

I. It may be difficult or impossible to establish the value of some Transactions

The price and characteristics of a Transaction are individually negotiated between the parties. Because Transactions may not be standardized or publicly traded, their value at any time may not be precisely ascertainable or even well defined. Our pricing models may differ from those of other dealers and may arrive at different values. Our pricing models contain proprietary features which we are not required to share with you. The assumptions and theoretical analyses underlying a pricing model may prove to be incorrect, and the observable market inputs used in the model, which we may obtain from

third party sources, may not be representative of current market conditions. We make no representations or warranties regarding the accuracy of information from third party sources. Reported prices for similar transactions, even if they are available, may not be directly comparable due to differences in transaction size, credit or collateral terms or other particular features that may not be ascertainable from the information reported. Consequently, it may be difficult for you to establish an independent value for an outstanding Transaction.

You should not regard the daily or pre-trade mid-market mark or any other indicative quotation that we provide to be an offer to enter into or terminate the relevant Transaction at that value or price, unless we identify that value or price as firm or binding with respect to a specific quantity or notional amount of the Transaction. Indicative valuations that we provide to you may differ from those used to determine your collateral or margin delivery obligations or from the prices at which we record Transactions on our books and records. We make no representations or warranties that any such prices, values or valuations are suitable for complying with any financial or tax reporting obligation, determining net asset value, computing any tax liability or any other purpose, matters which you should discuss with your own financial, legal, tax, accounting and other professional advisors and, except as otherwise agreed, we disclaim any liability for any such use or reliance thereon, whether losses or damages are direct, indirect, incidental or consequential, even if we are advised of their possibility.

The mid-market mark or daily mark that we may provide pursuant to CFTC Rule 23.431(d) does not include amounts for profit, credit reserve, hedging, funding, liquidity, or any other costs and adjustments. Similarly, the daily mark we may provide pursuant to SEC Rule 15Fh-3(c)(2) is the midpoint between the bid and offer, or the calculated equivalent thereof and is the same for all our counterparties that have a security-based swap with us and is not adjusted for holding-specific or counterparty-specific attributes.

We make no representations or warranties to you that the prices at which we offer or value Transactions are the best prices available in the marketplace. You may wish to seek representative quotations from other participants in the relevant market to compare prices or to determine the intrinsic or current market value of a particular Transaction.

J. Option Transactions present special considerations

Under a conventional cash-settled option, the purchaser of the option pays a premium in exchange for the right to receive upon exercise of the option (i) in the case of a call option, the excess, if any, of the reference price or value of the Underlier (as determined pursuant to the terms of the option) above the option's strike price or (ii) in the case of a put option, the excess, if any, of the option's strike price above the reference price or value of the Underlier (as so determined). Under a conventional physically-settled option structure, the purchaser of a call option has the right to purchase a specified quantity of the Underlier at the strike price, and the purchaser of a put option has the right to sell a specified quantity of the Underlier at the strike price.

When you purchase an option, you may suffer a total loss of premium (plus transaction costs) if that option expires without being exercised. An option's time value (i.e., the component of the option's value that exceeds the in-the-money amount) tends to diminish over time. Even though an option may be in-the-money to the purchaser at various times prior to its expiration date, the purchaser's ability to realize the value of an option depends on when and how the option may be exercised. For example, the terms of the Transaction may provide for the option to be exercised automatically if it is in-the-money on the expiration date. Conversely, the terms may require timely delivery of a notice of exercise, and exercise may be subject to other conditions (such as the occurrence or non-occurrence of certain events, such as knock-in, knock-out or other barrier events) and timing requirements, including the "style" of the option. Before entering into an option, you should make sure that you fully understand the method, conditions and timing requirements for exercising the option, including requirements to deliver a notice of exercise, whether and how automatic exercise applies, the definitions of and method for determining any barrier events, whether the terms permit partial exercise and/or exercise on more than one date, and any requirements as to a minimum exercise amount or an exercise amount that is an integral multiple of a specified amount.

The "style" of an option refers generally to when the option is exercisable or to the times at which the price or value of the Underlier will affect the option's payout.

An *American-style* option may be exercised at any time (i.e., on any business day as defined in the relevant documentation) during the specified exercise period prior to the time of expiration.

A *European-style* option may be exercised only on the specified exercise date (or expiration date) prior to the expiration time.

A *Bermudan-style* option may be exercised on the specified exercise date (or expiration date) prior to the expiration time and on a discrete number of specified prior dates.

An *Asian-style* option is a variant of the European-style option. In an Asian-style option, also known as an "average price" option, the reference price or value in relation to the Underlier is derived from an agreed upon calculation, which, by way of example, may be based upon an average of the Underlier's reference prices or values at predetermined dates occurring during a specified "averaging period," with the exercise date occurring at the end of such averaging period. An Asian-style option's payout is therefore based upon the difference between the average reference price or value of the Underlier and the option strike price.

Uncovered option writing (i.e., selling an option when the seller does not own a like quantity of an offsetting position in the Underlier) exposes the seller to potentially significant loss. The potential loss of uncovered call writing is unlimited. The seller of an uncovered call is in an extremely risky position, and may incur large losses if the reference price or value of the Underlier increases above the exercise price by more than the amount of any premiums earned. As with writing uncovered calls, the risk of writing uncovered put options is substantial. The seller of an uncovered put option bears a risk of

loss if the reference price or value of the Underlier declines below the exercise price by more than the amount of any premiums earned. Such loss could be substantial if there is a significant decline in the value of the Underlier. Uncovered option writing is thus suitable only for the knowledgeable investor who understands the risks, has the financial capacity and willingness to incur potentially substantial losses, and has sufficient liquid assets to meet applicable collateral or margin requirements. For combination writing, where the investor writes both a put and a call on the same Underlier, the potential loss is unlimited.

You should also be aware that the risk-return profile of an option may vary depending on the characteristics of the relevant Transaction. For example, a “knock-out option” may expire prior to the scheduled expiration date if the reference price or value of the Underlier falls below, in the case of a put option, or exceeds, in the case of a call option, an agreed upon price or value at specific points in time, or at any time during the exercise period, depending upon how the option is structured. The buyer of such an option bears the risk of reference price movements causing the option to expire prior to the scheduled expiration date. Transaction terms that give a party the right to extend or accelerate the scheduled termination date of a Transaction are economically equivalent to options. Such features may cause you to incur significant losses if exercised against you. The option premium in respect of such features may be in the form of an explicit payment or may be implicit in other terms of the Transaction.

Please refer to Section IV.A.2 below for certain considerations regarding hedging activity in connection with option Transactions.

Complex or Exotic Options

Complex or exotic options, including various barrier options, may involve multiple and varied conditions and triggering events, which may be interdependent and/or dependent on price trajectories or other factors, the occurrence or non-occurrence of which may have multiple and varied consequences. These events or conditions and consequences may interrelate to produce widely divergent outcomes. Complex or exotic options should be studied with great care to ensure that all potential ramifications, including any effects of leverage, path dependence, volatility and correlations among Underliers are well understood.

Swaptions

A swaption is an option that provides one party with the right, but not the obligation, to enter into a swap or security-based swap with agreed-upon parameters on the specified future exercise date or dates. As options, swaptions have the risks and characteristics described above. Selling a swaption may involve substantial risks analogous to uncovered option writing.

The considerations described above regarding the exercise of options apply to swaptions. Automatic exercise of a swaption, if applicable, may be contingent on the calculation agent determining that the swaption is in-the-money by an amount greater than a specified threshold. Because this determination of the in-the-money amount may differ

from the holder's actual costs of procuring and entering into the underlying swap or security-based swap, automatic exercise provisions that incorporate a specified threshold may result in the holder receiving a lesser payout from the swaption than the holder might have derived through optional exercise. If the swaption is physically settled, automatic exercise may require that the holder enter into the underlying swap or security-based swap even if it would be disadvantageous for the holder to do so.

The terms of a swaption will specify whether cash settlement or physical settlement applies. Under cash settlement, if a swaption is exercised or deemed exercised, the seller of the swaption is obligated to pay the buyer the cash settlement amount of the underlying swap or security-based swap, if any. Depending on the terms of the swaption, the cash settlement amount may be determined by the calculation agent based on market quotations for the underlying swap or security-based swap or some other agreed upon methodology. In the case of physical settlement, the result will be a swap or security-based swap between you and the named counterparty on the swaption. You should consider whether applicable laws and regulations require mandatory clearing of the resulting swap or security-based swap. In addition, you may have the right to elect clearing of the underlying swap or security-based swap and choose the clearinghouse. You should be aware that a clearinghouse's margining methodology, including in particular its method, if any, of adjusting for imputed interest on cumulative variation margin, may result in differences in value between a cleared and an uncleared swap or security-based swap with otherwise identical economic terms.

Transactions with option-like features

Some Transactions that are not considered options may have option-like features, such as caps, floors, collars, early termination rights or rights to change Underliers. Such Transactions will be subject to risks associated with options as a result of such option-like features, as discussed above, in addition to the other risks of the particular Transactions.

K. Legislative and regulatory risk and uncertainty for persons engaged in Transactions

As part of global governmental and private sector efforts to stabilize and reform financial markets, changes in the regulation of persons who engage in Transactions have been considered, proposed, adopted, and/or implemented. For example, the Dodd-Frank Wall Street Reform and Consumer Protection Act (the "**Dodd-Frank Act**") established a new regulatory framework for Transactions that, among other matters, provided for the registration and comprehensive regulation of swap dealers, major swap participants, security-based swap dealers and major security-based swap participants, imposed clearing and trade execution requirements, created recordkeeping and real-time reporting regimes and enhanced the rulemaking authority of the CFTC and the SEC with respect to registered entities and intermediaries subject to each agency's respective oversight. New requirements relating to capital, margin, registration, trading restrictions, position limits in futures and swaps, and myriad other aspects of engaging in Transactions have been enacted and implemented, while others are still being formulated or in the process of being implemented. It is anticipated that promulgation of new rules will be followed by

periods in which the meaning and application of rules will be evolving. Further and unforeseeable changes may result. The regulatory changes and resulting requirements of the Dodd-Frank Act, the European Market Infrastructure Regulation, Markets in Financial Instruments Directive II, the Basel III and Fundamental Review of the Trading Book framework, European Benchmarks Regulation, climate change and other environment social and governance regulations, and similar international reform efforts may limit or restrict, or increase the costs of, engaging in Transactions and related activities for us, you (e.g., the costs to you of obtaining and maintaining a legal entity identifier and complying with recordkeeping and other obligations, if applicable) and/or other market participants with which you may wish to transact. Accordingly, the ability to enter into and perform Transactions or engage in future Transactions may be affected in unpredictable ways, including increasing the costs of or reducing the incentives for engaging in such activities.

L. Legislative and regulatory risk and uncertainty regarding Transactions, Underliers and related markets

As part of global governmental and private sector efforts to stabilize and reform financial markets, changes in the regulation of Transactions, Underliers and related markets have been considered, proposed, adopted, and/or implemented. Such measures include temporary and permanent restrictions on short selling securities, price fluctuation limits, trading halts, commodity price caps, restrictions on ‘naked’ credit default swaps, taxes on certain financial transactions, capital controls and measures to address the risks of high frequency trading. It is difficult to predict the impact of such regulations or the likelihood of proposed regulations being adopted, but these regulations could significantly increase compliance costs, cause significant and unexpected market disruptions, or adversely affect liquidity, valuations or volatility in the markets of Underliers. Any of these consequences could in turn adversely affect the Transaction Economics or, subject to the terms of the Transaction and other governing documentation, result in the termination of affected Transactions at unfavorable prices or values.

M. Emerging Market Jurisdictions

In some Transactions, the Underliers may be related to one or more issuers or reference entities that are organized or located in, or are sovereign governments or governmental entities of, emerging market jurisdictions, or one or more of the Underliers may be prices, levels, or values determined by reference to trading markets in such jurisdictions or published by a central bank or other governmental entity of such a jurisdiction. Commercial arrangements with respect to emerging market jurisdictions may be subject to greater uncertainty and volatility when compared to well-developed markets and may be exposed to factors including:

- (i) the risk of significant and sudden changes in political, social, economic and fiscal policies, laws, regulations and interpretations, including with respect to currency exchange, taxation, foreign ownership of assets, prohibitions on the repatriation of

assets, nationalization of businesses and other laws or restrictions, any of which may be applied with little advance notice or retrospectively;

- (ii) difficulties or uncertainty regarding the ability to enforce contractual rights and obligations in local courts;
- (iii) changes in other market or economic factors that may affect the ability to convert the currency of the relevant emerging market jurisdiction to another currency or remit the proceeds of such conversion;
- (iv) lesser liquidity in local securities and futures markets, which may trade a small number of instruments and may be unable to respond effectively to increases in trading volume, potentially making prompt liquidation of any relevant underlying assets difficult or impossible at times, or possible only at unfavorable prices;
- (v) risks related to custodial arrangements and delays or other factors in the settlement of securities; and
- (vi) less developed accounting, auditing, financial and other reporting standards, and lower levels of disclosure and regulation of securities, when compared to more developed markets.

Such factors may affect the price, level or value of an Underlier, the calculation agent's or other determining party's ability to make required determinations, your or our ability to perform obligations, and our ability to enter into or unwind hedge positions in respect of Transactions and the price and timing at which we or an affiliate may enter into or unwind such positions. The occurrence of such events may trigger contractual terms of Transactions or governing documentation that address these risks, and the operation of such terms may adversely affect the Transaction Economics. Alternatively, these risks might not have been expressly provided for in Transaction terms or governing documentation, or their consequences may be unclear, which in either case may lead to uncertainty or disputes.

N. Combination Transactions

In some cases you may enter into two or more Transactions that are intended to operate in an integrated manner to achieve your desired objectives. Each Transaction may be documented, either separately or together within a single confirmation, as a combination of component Transactions, such as a collar documented as a put and a call, a tranching option consisting of component options with sequential expiration dates or Transactions entered into sequentially that are intended to operate in an interdependent manner. The Underliers of the component Transactions may be in different asset classes. You should review the terms of such combined Transactions and consider the possibility that termination events, disruption fallbacks, adjustments, extraordinary events and other important terms may not apply identically to all of the component Transactions, which may adversely affect the Transaction Economics of the combined Transaction. For example, if one of the component Transactions is a cleared Transaction or a prime brokerage Transaction but the other component Transactions are not, the cleared

Transaction or prime brokerage Transaction will be subject to the rules, by-laws and procedures of the applicable clearinghouse or the terms of the applicable prime brokerage agreement, which may lead to differences between the component Transactions that were not intended. Furthermore, when you seek to unwind the combined Transaction, you may have to unwind the component Transactions on different terms or at different times which may lead to a different combined payout than expected.

You should refer to the disclosure annexes to this General Disclosure Statement for each applicable asset type and the relevant disclosure in those annexes relating to the applicable Transaction type for important disclosures about the component Transactions. You should also consider carefully the relationships between the component Transactions and between the applicable asset classes, which may cause the characteristics and risks of the combination of Transactions to differ from what may be expected based on the individual characteristics and risks of each component Transaction.

O. Index Underliers

Certain Transactions may have indexes as Underliers. An index is generally a number or level, which varies over time, that is derived from prices or other quantifiable information about its components, or the index may simply be a set of components that together serve as Underliers for a Transaction or combination of Transactions. An index may be based on observed transaction prices, indicative or estimated prices or levels, survey results, economic statistics or other factors. Examples of indexes include equity indexes, indexes based on the settlement prices of exchange-traded contracts for physical commodities, a set of reference entities with respect to which the credit events are defined that determine consequences under a credit derivative transaction, or measures of inflation, weather conditions or real property prices. You should understand the methodology, characteristics and limitations of any index that serves as an Underlier for a Transaction and consider carefully whether it is appropriate in light of your objectives for entering into the Transaction.

An index may be compiled by an industry association or other private body, a single private firm or by a government agency (the “index sponsor”). The index sponsor is responsible for maintaining an index in accordance with any relevant index methodology. The index sponsor may in certain situations add, delete or substitute the components included in the applicable index or make methodological changes that could change the level of that index. Additionally, the index sponsor may change the publication timing or otherwise alter, discontinue or suspend calculation or dissemination of the applicable index. The index sponsor does not act as an advisor and has no obligation to consider your interests with respect to any such actions. Any of these actions could adversely affect the level of the index and could trigger disruption fallbacks (e.g., an alternative determination of the index level by the calculation agent) or postponement, adjustment or termination provisions of a Transaction with an index Underlier, any of which could adversely affect the Transaction Economics. The operation of such provisions may be subject to discretionary determinations by the calculation agent or other designated party, which may involve subjective judgment and uncertainty. We may be the index sponsor

for the index underlying a Transaction. Please see below and refer to Section IV.A.9 below for certain considerations regarding our role as index sponsor.

In the ordinary course of business the index sponsor and its affiliates may trade components of the index for their own accounts and for other accounts under their management. Such trading activities could potentially affect the level of the index. The index sponsor or its affiliates may act as issuer, agent or underwriter for issuances of securities, or enter into other transactions with returns linked or related to changes in the level of the index or the components of the index and in connection therewith may enter into hedging transactions. Such transactions may affect the level of the index and therefore the value of a Transaction linked to such index, and may generate profit to the sponsor of the index or its affiliates, even if the level of the index declines.

P. Dependence of Transactions on our Hedging Positions

The terms of a Transaction may provide (1) that costs incurred in connection with acquiring, maintaining or disposing of any hedge positions that we or an affiliate have entered into related to the Transaction are passed through to you, including taxes, duties and fees, or (2) that the terms of the Transaction may be adjusted to account for the economic effect of events affecting such hedge positions or (3) that we may terminate the Transaction if such costs are incurred or such events occur. Further, our obligations under a Transaction may be limited to amounts actually received in respect of such hedge positions and, if applicable, which are able to be remitted out of or transferred between relevant accounts in the jurisdictions relevant to such hedging activity. Events that affect the transferability or convertibility of a currency in which such hedge positions are denominated could result in the postponement of valuation dates and payment dates, changes in the settlement currency or the value of an Underlier being deemed to be zero.

Q. Deductions

Unless otherwise agreed in the governing documentation of the Transaction, payments or deliveries may be subject to deductions for tax, duty, withholding or other payments required by law.

R. Eligible Contract Participant Status

If you are not an eligible contract participant (within the meaning of Section 1a(18) of the Commodity Exchange Act and the regulations thereunder), it is unlawful for you to enter into a swap unless the swap is entered into on, or subject to the rules of, a designated contract market. Under Section 5(e) of the Securities Act of 1933 it is unlawful for any person to offer to sell, offer to buy or purchase or sell a security-based swap to any person who is not an eligible contract participant without an effective registration statement. Further, under Section 6(l) of the Securities Exchange Act of 1934 it is unlawful for any person to effect transactions in security-based swaps to any person who is not an eligible contract participant unless the transaction is effected on a registered national securities exchange.

If you are an eligible contract participant and enter into a swap that is not entered into on, or subject to the rules of, a designated contract market, or a security-based swap that was not effected on a registered national securities exchange and without an effective registration statement, you should be aware that certain changes with respect to the swap or security-based swap, such as a material amendment or, in the case of a swaption, your exercise of the option to enter into the underlying swap or security-based swap, may, for purposes of the Commodity Exchange Act and rules thereunder and the Securities Act of 1933 and Securities Exchange Act of 1934 and the rules thereunder, result in the entry into a new swap or security-based swap, respectively. If so, you may only be able to amend, or exercise your rights under the swap or security-based swap if you are then an eligible contract participant.

S. Deal Contingent Swaps

We use the term “**Deal Contingent Swap**” to refer to a type of Transaction that is a forward-starting rates transaction, commodities transaction or foreign exchange transaction that by its express terms either (i) becomes effective upon the occurrence of an event specified for such purpose under the terms of such Transaction (“**Contingency Event**”), such as a merger, stock purchase or other form of acquisition (“**Acquisition**”) or the closing of a financing related to an Acquisition, another transaction, or an industrial, infrastructure, public service or other project as described in such terms (“**Closing**”), or (ii) terminates early or is cancelled if the relevant Contingency Event does not occur by a specified date, within a specified period, or otherwise in accordance with the terms of such Transaction.

In connection with a Contingency Event, a party may or may expect to (i) receive financing on a fixed rate or floating rate basis, (ii) make or receive a payment in another currency, or (iii) enter into a commodities purchase, sale or other commodities transaction. Any such financing, currency payment or commodities transaction may be subject to interest rate, commodity price and/or foreign exchange risk. To hedge or otherwise manage such risk, a party may enter into a Deal Contingent Swap relating to the relevant Underlier.

In addition to risk relating to the relevant Underlier, parties to a Deal Contingent Swap are subject to the risk that such transaction fails to become effective or terminates early or is cancelled with no further obligations due from either party (unless otherwise provided by the terms of the Deal Contingent Swap) if the Contingency Event does not occur within the prescribed terms of the Deal Contingent Swap.

A Contingency Event may not occur for various reasons, which may or may not be specified or referenced in the Confirmation of the Deal Contingent Swap. For the avoidance of doubt, a Deal Contingent Swap does not include a forward-starting Transaction that, while it may have an “Effective Date” or commencement date that is timed to coincide with an expected event or the expected closing of a financing, is not contingent upon the occurrence of such event or closing or does not otherwise result in an early termination or cancellation if such event or closing does not occur.

The terms of a Deal Contingent Swap may incorporate standard definitions published by industry bodies, annexes thereto and other market standard terms, which may in turn be amended or customized pursuant to the terms of the Deal Contingent Swap and its governing documentation. Before entering into a Deal Contingent Swap, you should obtain and review carefully any such materials incorporated by reference as their content could materially affect your rights and obligations under the Deal Contingent Swap, its value and its appropriateness for your particular objectives.

1. Acquisition Outs Risk

In the case of a Contingency Event involving an Acquisition, an Acquisition may not occur or be consummated due to the occurrence or non-occurrence of events set forth in the Acquisition documentation (“**Outs**”) that may or may not be within the control of the parties, including, for example:

- the failure to obtain necessary international and domestic regulatory approvals;
- the existence of legal impediments to the Acquisition;
- the failure of a required shareholder vote;
- an inability to obtain financing on acceptable terms;
- the receipt and acceptance of a competitive bid from a rival acquirer;
- a lack of performance by the parties to the Acquisition documentation;
- the existence of misrepresentations in the Acquisition documentation;
- the exercise of termination rights pursuant to Acquisition documentation;
- the commencement of litigation by third parties;
- a failure to obtain required third party consents; or
- a material adverse change to the target’s business.

As the result of certain Outs, a Deal Contingent Swap may not become effective or may terminate early or be cancelled with no further obligations due from either party to such Deal Contingent Swap. Accordingly, you should closely review and understand the terms of the documentation governing the Acquisition to which a Deal Contingent Swap relates and consider carefully those Outs that could have such result.

2. Risk of a Financing not Closing

In the case of a Contingency Event involving a Closing, the Closing of a financing is typically subject to conditions set forth in the financing documentation (“**Closing**

Conditions) that may or may not be within the control of the parties. As the result of one or more Closing Conditions failing to be satisfied, a Deal Contingent Swap may not become effective or may terminate early or be cancelled with no further obligations due from either party to such Deal Contingent Swap. Accordingly, you should closely review and understand the terms of the documentation governing the financing to which a Deal Contingent Swap relates and consider carefully those Closing Conditions that could have such result.

3. Non-Cancellation Risk

According to the terms of certain Deal Contingent Swaps, particular Outs and/or Closing Conditions (“**Non-Cancellation Events**”) may not prevent a Deal Contingent Swap from becoming effective or may not otherwise result in its early termination or cancellation with no further obligation due from either party. Such Non-Cancellation Events may include those Outs or Closing Conditions within your control or such other Outs or Closing Conditions as the parties may agree will have the same effect. Upon the occurrence of such Non-Cancellation Events, the Deal Contingent Swap may become effective or may not terminate early or cancel, or alternatively the Deal Contingent Swap may physically-settle or cash-settle (which cash settlement may include an early termination or cancellation payment due to or from you based on the value of the underlying rates, commodities or foreign exchange transaction, determined as of the relevant valuation date and disregarding the relevant contingency terms for purpose of such valuation), even though the related Acquisition or Closing has not occurred or been consummated. In such circumstances, the risks arising from Deal Contingent Swaps include those which are similar to writing uncovered options or swaptions where the gains and losses (realized or unrealized) on your position as a writer under such a Transaction would not be offset by corresponding losses and gains (realized or unrealized) on an underlying asset, liability or trading position, thereby potentially exposing you to significant losses depending upon changes in the value of the underlying transaction, or if the Deal Contingent Swap becomes effective and continues, in the applicable Underlier.

4. Risk Arising From Post-Termination Contingency Events

Generally, Deal Contingent Swaps will not become effective or will terminate early or cancel if the related Contingency Event has not occurred (for any reason other than a Non-Cancellation Event) on or prior to a certain date set forth in the applicable Confirmation (“**Determination Date**”). However, the Deal Contingent Swap may provide that, if the Acquisition, Closing or other Contingency Event (or similar transaction, financing or event) occurs or is consummated (or, if so provided, announced) within a certain period following the Determination Date, a payment may be due to or from you based on the value of the underlying rates, commodities or foreign exchange transaction, determined as of the Determination Date or such other valuation date specified therefor and disregarding the relevant contingency terms for purpose of such valuation. To the extent there has been a change in the value of the underlying transaction, this could expose you to significant losses.

5. Pricing

Due to the forward-starting and contingent nature of Deal Contingent Swaps, the interest rate, commodities price or exchange rate payable by you may be higher (or receivable by you may be lower) than if you entered into a current-starting or non-contingent forward starting rates, commodities or foreign exchange transaction. This pricing may reflect our anticipated costs of hedging or otherwise managing our risks associated with the Deal Contingent Swap during the contingency period and/or our own assessment of and willingness to accept the risks of entering into a Deal Contingent Swap. Also, upon the occurrence of a Contingency Event, the terms of a Deal Contingent Swap may provide for a change in its pricing and/or other terms. Before you enter into any Deal Contingent Swap with us, you should carefully evaluate its pricing and other terms, including any changes that will result from the occurrence of a Contingency Event.

6. Conflicts of Interest

Please see Section IV regarding potential conflicts of interests in our financial market activities in connection with Deal Contingent Swaps.

T. Benchmark Risks

Key interbank offered rates (“**IBORs**”) and other benchmarks used in Transactions or affecting Transaction Economics are or may become the subject of national, international or other regulatory or industry initiatives or actions that may cause a benchmark to perform differently than in the past, or to disappear entirely, or have other consequences that cannot be foreseen at the time you enter into a Transaction. Any such consequences could adversely affect a Transaction or its Transaction Economics. In addition, fallback arrangements may apply to a Transaction in the event of a suspension, discontinuance or unavailability of a benchmark as specified in the documentation for the Transaction. You should consider the potential effect of any fallback arrangements on the Transaction and its Transaction Economics. For additional information, including related risks, see ISDA’s Disclosure Annex for Interest Rate Transactions together with its IBOR Alternative Reference Rates Disclosure supplement.

Prior to entering into a Transaction that is priced or settled or that includes a contingency based on one or more reference rates or prices, you should endeavor to fully understand how those reference rates or prices are established, including, among others, the nature, quality and sources of data inputs, the methodology and process for the construction or generation of such reference rates or prices and the contingency arrangements maintained by the sponsor, publisher or administrator, the governance and oversight arrangements maintained by the sponsor, publisher or administrator of such reference rates or prices (including with respect to any submission process or other data input selection process) and its management of conflicts of interest, and the transparency and availability of disclosures by the sponsor, publisher or administrator regarding the foregoing matters. You should independently assess the suitability of the reference rates or prices for your Transaction and your needs, including how highs and lows of such reference rates or

prices may adversely affect your interest. Information regarding a reference rate or price may be available through the sponsor, publisher or administrator, including its publications or websites or through other sources.

U. Foreign Exchange Risks

Please refer to the Disclosure Annex for Foreign Exchange Transactions, published by the International Swaps and Derivatives Association, Inc. for a discussion of certain events that may affect foreign exchange markets.

IV. CONFLICTS OF INTEREST AND MATERIAL INCENTIVES

A. Our financial market activities may adversely impact Transactions

We may act as, among other things, an investor, research provider, placement agent, underwriter, distributor, remarketing agent, structurer, securitizer, lender, investment manager, investment adviser, commodity trading advisor, municipal advisor, market maker, index sponsor, trader, prime broker or clearing broker. In those and other capacities, we may purchase, sell or hold a broad array of investments, we may trade securities, loans, commodities, currencies, credit instruments, indices, baskets, derivatives, and other financial instruments for our account or for the accounts of our customers and other counterparties, including Transactions, or provide advice or other services that may result in our customers engaging in such activities. We may have other direct or indirect interests in these products and the markets, data providers, index sponsors, clearinghouses, settlement systems and other market utilities with respect to such products. We may provide liquidity to a trading venue, clearing member or exchange member. We may be a participant on an exchange settlement committee. We may be a participant or sole index sponsor in determining the components of an index and may submit or compile estimates or prices upon which an index is based, or provide or calculate transaction data.

We may own equity in, provide financing to, serve on the board of directors of, provide investment banking advice on mergers, restructurings and other corporate actions to, or initiate or participate in the enforcement of remedies against, issuers and other third parties whose activities may influence or otherwise affect the price, value, or level of Underliers and/or the Transaction Economics.

Our financial market activities may, individually or in the aggregate, materially affect the value of an Underlier, either positively, or negatively, and may adversely affect your Transaction Economics. You should expect that our interests, and the interests of our customers or other counterparties, may at times be adverse to your interests under or in connection with Transactions we conduct with you. **Unless otherwise required by applicable law or agreed in connection with a particular Transaction, we are not acting in your best interests, offering “best execution,” and we are not assessing the suitability of the Transaction for you.** Without limiting the foregoing (except as the same may be limited by applicable law), we may engage in the following activities,

which may, individually or in the aggregate, adversely affect your Transaction Economics, create a conflict between your and our interests and give us a material incentive to enter into Transactions with you:

1. Publish research reports or otherwise express views regarding Underliers

We may publish research from time to time on Underliers or Transactions. More generally, we may express views on financial markets and other matters that may influence the price, value, or level of the Underliers and related Transactions in a way that adversely affects your Transaction Economics.

Our personnel, including sales and trading, investment research and investment management personnel, may make investment recommendations, provide market color or trading ideas, or publish or express independent views in respect of a wide range of issuers, securities, other instruments and market variables, including interest rates, inflation, foreign exchange, commodities and other variables that may be relevant to an Underlier. These strategies may include, for example, buying or selling a financial instrument or buying or selling credit protection against a default or other event involving an issuer or financial instrument. Any of these recommendations and views may be positive or negative with respect to an Underlier or other securities or instruments similar to or linked to an Underlier or may result in trading, investment, or hedging strategies that have a positive or negative impact on the market for such securities or instruments, particularly in illiquid markets. In addition, you should expect that our trading, research or investing personnel will have or develop independent views regarding an Underlier, Transaction or relevant industry or other market trends, which views may be inconsistent with your views or objectives in connection with particular Transactions and may adversely affect your Transaction Economics.

Any research, opinions or recommendations expressed by us or our affiliates may not be consistent with each other and may be modified from time to time without notice. You should make your own independent investigation of the merits of entering into each Transaction and the Underliers.

2. Trade for our own account or the account of customers

We may on a regular basis trade (taking long or short positions, or both concurrently) in instruments identical or economically related to your Transactions or the Underliers. We may engage in these activities for our own principal accounts, for accounts under management or to facilitate transactions (including block transactions) on behalf of customers.

Subject to any express agreement in the governing documentation, we may, in our discretion, decide to hedge our exposure under Transactions by taking positions in the Underliers or related instruments. We may adjust our hedge dynamically by

purchasing or selling the Underliers or related instruments, and may close out or unwind our hedge positions. Our market activities in connection with such hedging may occur, or become more frequent or of greater magnitude, in connection with or in anticipation of the initiation or termination or exercise of your Transactions, on or before a valuation or observation date, or, in the case of option Transactions, when the price, level or value of the Underlier is near the exercise level or level at which a “barrier” or other condition may be satisfied. We may also structure, trade and market instruments that may take opposing economic positions to your Transaction.

The foregoing trading activities may adversely affect (i) the price, value, or level of Underliers and Transactions, (ii) the likelihood that an option Transaction will be in-the-money or become exercisable or that a barrier event will occur, or (iii) your trading, investment or hedging strategies or results. The results of your Transactions may differ significantly from the results achieved by us for our proprietary or managed accounts. We are under no duty to inform you about the nature or extent of our trading activities or to refrain from or restrict such activities as a result of being your counterparty to Transactions or having received any information regarding your trading interest with respect to Transactions, except in each case to the extent we have expressly agreed in writing with you or as may be required under applicable law.

3. Engage in similar Transactions with other counterparties

We may engage in Transactions with other counterparties that have trading, investment, or hedging objectives that are similar to yours. This may create potential conflicts where there is limited availability or limited liquidity for those Transactions. We may also engage in Transactions with other counterparties that have trading, investment, or hedging objectives adverse to yours. We are under no duty to inform you of the nature or identity of these other counterparties or their respective Transactions.

Transactions by multiple counterparties may have the effect of diluting or otherwise negatively affecting the values, prices or levels of Underliers or Transactions, or your trading, investment or hedging strategies or results. The results of your Transactions may differ significantly from the results achieved by other counterparties.

4. Possess non-public information relevant to Transactions

Acting in the various capacities noted above or elsewhere may give us broad access to the current status of certain markets, investments and products. For example, we may have investment banking or other commercial relationships with and access to information from the issuer(s) of securities, financial instruments, or other interests underlying your Transactions. As a result, we may be in possession of information, which, if known to you, might cause you to seek to dispose of, retain or increase interests in one or more Transactions. Unless

otherwise agreed, we will be under no duty to make any such information available to you, except to the extent that disclosure may be required under applicable law.

5. Lack information across business lines and affiliates

As a result of logistical, technical and physical separation between and among business lines, administrative functions and legal entities, including informational barriers constructed between different divisions, the natural persons acting on our behalf to engage in Transactions with you are unlikely to have access to all information known collectively by all of our business lines, and they may not be able to consult with personnel in other business lines. If so, they will not have the benefit of all the information held by and among all of our business lines and administrative functions.

6. Act as calculation agent, valuation agent, collateral agent, or determining party

We may act as the calculation agent, valuation agent, collateral agent, or other determining party with respect to Transactions for determining payments or deliveries during the term of Transactions, upon termination or otherwise, any disruption events, dilution adjustments or termination events, and any other terms of a Transaction as agreed with you. In such capacity, our role and our duties will be limited to those set out in the Transaction or the governing documentation, it being understood that our economic interests with respect to Transactions in which we act as a calculation agent or other determining party are potentially adverse to yours with regard to the Transactions. Determinations we make in one or more of these roles may adversely affect the Transaction Economics.

7. Have an economic interest in the execution venue or clearinghouse

We may have an ownership or other economic interest (such as the right to receive payment for order flow, reporting or other fees) in a swap execution facility, designated contract market, security-based swap execution facility, national securities exchange, or other trading venue on which Transactions may be executed. We may have ownership or other economic interests in a clearinghouse to which a Transaction executed between us could be submitted or given up for clearing. We may have access to one or more trading venues or clearinghouses and not others. Our directors or employees may serve as directors of one or more trading venues or clearinghouses. In such cases, we may derive financial or other benefits if your Transaction is executed and/or cleared at such venue or clearinghouse. Conversely, it may be financially advantageous for us if a Transaction is executed bilaterally and not cleared (applicable law permitting). For example, if a Transaction is not cleared, we may incur lower funding costs, derive a funding benefit or face more favorable market conditions in which to hedge our exposure resulting from a Transaction.

8. Act as an agency broker or clearing broker

If we act as your agent for the execution of Transactions, subject to applicable law, we may have discretion to decide where to direct your orders, to solicit persons to trade opposite those orders, or to enter into Transactions opposite those orders for our own account or the account of our affiliates or customers. We may derive financial and other benefits (such as the right to receive payment for order flow, reporting or other fees) from such decisions. We (including an affiliate of your named counterparty) may act as your futures commission merchant or other clearing broker with respect to cleared Transactions. A clearing broker may earn a return from the investment of customer funds deposited to margin cleared Transactions. Accordingly, we may have an incentive to encourage you to use our services (including those of an affiliate) as your futures commission merchant or other clearing broker.

9. Act as index sponsor

We may act as index sponsor for certain indices that may be Underliers to Transactions.

Potential conflicts of interest may exist in such cases as we take on separate roles (i.e. Transaction counterparty, calculation agent and index sponsor). In accordance with the index methodology, the index sponsor will determine the prices and other data relevant to the calculation of the level of the index, including whether a market disruption event or other event permitting suspension of the index has occurred. In limited circumstances, the index sponsor may add, delete or substitute the components of the index, make other methodological changes that could change the level of the index or alter, discontinue or suspend calculation or dissemination of the index, any of which may affect the Transactions.

As index sponsor we will determine, calculate and publish the index, while we also may issue, enter into, promote, offer or sell transactions or investments linked, in whole or in part, to the index. In addition, we may have, or may have had, interests or positions, or may buy, sell or otherwise trade positions in or relating to the underlying assets linked to the index. Such activities may or may not have an impact on the level of the index and therefore on the value of Transactions. In light of these different roles performed by us, you should be aware of our potential conflicts of interests.

B. Transaction fees and implicit spreads may increase your loss or decrease your return

We generally enter into Transactions to earn a profit or to manage the risks of exposures we have accumulated through the conduct of our business. Our profits may derive from explicit fees and commissions, or may be implicit in the difference between payments and deliveries made to or by us under Transactions and our costs (or gains) in hedging

and carrying the resulting exposures. It is possible that we may earn a substantial return from our hedging positions related to a Transaction while the value of the Transaction to you declines or fails to increase by a commensurate amount. Before you enter into a Transaction, you should review and understand all commissions, fees and other charges for which you will be liable, including all amounts payable or due to us. These charges will affect your net profit (if any) or increase your loss. We may be paid a structuring fee distinct from payments made in connection with a Transaction.

C. We may use third parties for marketing or solicitation

We may pay third parties to market or solicit counterparties and/or Transactions on our behalf. Accordingly, any party that referred you to us may have an economic stake in your Transactions.

D. Our own transaction fees and costs may be reflected in the price or economic terms of Transactions

We have a variety of costs and expenses associated with entering into and carrying Transactions. These may include, without limitation, fees, commissions and other charges that we may become obligated to pay to third parties from time to time in connection with Transactions, including brokerage fees, referral fees, and execution, clearing and/or reporting fees associated with our compliance with applicable law. Unless otherwise agreed, you will not be obligated to reimburse us for these fees, commissions or other charges, but as with any of our other costs and expenses, you should assume they are reflected in the price or other economics of your Transactions. In this regard, we generally do not disclose our costs and expenses except as may be required by applicable law.

E. Our lobbying activities may adversely impact Transactions

We may directly, indirectly, individually or through participation in industry trade groups or other associations, engage in lobbying or other advocacy efforts, both domestically and internationally, before national and state legislatures, governmental agencies, regulatory bodies or other authorities or officials (including the CFTC, SEC, bank supervisors and securities and financial services regulators, including FINRA and the NFA) on matters relating to Transactions (whether of a legal, regulatory, financial, tax, or accounting nature or otherwise) in which our interests and positions may conflict with or be adverse to your interests and positions on such matters.

F. Our relative compensation may vary from one Transaction to the next

If we recommend alternative Transactions or alternative Transaction strategies to accomplish a particular financial objective that you may have (each, an “**Alternative**”), our relative compensation may vary from one such Alternative to the next. Before entering into or adopting any such recommended Alternative, you may wish to consider our relative compensation as it relates to our incentives and potential conflicts of interest. In particular, our relative compensation may be material to our incentives underlying our recommendations, and how we rank our relative compensation from one Alternative to

the next may assist you in making your assessment of each Alternative that we may recommend to accomplish a particular financial objective.

1. Relative compensation

As used herein, “**relative compensation**” means, as between two or more Alternatives, that we may rank our expected compensation as higher, lower or generally equivalent from one such Alternative to the next as of the date of such ranking. For this purpose, “**generally equivalent**” means that we estimate the difference, if any, in our expected compensation from two or more Alternatives to not be material.

These rankings may be based on good faith estimates and assumptions without intending that our relative compensation reflect the actual compensation that we may book or realize over the life of any of the Alternatives assuming any were to be entered into or adopted, and without any obligation to disclose our expected or actual compensation (including estimates) except as required by law or regulations, including CFTC Regulation 23.431(a)(3)(ii). Unlike mid-market marks furnished to our counterparties under CFTC Regulation 23.431, our relative compensation rankings may also take into account, and reflect disparities in, amounts for profit, credit reserves, hedging, funding, liquidity or other costs or adjustments between Alternatives and/or those of any offsetting trading positions, hedges or underlying hedged items. Whether and to what extent our relative compensation is materially affected by one or more of these amounts (or estimates thereof) may depend on a variety of factors, including the type and material characteristics of each Alternative, our pricing assumptions for each Alternative (which may vary from counterparty to counterparty at our discretion), and the risk management strategies we anticipate employing to hedge or otherwise manage our risks associated with each Alternative.

Estimates, assumptions and other factors that we may take into account are subject to change at any time, including as the result of changing market conditions, and therefore no assurances are given that our rankings will be the same from one recommendation to the next. Confidential, proprietary features of our estimation methodology and related assumptions may over-state or under-state our relative compensation, depending on the relevant circumstances. Also, just as expected compensation may vary from one dealer to the next, our rankings may not be representative of those of any other dealer or market participant. Our rankings (and the prices we offer) also may vary from counterparty to counterparty, depending on such factors as (without limitation) counterparty credit risk, margin or collateral arrangements and trading history.

2. Relative compensation disclosure

Transactions typically involve credit risk, and we generally expect to be compensated for exposing ourselves to and managing such risk, whether or not the Transactions are cleared, margined or collateralized. To the extent a

Transaction or Transaction strategy involves greater credit risk, we may price such Transaction or Transaction strategy accordingly, such that we may expect to receive more compensation from one versus another to justify the greater credit risk.

Besides credit risk, other factors may be more, less or equally important, such as our costs and risks associated with carrying, hedging and funding a particular Transaction, including capital costs, margin costs, clearing costs, funding costs, operating costs and the costs and risks (including credit risk and basis risk) of acquiring, carrying, margining, funding, managing and disposing of one or more related hedging or trading positions. Of course, the price at which we are willing to offer or accept a Transaction also generally reflects our expectation to earn income or a profit at inception, during the life of, or upon final settlement of the Transaction, or in connection with exercising, amending, transferring or unwinding the Transaction or as the result of another life cycle event, and the exact amount thereof may not be known until after the Transaction is fully performed. Unless otherwise agreed, any price we offer is inclusive of any markup above the price at which we may be able to transact, or have transacted, in related hedging or trading positions. After taking into account these and other pricing factors, we hereby disclose the following in connection with any Transaction or Transaction strategy that we may recommend from time to time to accomplish a particular financial objective:

- Effect of Increased Risk/Protection. Our relative compensation is generally expected to be higher for those Transactions or Transaction strategies that involve larger notional amounts, longer maturities, or factors or features exposing us to higher risk or that increase your protection against economic or other risks.
- Effect of Non-Standard Terms or Adjustments. The inclusion or adjustment of other characteristics of Transactions or Transaction strategies may also increase our relative compensation. For example, as between two alternative Transactions that are identical in all respects except for the inclusion of a financing component (such as the adjustment of a rate or price to reflect the inclusion or deferral of a payment you would otherwise make to or owe us on another transaction or instrument), our relative compensation for the Transaction with the financing component included will generally be higher than for the Transaction without a financing component.
- Effect of Combining Different Swaps and/or Options. When swaps and options are combined into one Transaction, such as an option to enter into a swap, or adding an option to a swap that allows a party to terminate the swap early, either without paying a fee or by paying a reduced fee, the option would generally make the Transaction more expensive for the party that would be acquiring the option. If we would be granting such an option to our counterparty, it can generally be assumed that our relative

compensation from such combined swap and option Transaction would be greater than from the swap without such option. Absent our ranking our relative compensation for specific alternative Transactions or Transaction strategies, you should generally assume for purposes of evaluating our incentives and conflicts of interest that any alternative Transaction or Transaction strategy that involves a combination of swaps and/or options or other components will result in higher relative compensation to us than a swap or strategy that does not involve such combination. Of course, there may be benefits associated with such combination to justify the higher relative compensation, but aside from the increased cost to you, there could be other disadvantages, such as exposing you to increased financial or other risks, which could be significant. There also may be exceptions to the foregoing observations and assumptions. For example, if an alternative Transaction or Transaction strategy involves you selling or granting to us an option or other rights, this may reduce our compensation, representing a potential cost savings to you, but there may be disadvantages associated with our acquiring such option or rights from you, including exposing you to financial or other risks, which could be significant.

- Effect of Pre-Payment Features for Options, Forwards and Swaps. Our relative compensation for an option, forward or swap for which you prepay your payment obligations to us would typically be lower than for an equivalent option, forward or swap that you do not prepay because of the absence of credit risk for us in connection with the prepaid option, forward or swap.

Given the variety of possible alternative Transactions or Transaction strategies that market participants may use to hedge or otherwise manage commercial risk (or use for trading or investment purposes), this disclosure of our relative compensation is limited to the specific Transaction characteristics described herein and does not address every possible circumstance.

This disclosure is not meant to describe all of the factors that might affect our relative compensation in connection with a recommendation of alternative Transaction or Transaction strategies, or that we may nevertheless take into account in establishing an actual price for a Transaction regardless of the order in which we may rank our relative compensation from one Transaction or Transaction strategy to the next. These factors may vary from one Transaction asset class to the next or by type of Transaction or Transaction strategy, and may include, without limitation, any or all of the following:

- The size of the Transaction in relation to the volume of market activity at the time of execution, exercise or life cycle event.
- The tenor or maturity of the Transaction.
- The complexity of the Transaction or the structure that is created.

- The bespoke nature of the Transaction’s material characteristics and any associated basis risk.
- Whether the Transaction has a linear payout structure or a non-linear payout structure (the latter of which typically includes options or swaps with option-like features or performance) and the costs and risk associated with dynamic hedging strategies generally associated with carrying non-linear Transaction positions.
- If a Transaction involves two currencies, the implied volatility of the currency pair.
- The liquidity of, or the supply and demand for, the Transaction, an Underlier or related instruments or in markets generally, which may be influenced by political considerations, economic indicators, inflation, interest rate differentials, market perception, and other factors.
- Counterparty-related factors, which may include, without limitation, counterparty type, risk profile, jurisdiction, creditworthiness and credit support.
- Trading and delivery channels, location, taxes and costs.
- The location where physical delivery of an Underlier is to take place.
- Transportation, transmission, storage and other costs associated with an Underlier.
- Settlement risk, including whether settlement will be effected on a “payment-versus-delivery” (PVD) basis.
- Regulatory considerations, given that certain Transactions or structures may be subject to different requirements and costs in the relevant jurisdiction or between jurisdictions in the relevant market(s), e.g. trade execution, clearing, trade processing and margining requirements and costs.
- Market “skew”, implied market bias or other factors that may influence trading or hedging.
- Central bank exchange controls that may restrict currency delivery (such as non-deliverable currencies).

Please note that pricing assumptions, market conditions and other factors may change after we have ranked our relative compensation for alternative Transactions or Transaction strategies, and therefore the price of any such Transaction may not reflect the same factors used and assumptions made in furnishing you with such ranking. Likewise, since rankings are based on our estimates and assumptions, they are not guarantees that any such ranking, or the factors that affect relative compensation generally described herein, will ultimately match the final economic outcome of a particular Transaction or Transaction strategy. As noted above, confidential, proprietary features of our

estimation methodology and related assumptions may over-state or under-state our relative compensation, depending on the relevant circumstances.

If we furnish you with a ranking of our relative compensation for specific Transactions or Transaction strategies, such ranking should be only one of many factors that you and your independent financial and other professional advisers take into account in evaluating such Transactions or Transaction strategies. You and your advisers should carefully consider the benefits, costs, risks and other advantages and disadvantages of Alternatives, especially when a Transaction or Transaction strategy combines different swaps and/or options, or components of different swaps and/or options, or is otherwise structured, more complex or otherwise less liquid. For example, there could be accounting or tax issues or consequences associated with different Alternatives that your accountants or tax advisers may identify and advise you to take into consideration in deciding upon an Alternative or choosing between Alternatives.

G. Pre-Hedging Activity

Pre-hedging is the practice of managing the risk associated with one or more anticipated counterparty transactions. The information used by us for the purposes of pre-hedging may include, but is not limited to, your indicative interest in a potential transaction, requests for a quote or order details. We may use such information and engage in pre-hedging activity by dealing as principal with a view to facilitating a potential transaction and may execute portfolio risk management transactions, other counterparty transactions or other risk management activities ahead of your transaction. Any pre-hedging transactions may be executed before—including, but not limited to, immediately prior to the pricing or consummation of any directly or indirectly related Transactions between us, at a price that is different from, and more or less favorable than, the price at which we transact with you.

While pre-hedging activity is not designed or intended to disadvantage you, such pre-hedging activity may negatively impact market price or liquidity and adversely affect your transaction with us or with others with whom you trade.

This disclosure is not meant as a statement that we will engage or not engage in any pre-hedging activity or describe exactly how pre-hedging may impact any specific Transaction or market. The impact of pre-hedging may vary from one Transaction to the next or by type of Transaction or Transaction strategy.

V. NOTIFICATIONS

A. Scenario Analysis

Prior to entering into a Transaction in any swap that is not available for trading on a designated contract market or swap execution facility, you may request, and consult on the design of, a scenario analysis to allow you to assess your potential exposure in connection with such swap. Any such swap scenario analysis will, subject to terms as agreed between the parties:

- be prepared at your request for informational purposes only;
- be confidential and solely for your use, and may not be reproduced, published or distributed to anyone else without our prior written consent, subject to applicable law;
- be based upon model assumptions you provide to us and should not necessarily be considered reflective of our opinion of these assumptions;
- reflect our use of proprietary internal models and/or third party models to determine estimated prices, values, spread levels, or other variables based on your model assumptions, and we do not represent that these models are accurate or complete, or that they have been calibrated for scenarios comparable to your assumptions, and they should not be relied upon as such, nor will we be under any obligation to disclose to you confidential or proprietary information concerning such models; and
- not constitute a guarantee nor offer indemnification to you (or any other person) for losses, claims, damages, liabilities, costs or expenses, direct or indirect, arising from your use of or reliance on the information contained in the analysis.

A swap scenario analysis is not a prediction of actual Transaction results, and there can be no assurance that the range of assumptions employed will encompass all possible market conditions.

B. Clearing

With respect to any swap that is subject to the mandatory clearing requirements under Section 2(h) of the Commodity Exchange Act, subject to the terms of any agreement between us and to applicable laws, you have the sole right to select the derivative clearing organization or clearing agency at which the swap will be cleared. With respect to any swap that is not subject to these mandatory clearing requirements but is eligible for clearing, subject to the terms of any agreement between us and to applicable laws, you may in your sole discretion elect to clear such swap, and, if you so elect, select the derivative clearing organization or clearing agency at which the swap will be cleared.

With respect to any security-based swap subject to the mandatory clearing requirement under Section 3Ca of the Securities Exchange Act of 1934, you will be provided with a list of names of clearing agencies at which we are authorized or permitted to clear the security-based swap. From that list, subject to the terms of any agreement between us and to applicable laws, you have the sole right to select the clearing agency to clear such security-based swap.

With respect to any security-based swap not subject to the mandatory clearing but eligible for clearing, you will be provided with a list of names of clearing agencies at which we are authorized or permitted to clear security-based swaps. From that list,

subject to the terms of any agreement between you us and to applicable laws, you have the sole right to select the clearing agency to clear any such security-based swap.

For a general list of clearing agencies that clear security-based swaps and which security-based swaps each clearing agency clears, please refer to the following list published by ISDA here: <https://www.isda.org/2021/05/03/current-security-based-swap-clearing/> . Please note that not every securities-based swaps dealer will be authorized or permitted to clear at each such clearing agency.

C. Daily Mark

If required under regulations of which we are subject (“Applicable Regulations”), for uncleared swaps and/or uncleared security- based swaps, we will provide you with a “daily mark” as of the close of prior business day or at such other time that we agree in writing.

Daily marks will not reflect the actual market price at which an offer would be made to purchase, sell, enter into, exercise, novate, unwind, terminate or settle a Transaction. Rather, they will represent mathematical approximations of market values as of a given date derived from proprietary models and methodologies based on certain assumptions regarding past, present and future market conditions or other factors, or from other sources of pricing information (e.g., third party quotes, prices on trading venues, or clearinghouse marks for comparable or interpolated Transactions). In our sole discretion, we may use a variety of models, methodologies and assumptions to prepare our daily marks, depending upon the type of Transaction, its characteristics, whether there is a liquid market, and other factors. We reserve the right to alter, replace or vary our models, methodologies, and assumptions from time to time.

Please note that any daily mark we provide to you for a Transaction shall not include amounts for our profits, credit reserves, hedging, funding, liquidity, or any other costs or adjustments, and may not necessarily:

- be a price at which either we or you would agree to replace or terminate the Transaction;
- include adjustments you may need to make on your books and records or financial statements to account for your profits, credit reserves, hedging, funding, liquidity or other costs in connection with the Transaction;
- unless otherwise expressly agreed, be the basis for margin calls and maintenance of collateral; and
- be the value of the Transaction that is marked on our books and records.

For cleared swaps originally executed by you with us, you have the right to receive the daily mark from the relevant derivatives clearing organization upon request. For cleared security-based swaps originally executed by you with us, you may have the right to request from us the daily mark we receive from a clearing agency. We can provide such

daily mark directly or through a third party. However, it is likely that such original security-based swap will have been terminated upon novation by the clearing agency and we would have no ongoing obligation to provide you with such daily mark, even upon request.

D. Right to Segregation of Certain Collateral

For uncleared Transactions, subject to the terms of any agreement between us, if required by Applicable Regulations, you will have the right to require segregation of the funds or other property that you provide to us to margin, guarantee, or secure your obligations, other than with respect to variation margin and provided that the property is of a type that may be held by a third party custodian. Upon your request, if required by Applicable Regulations, we will segregate such funds or other property for your benefit and in accordance with the rules of the CFTC or SEC, including maintaining the funds or other property in a segregated account separate from our assets and other interests, which account shall be carried by an independent third party custodian and designated as a segregated account. The terms of our Transactions with you may provide for you to reimburse us for the costs of such custodial arrangements, or alternatively we may reflect such costs in the economic terms of Transactions we offer you.

E. Special Entities

If you are an employee benefit plan defined in Section 3 of the Employee Retirement Income Security Act of 1974 (29 U.S.C. 1002) (“ERISA”) that is not subject to Title I of ERISA or otherwise defined as a “Special Entity” pursuant to CFTC Rule 23.401(c)(1), (2), (4) or (5), you may elect to be treated as a Special Entity under CFTC Rule 23.401(c)(6) for the purposes of the rules of the CFTC, and opt into Special Entity status under Rule 15Fh-2(d)(4) and associated SEC guidance for the purposes of the rules of the SEC, by notifying us in writing.



International Swaps and Derivatives Association, Inc.

Disclosure Annex for Foreign Exchange Transactions

This Annex supplements and should be read in conjunction with the General Disclosure Statement. NOTHING IN THIS ANNEX AMENDS OR SUPERSEDES THE EXPRESS TERMS OF ANY TRANSACTION BETWEEN YOU AND US OR ANY RELATED GOVERNING DOCUMENTATION. Accordingly, descriptions in this Annex of the operation of Foreign Exchange Transactions (as defined below) and the consequences of various events are in all cases subject to the actual terms of a Foreign Exchange Transaction executed between you and us and its governing documentation (whether or not such qualification is expressly stated).

We refer to Transactions in which the Underliers are foreign currencies and involve, or at the option of either party may involve, the exchange of one or more currencies against one or more other currencies or settlement in a single currency based on the rates of exchange between one or more currency pairs as “**Foreign Exchange Transactions.**” The terms of a Foreign Exchange Transaction may incorporate standard definitions published by industry bodies, annexes and supplements thereto, master confirmations and other market standard terms, which may in turn be amended or customized pursuant to the terms of the Foreign Exchange Transaction and its governing documentation. Before entering into a Foreign Exchange Transaction, you should obtain and review carefully any such materials incorporated by reference as their content could materially affect your rights and obligations under the Foreign Exchange Transaction, its value and its appropriateness for your particular objectives.

One of the most common types of Foreign Exchange Transaction is the foreign exchange forward contract (“**FX Forward**”), which is an agreement to buy one currency against the delivery of another currency at a rate set on the trade date for settlement on a specified date in the future. Under a deliverable FX Forward, the Transaction terms provide for an exchange of payments in each of the two currencies on the settlement date. Under a non-deliverable FX Forward (“**NDF**”), the Transaction terms provide for the payment of a net cash settlement amount on the settlement date in lieu of delivery of the notional amounts of the bought currency and the sold currency. The cash settlement amount is determined by converting the notional amount of one of the currencies (the “reference currency”) into the other currency (the “settlement currency”) at a spot foreign exchange rate that is observed on a pre-agreed pricing source or determined using another pre-agreed method (such source or method, the “settlement rate option”) on a date (“valuation date”) prior to the settlement date, and netting the currency amounts so that a single net payment in the settlement currency is made on the settlement date by the party owing the excess. In some NDFs, each of the bought currency and the sold currency is converted into a third currency that serves as the settlement currency. In either case, under an NDF no payment or account transfer takes place in the reference currency.

Foreign exchange options (“**FX Options**”) are Transactions that give the buyer of the option the right, but not the obligation, to make or take delivery of one currency in exchange for taking or making delivery of another currency at a pre-determined exchange rate. Similar to FX Forwards,

FX Options may be settled on a deliverable or non-deliverable basis. (We refer to non-deliverable FX Options as “NDOs”). FX Options have the risks and characteristics described in Section III.J – “Option Transactions present special considerations” – of the General Disclosure Statement. In particular, you should review and understand the conditions and requirements for exercising options, as described in such Section III.J.

Settlement Risk

Settlement risk in Foreign Exchange Transactions is the risk of loss when one party to the Foreign Exchange Transaction delivers the currency it sold but does not receive the corresponding amount of the currency it bought.

Settlement risk arises in deliverable Foreign Exchange Transactions where the parties have not arranged to use a mechanism for payment-versus-payment (“PVP”) settlement, such as an escrow arrangement or PVP settlement through a member of CLS Bank International (which operates a multi-currency cash settlement system used by many participants in the foreign exchange market) or on the books of a bank at which both parties to a Foreign Exchange Transaction maintain settlement accounts in the relevant currencies. Because a party’s payment obligations under a deliverable Foreign Exchange Transaction are denominated in a different currency than those of its counterparty, the payments cannot be netted against one another. Although payment netting across multiple Foreign Exchange Transactions with coinciding settlement dates and currencies is possible in principle, and may be provided for under a master agreement governing the Foreign Exchange Transactions, such multi-transaction payment netting can be effective only to the extent that the same party has offsetting obligations in the same currency on the same date.

A contributing factor to settlement risk in Foreign Exchange Transactions is the time zone difference between the principal financial centers of each currency, particularly when the hours of operation of the payment systems in each country do not overlap or overlap only briefly. Unless PVP settlement is implemented effectively, the settlement exposure under a Foreign Exchange Transaction is the gross amount of a party’s payment obligation, which may be far in excess of the market value of the Foreign Exchange Transaction. The insolvency laws of certain jurisdictions may not recognize settlement netting or the finality of settlement payments. See Section III.H – “Transactions may involve legal and documentation risks” – of the General Disclosure Statement.

Trading Hours May Not Align

The interbank market in foreign currencies is a global, twenty-four hour market. Therefore, your and our hours of operation, during which you and we may transact in and value Foreign Exchange Transactions, calculate margin and settlement amounts, issue margin calls and settle collateral delivery or return amounts, may not conform to the hours during which the underlying currencies are most traded. To the extent this occurs, significant changes in foreign exchange rates as well as market, economic and political conditions, and thus the value of Foreign Exchange Transactions and the amount of credit exposure they create between us, may take place during times when it may be difficult for you to monitor or react to them.

Relevant information relating to conditions affecting underlying foreign exchange markets may not be as well known or as rapidly or thoroughly reported in your country as is the case with comparable information regarding domestic developments. Information regarding developments in certain emerging market jurisdictions may be even less readily available, if at all.

Non-Business Day Risk

Trading in a currency may be substantially less liquid on days when banks in the principal financial center of the currency are not open for business. Diminished liquidity may affect bid-offer spreads and/or the level of exchange rates, which may adversely affect the Transaction Economics of a Foreign Exchange Transaction for which the trade date, a valuation date, exercise date or other economically relevant date occurs on a day when such banks are not open for business, including as the result of banking holidays designated after the Foreign Exchange Transaction has been entered into.

Market Disruptions and Restrictions due to Government Action or Other Factors

Foreign currency exchange rates may be volatile and subject to intermittent market disruptions or distortions due to numerous factors specific to each foreign country, including among others government regulation and intervention, lack of liquidity and the types of entities participating in the market. Foreign currency exchange rates can be fixed by the sovereign government, allowed to float within a range of exchange rates set by the government, or left to float freely.

Governments (including those of developed economies) may intervene in the currency markets through their central banks. Governments also may impose regulatory controls or taxes on foreign currency transactions, issue a new currency to replace an existing currency, or fix the exchange rate or alter the exchange rate or relative exchange rate characteristics by devaluation or revaluation of a currency. In addition, governments may designate banking holidays, restrict or suspend convertibility or transferability of a currency, or restrict participation in foreign exchange markets and funding markets, either in general or based on the nature of specific participants or transactions. The currencies of emerging economies may be subject to more frequent and larger central bank interventions than the currencies of developed economies and are also more likely to be affected by sudden changes in monetary or exchange rate policies, or by the actions of significant market participants.

Disruptions may also occur as a result of non-governmental events, such as actions taken by, or force majeure events affecting, foreign exchange dealers, relevant exchanges or price sources.

The foregoing events may generally be classified according to their effect, such as “price source risks,” “convertibility and transferability risks,” “sovereign risks” and “material adverse change” and are commonly referred to as “**disruption events**.” Any of the foregoing events may adversely affect the Transaction Economics of a Foreign Exchange Transaction. You should be aware of the potential risks of any market disruptions and should understand their effect on each prospective Foreign Exchange Transaction, including the consequences, if any, of any such event specified under the terms of the Foreign Exchange Transaction as well as the possibility that certain events might not be expressly provided for. In some cases, market practice statements by industry bodies or provisions published by industry bodies and incorporated by reference into

transaction terms may influence the treatment of disruption events under Foreign Exchange Transactions.

Additional risks concerning “price sources” include material changes to the methodology applied by an administrator of a price source or an impact to the price published by a price source resulting from an unannounced government intervention or actions of unauthorized third parties. While these actions may have an impact on the rate displayed by the particular price source, they may not trigger a “disruption event” in a given transaction and may have a potential adverse effect on the Transaction Economics.

Consequences of Certain Disruption Events

Developments and conditions affecting the market for a currency, such as some of the disruptions discussed immediately above, may (a) prevent or delay the calculation of amounts payable under your Foreign Exchange Transaction, or your or our ability to make or receive payments in the settlement currency and/or (b) result in the application of alternative valuation and settlement mechanisms.

The terms and conditions of a Foreign Exchange Transaction may specify alternative methods, or “**disruption fallbacks**”, that apply when such disruption events occur for determining any affected currency exchange rate and/or settling payment obligations. Application of disruption fallbacks (including related determinations by the calculation agent, if applicable) may have a significantly detrimental effect on the Transaction Economics. The existence of such disruption events and their consequences may be subject to discretionary determinations by the calculation agent, which may involve subjective judgment and uncertainty. If the applicable disruption fallback so provides, consequences such as the following may occur, among others:

- the price sources used by the calculation agent under your Foreign Exchange Transaction for determining any affected currency exchange rates may not be the same as those used prior to the disruption event;
- the calculation agent may determine any affected currency exchange rates in a manner specified under the terms of the Foreign Exchange Transaction, which may include taking into account unpublished or unannounced sources and other information the calculation agent deems relevant, and employing its own calculations and estimates;
- the value of the affected currency exchange rate used by the calculation agent to determine any amount payable may be materially different from the value of any previously used published price source;
- the determination of the affected currency exchange rate may be deferred until the relevant disruption event is no longer continuing, as determined by the calculation agent, and may therefore occur on unscheduled valuation dates;
- the value of the currency exchange rate may be determined long before or after the date on which it was originally scheduled to be determined;

- alternative methods for settlement of payments may be used, including postponing settlement of your Foreign Exchange Transaction until the relevant disruption event is no longer outstanding, as determined by the calculation agent;
- the Foreign Exchange Transaction may be converted from a deliverable contract to a non-deliverable contract or alternatively from a non-deliverable contract to a deliverable contract, obligating the party owing the currency that can be delivered to make such payment and the other party to wait to receive payment;
- settlement of your Foreign Exchange Transaction may occur by payment of an equivalent amount in a different currency or by delivery of a security denominated in the original currency; and/or
- the terms of the Foreign Exchange Transaction may require the parties to negotiate fallback arrangements in good faith.

The determinations or negotiations called for by a disruption fallback may need to occur under uncertain market conditions. Depending on the terms of your Foreign Exchange Transaction, postponement of a valuation or settlement date may be for an indefinite time period, or subject to a specified maximum duration, after which time a different disruption fallback, such as calculation agent determination or termination of the Foreign Exchange Transaction, may apply.

You should evaluate carefully the interaction of various disruption fallbacks with one another and with any impossibility, illegality or force majeure provisions of the master agreement, if any, governing the Foreign Exchange Transaction.

Additional Considerations for Specific Product Types

The following is a discussion of certain material risks, terms and characteristics of some common types of Foreign Exchange Transactions. The categories employed below are illustrative only, and are intended to assist you in understanding key features of certain prospective Foreign Exchange Transactions. The discussion should not be viewed as a comprehensive description of any particular Foreign Exchange Transaction that may be under discussion between you and us. Although certain nomenclature may be standardized according to definitions published by an industry body, this may not be the case across all transactions. A particular Foreign Exchange Transaction may have additional or different risks, terms and characteristics than described below, even if it is referred to by one of the following category names.

NDFs and NDOs

NDFs and NDOs may incorporate by reference various industry standard terms, some of which are particular to a given reference currency or transaction type.

The settlement payments under an NDF or NDO are determined by reference to the price source or other methodology by which the conversion rate for the reference currency is determined. There can be no assurance that you (or any affiliate of yours operating in the jurisdiction of the reference currency) will be able to sell or purchase the reference currency at this conversion rate

or on the valuation date or at all. Any difference between the conversion rate determined under an NDF or NDO and your actual conversion rate (or, if relevant, the conversion rate applied in measuring your assets or liabilities) is a source of basis risk. Due to restrictions on participation in currency and funding markets, different onshore and offshore rates may apply to the reference currency, and the forward exchange rates that are implicit in the market value of the NDF or NDO may differ considerably from the values implied by the spot exchange rate and interest rate differentials between the two currencies. Such differences can be affected by market expectations regarding changes in the exchange rate regime.

In addition, in certain markets there may be the risk of a disruption event occurring where the relevant rate source continues to be published, but active participants in the market view that published rate as not representative of the actual spot rate.

Dealer-Poll Currency Rates

If the terms of a Foreign Exchange Transaction provide that the value of an exchange rate or fallback exchange rate is determined based on a dealer poll, we or an affiliate may be requested to provide quotations from time to time in such dealer polls. Any such quotations may affect, materially or otherwise, the settlement of a Foreign Exchange Transaction. If we or an affiliate provide such quotations and also act as principal in Foreign Exchange Transactions that refer to the corresponding exchange rate, then we face an inherent conflict of interest.

Barrier FX Options

Barrier options are options on currencies under which the right to exercise may be created or extinguished, or the terms of which may change in some other pre-defined manner, upon the occurrence of an event or condition (a “**barrier event**”) defined by reference to observed values of the exchange rate during the term of the option. A barrier event may consist, for example, of an exchange rate reaching or passing through a pre-agreed barrier price or may require more complex conditions on the path of the relevant exchange rate. A barrier option that becomes potentially exercisable upon the occurrence of a barrier event is known as a “knock-in option”, while a barrier option that is extinguished upon the occurrence of a barrier event is known as a “knock-out” option. Other examples of barrier options include “one-touch” barrier options (the holder of the option receives a payment if the exchange rate reaches or surpasses a pre-agreed barrier price by its expiration date) and “no-touch” binary options (the holder of the option receives a payment if the exchange rate never reaches a pre-agreed barrier price by its expiration date) and “multi-cross” options. The value of a barrier option may change non-linearly and abruptly, particularly as the relevant exchange rate approaches the level that triggers the barrier event.

Barrier events are defined under the terms of a Foreign Exchange Transaction, which may provide that the calculation agent or another designated party will determine whether a barrier event has occurred. Barrier events may occur unexpectedly and, subject to the terms of the Foreign Exchange Transaction and its governing documentation, based on information available to the calculation agent or other designated party that is not contemporaneously (if at all) observable by you. You should review and understand thoroughly the applicable definition of barrier event, including such factors as whether there is a requirement that an actual transaction

at the same price or level as the observation that triggers a barrier event (the “**barrier price**”) has occurred, and whether a specified minimum size or other criteria apply to the observed triggering transaction. There can be no assurance that you will be able to execute a spot or other transaction at the barrier price, even if you have placed a limit order at such price with us or in an unrelated trading venue. Accordingly, any trading or hedging strategy that relies on the execution of a transaction at the barrier price (such as reliance on a stop-loss order to mitigate losses in the event that a purchased barrier option is extinguished) may not be effective.

Subject to any express agreement in the documentation governing a barrier option between us, we may, in our discretion, decide to engage in hedging activities with respect to the barrier option. Such activities may include buying and selling, on a dynamic basis, the underlying currency in the spot market or entering into derivatives on such currency. Our hedging strategy may entail unwinding our hedge when a barrier event occurs under your option. We may anticipate the barrier event and begin unwinding our hedge before the barrier event occurs, or our hedging strategy may require greater and more frequent dynamic adjustments to our hedge as market prices approach the barrier price. Unwinding or adjusting the hedge typically consists of buying or selling a quantity of the currency underlying the barrier option, or terminating or entering into derivatives positions with market counterparties. This activity may affect the likelihood of the barrier event occurring or not occurring. In addition, currency or currency derivative transactions that we execute in other capacities (such as those described in Section IV.A.2 – “Trade for our own account or the account of customers” – of the General Disclosure Statement) may affect the probability that a barrier event will occur.

Complex or Exotic FX Options and other Structured FX Products

There is a wide range of complex, exotic or structured Foreign Exchange Transactions which contain features not specifically described above. Such features may accentuate the risks described elsewhere in this Annex and in the General Disclosure Statement, particularly in Section III – “Material Risks”. Many of these products have option-like features. Please refer to Section III.J – “Option Transactions present special considerations” – of the General Disclosure Statement, in particular the discussion under the subheading “Complex or Exotic Options”.

Volatility and Variance-linked Foreign Exchange Transactions

Variance Swaps

A variance swap typically is a Foreign Exchange Transaction under which a “variance buyer” and a “variance seller” agree to exchange payments based on the difference between (i) an amount proportional to the observed level of variance (as defined under the terms of the variance swap) of the exchange rate for a specified currency pair realized over a stated observation period and (ii) a fixed amount of variance that is agreed upon at execution. Typically, (i) if the amount proportional to the observed variance of the relevant exchange rate over the stated observation period, on an annualized basis, exceeds the specified variance level, which may reflect an estimate or projection of variance for the stated observation period, the variance seller (which may be referred to in the confirmation as the “floating FX rate payer”) will make a payment to the variance buyer (which may be referred to in the confirmation as the “fixed FX rate payer”) equal to the amount of such excess multiplied by the specified notional amount (which may be

referred to in the confirmation as the “vega notional amount”) expressed in a specified currency, or (ii) if such specified variance level exceeds such observed variance, the variance buyer will make a payment to the variance seller equal to the amount of such excess multiplied by such notional amount. If specified under the terms of the transaction, the realized variance may be measured in relation to the mean return of the relevant exchange rate over the stated observation period. If specified in the terms of the variance swap, the payment by the variance seller may be subject to an agreed upon cap. In the absence of a cap, the variance seller’s potential loss under a variance swap is not quantifiable and is potentially unlimited. Variance is not a measure of a rate of return on an exchange rate. Variance differs from other measures, such as volatility, of the variability of exchange rates.

A variance swap referencing an exchange rate will generally have the characteristics and risks described in Section II.J – “General characteristics of variance- and volatility-linked Transactions” in the General Disclosure Statement.

Variance may be affected by a number of factors. For example, governmental intervention in the market for its currencies to fix the relevant exchange rate or to confine it to a particular band will tend to decrease the variance of the exchange rate. However, sudden changes in monetary or exchange rate policies may cause significant increases in variance of the relevant exchange rate. Variance may also be affected by the announcement and the frequency of announcement of other macroeconomic events.

In some cases, your objective in entering into a variance swap may be to hedge currency exposure or to hedge assets or liabilities that are related to exchange rates. There can be no assurance that prior observed relationships, if any, between variance and the behavior of such assets or liabilities will continue. See Section II.H – “No assurance of Transactions achieving your desired hedging objectives” – of the General Disclosure Statement.

Volatility Swaps

A volatility swap is similar to a variance swap, except that payments under a volatility swap are determined by reference to the observed volatility, rather than variance, in the relevant exchange rate over the specified observation period. Please refer to “Variance swaps” above and Section II.J – “General characteristics of volatility swaps and variance swaps” in the General Disclosure Statement.

In some cases, your objective in entering into a volatility swap may be to hedge currency exposure or to hedge assets or liabilities that are related to exchange rates. There can be no assurance that prior observed relationships, if any, between volatility and the behavior of such assets or liabilities will continue. See Section II.H – “No assurance of Transactions achieving your desired hedging objectives” – of the General Disclosure Statement.

Forward Volatility Agreements

Under a typical foreign-exchange forward volatility agreement, the parties agree on the trade date to enter into a “straddle” on a specified future date (the “reference date”) with terms that will be based on a volatility level that is agreed by the parties on the trade date. A “straddle” is a combination of a put option and a call option on a specified currency pair, both of which are

purchased by the same party (the “option buyer”). The premiums for the options will be determined by the calculation agent on the reference date based on the specified volatility level and other option pricing inputs as of the reference date. The strike prices for the options may also be determined by the calculation agent on the reference date based on such specified volatility level and/or other specified variables, or may be specified in the transaction documentation.

The specified volatility level may reflect an estimate or projection, as of the trade date, of what the implied volatility will be, on the reference date, for the specified currency pair with respect to the period between the reference date and the expiration date. If the implied volatility for the specified currency pair with respect to such period, based on market prices for similar options on the reference date, is less than the specified volatility level, then the premiums paid by the option buyer will generally be greater than the market price of similar options on the reference date, and *vice versa*. For considerations relevant to the calculation of volatility, please refer to Section II.J – “General characteristics of variance- and volatility-linked Transactions” – of the General Disclosure Statement.

The calculation agent may be required to exercise judgment in determining the premiums and strike prices of the options, and the calculation agent may make those determinations in a manner that is adverse to your interests. Please refer to Section IV.A.6 – “Act as calculation agent, valuation agent, collateral agent, or determining party” – of the General Disclosure Statement.

Correlation Swaps

Foreign exchange correlation swaps are swaps where each party agrees to pay to the other an amount equal to a specified notional amount multiplied by the difference between a specified level and the observed correlation between exchange rates for specified currency pairs over a specified observation period. Typically, (i) if the correlation between the relevant exchange rates over the specified observation period exceeds the specified correlation level, which may reflect an estimate or projection of correlation of the specified currency pairs for the specified observation period, the correlation seller will make a payment to the correlation buyer equal to the amount of such excess multiplied by a notional amount expressed in a specified currency, or (ii) if such specified correlation level exceeds such observed correlation, the correlation buyer will make a payment to the correlation seller equal to the amount of such excess multiplied by the specified notional amount.

A correlation swap referencing an exchange rate will generally have the characteristics and risks described in Section II.K – “General characteristics of correlation-linked Transactions” – of the General Disclosure Statement.

If the same currency is included in more than one specified currency pair, then macroeconomic events affecting that currency may have a significant impact on the correlation of the specified currency pairs, even though the value of the other currencies included in the specified currency pairs may remain relatively stable in relation to one another or to currencies that are not included in the specified currency pairs. In addition, governmental intervention in the market for any of the currencies included in the specified currency pairs, or other sudden changes in monetary or

exchange rate policies, may have a significant impact on the correlation of the specified currency pairs.

If terminated early, the termination value of a correlation swap may be significantly affected by the expectations of the determining party with respect to correlation of the relevant exchange rates. These expectations may vary among market participants and may change over time. Please refer to Section II.I – “Termination of Transactions” – of the General Disclosure Statement.



International Swaps and Derivatives Association, Inc.

Disclosure Annex for Interest Rate Transactions

This Annex supplements and should be read in conjunction with the General Disclosure Statement. NOTHING IN THIS ANNEX AMENDS OR SUPERSEDES THE EXPRESS TERMS OF ANY TRANSACTION BETWEEN YOU AND US OR ANY RELATED GOVERNING DOCUMENTATION. Accordingly, descriptions in this Annex of the operation of Rates Transactions (as defined below) and the consequences of various events are in all cases subject to the actual terms of a Rates Transaction executed between you and us and its governing documentation (whether or not such qualification is expressly stated).

We refer to Transactions in which the Underliers are interest rates as “**Rates Transactions**” and to each specific interest rate that will serve as an Underlier as a “**reference rate.**” For example, a reference rate may be specified by referring to a particular trading screen of a financial information provider or to a government publication, such as Federal Reserve Statistical Release H.15. The definition of the reference rate may include a “fallback” method of determining the relevant interest rate if the named source fails to provide it at the relevant times, such as use of an alternative source or a determination based on quotations requested by the calculation agent for inter-bank borrowing rates.

The terms of a Rates Transaction may incorporate standard definitions published by industry bodies, annexes thereto and other market standard terms, which may in turn be amended or customized pursuant to the terms of the Rates Transaction and its governing documentation. Before entering into a Rates Transaction, you should obtain and review carefully any such materials incorporated by reference as their content could materially affect your rights and obligations under the Rates Transaction, its value and its appropriateness for your particular objectives.

Reference Rates

There is a wide range of reference rates for Rates Transactions. You should understand the methodology, characteristics and limitations of the reference rate selected for each Rates Transaction and consider carefully whether it is appropriate in light of your objectives for entering into the Rates Transaction. In certain cases, information about a reference rate may be publicly available from a compiling body, sponsor or administrator.

A reference rate may be compiled, sponsored or administered by an industry association, government agency, central bank, or enterprise or determined by the calculation agent designated under a Rates Transaction. Reference rates differ according to the particular type of borrowing cost that a rate is designed to measure, its methodology of compilation and applicable fallbacks. In certain Rates Transactions, the calculation agent may be authorized or required to make a determination that a reference rate or source is not representative of market conditions, or is otherwise flawed, and may designate an alternative reference rate or source.

In some cases, rates may be compiled from submissions of borrowing costs by contributing financial institutions. You should be aware that submissions may or may not be based on actual borrowing transactions or executable bids or offers and that the compiling body may not be able to audit submissions for their accuracy or completeness. The values of compiled rates can be affected by the particular circumstances of the submitting institutions, the financial markets in which they operate and the methodology of computation. Important factors in assessing the potential that a reference rate may be susceptible to distortion or manipulation include:

- computational procedures used by the compiling body to reduce the impact of potentially unrepresentative data, such as requiring a minimum number of submissions and the rejection of outlying data;
- conflicts of interest that may affect the submitting institutions or the compiling body;
- the information the compiling body publicly discloses, which may or may not accurately reflect all relevant information available to the compiling body; and
- governance of the compiling body, whether it is subject to regulatory oversight and the nature of such oversight.

The compiling body may make certain information relevant to this assessment publicly available, and we urge you to consider such information carefully. If we or an affiliate make submissions that are used to determine a reference rate and also act as principal in Rates Transactions that use the reference rate as an Underlier, then we face an inherent conflict of interest.

In other cases, reference rates may be derived from quoted prices or yields of fixed income securities or interest rate swaps. Such rates may be affected by supply and demand conditions for particular securities, government and private company decisions on the issuance of securities, and the functioning of and degree of participation in auctions and remarketing processes.

A compiling body, sponsor or administrator of a reference rate may make methodological or other changes that could change the value of the reference rate, including changes related to the method by which the reference rate is calculated, eligibility criteria applicable to securities, borrowers, submission contributors, funding sources or timing related to submissions or the publication of the reference rate. In addition, the compiling body, sponsor or administrator may alter, discontinue or suspend calculation or dissemination of the reference rate (in which case a fallback method of determining the reference rate may apply, if specified in the Rates Transaction).

Compiling bodies, sponsors and administrators of reference rates, the institutions that make submissions in the reference rate determination process, reference banks providing quotations pursuant to interest rate fallback provisions or otherwise, and developers of reference rates (including their participants) have no obligation to consider your interests in calculating, adjusting, converting, revising, discontinuing or developing any reference rate or fallbacks or in any of their submissions or quotations.

Regulatory and industry initiatives concerning benchmark rates or reference rates may result in changes or modifications affecting Rates Transactions or reference rates, such as a change in the compiling body, sponsor or administrator of a reference rate, the suspension, discontinuance or unavailability of a reference rate, the development of an alternative reference rate, a need to determine or agree a substitute or successor reference rate or alternative reference rate, and/or a need to determine or agree a spread to be added to or subtracted from, or to make other adjustments to, a substitute or successor reference rate or alternative reference rate to approximate a rate equivalent to the predecessor rate, not all of which can be foreseen at the time you enter into a Rates Transaction. You should consider how Rates Transactions and reference rates may be affected by such initiatives, changes and modifications, and the extent to which the definition of a reference rate together with fallbacks in such definition, if any, provide for such eventualities.

Any of the foregoing initiatives and actions could adversely affect a Rates Transaction, its liquidity and its Transaction Economics.

Terms of Rates Transactions

The detailed terms of each Rates Transaction, including reference rates, will determine the timing and amount of payments and other rights and obligations. A common feature of many but not all Rates Transactions is that payment obligations are defined in terms of a reference rate applied to a **“notional amount”** over an accrual or **“calculation period.”** For example, in its simplest form an interest rate swap is a transaction where one party agrees to make periodic payments to the other party of amounts accrued at one reference rate (e.g., a fixed rate) on the notional amount over a calculation period in exchange for payments by the other party accrued on the notional amount over the calculation period at another reference rate (e.g., the compounded average of a daily floating rate, such as SOFR over the calculation period). Other types of Rates Transactions are described below under **“Additional Considerations for Specific Product Types”**. Besides the reference rate, notional amount and calculation periods, other terms with which you should be familiar when you review any proposed Rates Transaction (which terms may vary even among Rates Transactions of the same type that trade in the same markets) may include:

- reset dates (i.e., dates during the term of a Rates Transaction on which a floating reference rate is measured and reset);
- the time period between the trade date and the date (often referred to as the “effective date”) on which the first calculation period begins;
- day count fractions;
- whether the calculation periods and payment dates of the two parties coincide, and whether under the terms of a Rates Transaction the calculations or payments are netted (i.e., subtracted arithmetically so that only the difference is payable by the party owing the larger amount);
- business day conventions;

- compounding or averaging conventions (which may apply for daily rates and for term rates if reset dates occur more frequently than payment dates);
- discounting factors (which may apply, or be implicit in stated figures, if amounts are paid prior to the end of a calculation period);
- the addition of a “spread” to the reference rate, including a spread that may vary depending on market conditions;
- changes in the notional amount during the term of a Rates Transaction, such as scheduled changes specified in the terms of an “amortizing swap” or “accreting swap”, or periodic adjustments under a “mark-to-market currency swap” to maintain a constant market value of a notional amount when measured in a different currency;
- other features, including options, that may (a) modify the value of a reference rate, such as barriers, multipliers, caps, floors or collars, (b) define payments based on the difference between a rate source and a specified level or on the number of days on which a reference rate is within or outside a specified range, or (c) trigger or terminate aspects of the Rates Transaction;
- circumstances under which the calculation agent may be required or permitted to override a rate source or designate a successor source; and
- specific fallbacks that apply when a floating reference rate is temporarily not available or has been permanently discontinued.

In some cases, a Rates Transaction may contain optional early termination provisions that require a cash settlement. These rights allow a party to terminate a Rates Transaction in whole or in part on one or more dates prior to the end of its scheduled term. Upon early termination, a cash settlement amount may be determined and become payable to the party for whom the Rates Transaction is in-the-money. Depending on the terms of the Rates Transaction, the cash settlement amount may be determined by the calculation agent based on market quotations or as the estimated replacement cost for payments and rights that are extinguished upon termination. In some cases, the cash settlement amount may be defined by specifying a computation to be applied to an observed par swap rate (i.e., the fixed rate prevailing in the market for a swap, the floating leg of which has specified material economic characteristics that are comparable to the swap for which the cash settlement amount is being determined), as reported by a specified source. (See “Reference Rates” above regarding rate sources generally). A similar determination of a cash settlement amount may apply if a Rates Transaction includes “mandatory early termination” provisions. In such Rates Transactions, the mandatory early termination date occurs (subject to any applicable conditions) prior to the end of the stated term. Consequently, the stated term will enter into the determination of the cash settlement amount, even though the Rates Transaction will not remain outstanding after the mandatory early termination date. If you enter into a Rates Transaction under which your counterparty has an optional early termination right that requires cash settlement or a Rates Transaction that includes mandatory early termination provisions, you should assess the potential magnitude of termination payments and your ability to pay them at the appropriate time. When we calculate the value of a Rates Transaction for any purpose, including in the event

of early termination, our interests will be adverse to yours. See IV.A.6 – “Conflicts of Interest and Material Incentives – Our financial market activities may adversely impact Transactions – Act as calculation agent, valuation agent, collateral agent, or determining party” – of the General Disclosure Statement.

In other cases, a Rates Transaction may contain optional early termination provisions that allow one party to terminate the swap early without a cash settlement, with the result that the party for whom the Rates Transaction is in-the-money would lose the value of the Rates Transaction. If you enter into a Rates Transaction with a counterparty that has such an optional early termination right, you should assess the potential magnitude of the in-the-money amount you risk losing. See Section III.J – “Option Transactions present special considerations” – in the General Disclosure Statement.

No assurance that Rates Transactions are tailored to your hedging objectives

In some cases, you may contemplate entering into a Rates Transaction in order to hedge or mitigate interest rate exposures related to a particular borrowing or debt issuance, an anticipated transaction or as part of a general asset and liability management program. This may include, for example, entering into a fixed-for-floating interest rate swap to fix your interest costs in connection with a floating rate loan or other borrowing. The success of such a strategy will depend on the detailed terms of the Rates Transaction and the relevant loan agreement, bond indenture or debt instrument, as well as future conditions that may affect your ability to access markets, conditions affecting your lenders or liquidity providers and future changes in interest rates, exchange rates, yield curves and other market and economic factors.

Mismatches in the timing and amount of payments between a Rates Transaction and a specific loan agreement, bond indenture or other debt instrument could occur due to differences in the definitions of the reference rates governing the Rates Transaction and the debt instrument (including the use of different rate sources or the same rate source with different fallback provisions) or differences in other payment terms and conventions, such as the day count fraction, reset dates, designated maturities and business day conventions for payment dates.

Basis risk is the risk that the rate or yield of the asset or liability that you wish to hedge does not correlate perfectly with the reference rate selected under a Rates Transaction. Basis risk will generally be present unless the same reference rate is an explicit contractual term of both the Rates Transaction and the hedged asset or liability. Even then, other terms in the related debt instrument may cause actual borrowing costs to diverge from the reference rate. For example, loan agreements typically contain yield protection and/or increased costs provisions to compensate lenders for increased costs or reduced revenue associated with carrying the loan, including as a result of changes in taxes, withholding, reserves, assessments, and capital requirements.

Basis risk also may arise from differences in the liquidity characteristics of your debt obligations or your creditworthiness as compared to borrowers or issuers whose debt is used to establish a reference rate. Furthermore, historically stable relationships between different reference rates may break down. Examples observed during the recent financial crisis include divergences between LIBOR and overnight indexed swap (“OIS”) rates, as well as changes

in the relationship between LIBOR and reference rates for tax-exempt debt. The relationship between reference rates for taxable and tax-exempt instruments may be affected by changes in, or uncertainty about, future marginal tax rates and the tax treatment of comparable securities or other securities viewed by investors as substitutes.

If the asset or liability hedged by a Rates Transaction is prepaid or redeemed prior to maturity or amortizes at a faster rate than the notional amount of the Rates Transaction, then you may find yourself overhedged (i.e., having interest rate risk under the Rates Transaction that is no longer offset by a corresponding principal amount of the asset or liability). You should consider your ability and potential costs to terminate a Rates Transaction under such circumstances, and whether the excess notional amount remaining under a Rates Transaction might violate loan covenants or other contractual restrictions (such as investment guidelines) to which you or your assets are subject. In some circumstances, the cost of terminating a Rates Transaction may cause you to forego the flexibility afforded to you in the prepayment, call or redemption provisions of your debt instruments. In addition, a Rates Transaction may limit your ability to obtain release of collateral upon prepayment of a liability (for example, if you intend to refinance an asset with another lender) if such collateral also secures a Rates Transaction.

Additional Considerations for Specific Product Types

The following is a discussion of certain material risks, terms and characteristics of some common types of Rates Transactions. The categories employed below are illustrative only, and are intended to assist you in understanding key features of certain prospective Rates Transactions. The discussion should not be viewed as a comprehensive description of any particular Rates Transaction that may be under discussion between you and us. Because nomenclature is neither standardized nor sufficiently descriptive to capture all important transaction features and variations, a particular Rates Transaction may have additional or different risks, terms and characteristics than described below, even if it is referred to by one of the following category names.

Interest rate swaps

- *Fixed-for-floating*: In a fixed-for-floating interest rate swap, one party makes periodic payments based on a fixed rate that is agreed upon at the execution of the swap, while the other party makes payments based on a floating rate that may be reset periodically. From the perspective of a fixed rate payer, an increase in the overall level of fixed interest rates of the relevant tenors in the fixed-for-floating swap market (e.g., an upward shift of the relevant yield curve) will generally cause the swap to increase in value, because the fixed rate payer's contractually specified fixed rate obligations will be relatively lower with respect to the increased fixed rate then prevailing in the market. Conversely, if the overall level of fixed interest rates in the fixed-for-floating swap market falls, the value of the swap to the fixed rate payer will generally decline. From the perspective of the floating rate payer, the corresponding value changes will be reversed. Under certain fixed-for-floating interest rate swaps, known as "inverse floaters," the floating interest rate will be determined by subtracting the reference rate from a fixed level (among other features of the calculation), which causes the floating interest rate to fluctuate inversely with the level of the reference rate. In this case, an upward shift of the relevant yield curve would generally cause an inverse floater to

decline in value from the perspective of the fixed rate payer, and vice versa.

- *Overnight indexed swap*: The term “overnight indexed swap” (“**OIS swap**”) generally refers to a fixed-for-floating swap in which the floating reference rate is an overnight rate. Because the interval between payments under an OIS swap typically encompasses multiple daily observations of the overnight rate, the payment computation must take these multiple values into account. Various methods are possible, including arithmetic averaging and daily compounding with various compounding conventions. The compounding conventions may be included within the definition of the reference rate, or may be explicitly provided for in the swap confirmation.
- *Single currency basis swap*: In a single currency basis swap, periodic payments are exchanged based on two floating reference rates, both denominated in the same currency, which may include two floating reference rates that are different designated maturities of the same underlying rate. The value of a basis swap generally is sensitive to changes in the relationship between the two floating rates, which in turn depends on market conditions affecting the supply and demand for funds or debt instruments in markets relevant for each reference rate. If the floating rates have different designated maturities, the value of the basis swap will be particularly sensitive to the shape of the relevant yield curve, and changes in its steepness or an inversion of the yield curve may result in significant losses. Accordingly, a basis swap with floating rates of the same underlying rate but different designated maturities may sometimes be referred to as a “steepener” or “flattener.” If leverage is applied to the applicable difference in the reference rates, or “basis,” any adverse movements of the reference rates from your perspective will be magnified.
- *Cross currency rate swap*: In a cross-currency rate swap, payments are exchanged based on either two floating reference rates, one floating rate and one fixed rate, or two fixed rates, each with a corresponding notional amount denominated in a different currency. Notional amounts are exchanged on the effective date and the maturity date, although in some transactions notional amounts are not exchanged, creating a coupon-only cross currency rate swap. In a mark-to-market cross-currency swap, the notional amount in one currency (the “variable currency”) will be adjusted to maintain a constant value in terms of the other notional currency (the “constant currency”), and in addition to the other amounts payable on a payment date the parties will exchange a mark-to-market payment based on the change in the value of the variable currency relative to the constant currency over the payment period. The value of a cross-currency rate swap will depend on interest rates and yield curves in each currency, as well as the spot and forward exchange rates between the two currencies. Cross-currency rate swaps generally involve an exchange of different currencies, in which case settlement risk will be present unless the parties have arranged an effective mechanism for payment-versus-payment settlement. See “Settlement Risk” in the Disclosure Annex for Foreign Exchange Transactions, published by the International Swaps and Derivatives Associations, Inc. (“**FX Disclosure Annex**”). In some cases, the terms of a cross-currency rate swap may provide that amounts calculated in one or both of the notional currencies are converted into a settlement currency (which may be one of the notional currencies or may be a different currency) and netted. See the FX Disclosure Annex generally regarding considerations relevant to payments in foreign currencies and calculations based on exchange rates, including in particular the discussion of disruption

events and disruption fallbacks.

- *Forward starting swap*: The term “forward starting swap” generally refers to a fixed-for-floating interest rate swap where the terms are negotiated today but the swap does not initiate until some specified date in the future. Upon such date, a forward starting swap will operate as a typical fixed-for-floating interest rate swap does. For example, an investor who wants a swap with a three-year duration beginning one year from today can enter into a forward starting swap. Investors may wish to do this when they want to lock in certain rates that are being offered today. A forward starting swap can be equivalent to combining two spot fixed-for-floating swaps, and therefore the risks to investors are similar to those of fixed-for-floating swaps. From the perspective of the fixed rate payer, an increase in the overall level of fixed interest rates after the time the swap is executed will generally cause the forward starting swap to increase in value, because the fixed rate payer will have agreed to pay a rate that is now lower than prevailing rates. Conversely, if the overall level of fixed interest rates decreases, the value of the forward starting swap to the fixed rate payer will generally decline. From the perspective of the floating rate payer, the corresponding value changes will be reversed.
- *Accreting and amortizing swaps*: In a standard fixed-for-floating swap, the notional principal amount of the swap upon which the fixed and floating payments are made is fixed for the life of the swap. In an accreting swap, the notional principal amount of the swap grows over time. Therefore, the fixed rate payments will increase over time and the floating rate payments will be calculated based on a growing principal amount. Conversely, in an amortizing swap the notional principal amount of the swap decreases over time. The rate of accretion or amortization can be set to a specified level or tied to a reference rate. The pricing and valuation of accreting and amortizing swaps is no different than that of a fixed-for-floating rate swap. However, it should be noted that in the case of an accreting swap, exposure to changes in interest rates increases as time goes on, since the notional principal amount of the swap is increasing. Exposure to changes in interest rates decreases as time goes on in the case of an amortizing swap, since the notional principal amount of the swap is decreasing.
- *Constant maturity swap*: In a constant maturity swap, the floating rate payment is based on a reference rate or yield of a specified, constant maturity. That is, instead of being tied to a rate such as SOFR on each periodic reset, the floating rate leg will be periodically reset to what the fixed rate prevailing in the market at such time is for a swap with a given, constant maturity and a comparable opposite leg. This is called the “CMS rate.” The payment opposite the CMS rate leg may be a fixed rate, a standard floating rate or another CMS rate. The value of a constant maturity swap will depend on the shape of the yield curve. Generally, a constant maturity payer will benefit from a flattening or inversion of the yield curve and is exposed to the risk of the yield curve steepening. Other types of constant maturity swaps, including constant maturity Treasury swaps and constant maturity mortgage swaps, are similar to the constant maturity swap described above, except that the floating rate is based on a Treasury bond or a mortgage-backed security with a specified constant maturity, as applicable.
- *Range accrual swap*: A range accrual swap will have one or more legs that pay either a

fixed or floating rate payment, where interest only accrues at the specified rate on days on which one or more specified conditions is met. For example, interest may only accrue on such leg on days when SOFR is within a specified range or ranges. The party paying a simple fixed or floating leg and receiving payments based on any range accrual leg assumes the risk that the reference rate, level, price or other value will stay outside of the specified range or ranges in which interest accrues (or, more generally, that the specified accrual condition does not occur). The condition for accrual may be observed daily during each payment period or weekly, monthly or at such other time period as may be agreed upon by the parties. The range or ranges can stay the same throughout the life of the swap or could change according to a predefined schedule. If the accrual of interest is subject to conditions relating to two different Underliers (called a “dual range accrual swap”), then the swap will be subject to risks associated with both Underliers, and no interest will accrue if either Underlier is outside of the relevant range, even if the other is within the relevant range.

- *Zero coupon swap:* A zero coupon swap is a fixed-for-floating interest rate swap under which the fixed leg consists of a single fixed payment at maturity of the swap, rather than periodic payments over the term of the swap. The floating rate payer has increased credit exposure to the fixed rate payer under a zero coupon swap as compared to a conventional fixed-for-floating interest rate swap because of the greater amount that is owed to the floating rate payer by the fixed rate payer for a longer period of time. The floating rate payer also has increased exposure to fluctuations in general interest rates under a zero coupon swap as compared to a conventional fixed-for-floating interest rate swap because the floating rate payer will not receive fixed payments that it could otherwise reinvest at market rates throughout the term of the swap.
- *Inflation swap:* An inflation swap is a fixed-for-floating swap where the floating reference rate is a published measure of the rate of inflation. The value of an interest rate swap to a fixed rate payer will increase if expectations about the applicable measure of inflation rise, and decrease if expectations about the applicable measure of inflation fall. The converse is true for a floating rate payer under an inflation swap. The terms of the inflation swap will specify whether the floating payment will be based solely on the initial publication of the relevant inflation measure or whether it will be subject to adjustment if the relevant inflation measure is revised. If the relevant inflation measure is discontinued or is not published on a date of determination, the calculation agent (which may be us) may be required to select a substitute inflation measure or to calculate the relevant inflation level pursuant to an alternative methodology, which in either case may adversely affect the Transaction Economics from your perspective. The particular inflation measure underlying an inflation swap may exclude various categories of prices from the measure of inflation, which may have a significant effect on the measure of inflation. If your objective in entering into an inflation swap is to hedge other exposure that you have, you should consider carefully how well the particular inflation measure represents your other exposure. For purposes of valuing an inflation swap, observed market prices may be adjusted for seasonality, which may increase the level of uncertainty of the valuation. When we calculate the value of an inflation swap for any purpose, including in the event of early termination of an inflation swap, our interests will be adverse to yours. See IV.A.6 – “Conflicts of Interest and Material Incentives – Our financial market activities may adversely impact Transactions – Act as calculation agent, valuation agent, collateral

agent, or determining party” – of the General Disclosure Statement. Inflation swaps often have floors or caps or other option-like features. See “Options / Swaptions” below for a discussion of certain risks relating to such option-like features.

- *Other valuation considerations:* The value of an interest rate swap may be determined by reference to a series of forward rates for each future calculation period. A forward rate can be viewed as representing the currently prevailing fixed forward price of a particular future floating rate payment. Forward rates may be observable market rates in some cases, or may be interpolated from observed rates or implied by zero-coupon interest rates with tenors corresponding to the beginning and end of the relevant calculation period. In general, the portion of the value of an interest rate swap that is attributable to the exchange of payments on a given payment date may be determined by discounting a payment of the forward rate to present value at an appropriate discount rate (which may be based on a different yield curve than used to derive the forward rates) and comparing this amount to the discounted present value of the corresponding fixed rate payment, in the case of a fixed-for-floating swap, or the corresponding payment of the forward rate for the other floating leg, in the case of a basis swap. Consequently, the value will depend not only on the current level of the interest rates of the same designated maturity as the floating reference rate, but also on the entire yield curve up to the maturity date of the swap. The value may be affected by changes in the shape of the yield curve as well as the overall level of interest rates. For certain types of swaps under which payment flows do not correspond in timing or amount to payments on the traded instruments that define the reference rates, valuations may depend on volatilities of forward rates. The pricing of such swaps is inherently more complex than the pricing of simpler interest rate swaps that use forward looking term rates (e.g., Term SOFR) and generally requires use of models that describe fluctuations of the yield curve or approximated methods such as convexity adjustments. Examples of such swaps include arrears-setting swaps (i.e., in which a floating rate is set at the end of a calculation period and applied retroactively such as overnight SOFR or SONIA) and constant maturity swaps.

Forward rate agreements

A forward rate agreement (“FRA”) generally is an agreement to exchange payments based on the difference between (A) a fixed rate that is agreed upon at execution and (B) a floating rate that will be observed at some future date. If the FRA specifies a settlement date prior to the end of the accrual period for the observed floating rate, then the fixed and floating amounts that will accrue are discounted (typically using the observed floating rate to determine the discount factor) to their present value on the settlement date. This discount factor may differ from the rate at which you would be able to invest or borrow funds. Valuation considerations for FRAs are generally similar to those for interest rate swaps. The specified floating rate may be an interest rate, such as SOFR, or a yield on a specified bond, such as the yield on a specified U.S. Treasury bond. If your objective in entering into a FRA is to hedge the interest rate you will be required to pay under an expected future financing, you should consider whether the floating rate under the FRA is determined on the same basis as that on which the interest rate you are hedging will be determined. Any differences may reduce the effectiveness of the FRA for your hedging purposes. A FRA entered into for the purpose of hedging the interest rate you will be required to pay under an expected future financing may also be referred to as a “rate lock agreement.”

Options / Swaptions

Under an interest rate option, the parties have exposure to only one direction in the movements of a reference rate or the spread between reference rates. In the case of a call option, the “option buyer” pays a premium and will receive a payment from the “option seller” upon exercise if the reference rate or spread exceeds a specified strike level at the applicable time, and will otherwise not be entitled to any payment from the option seller. In the case of a put option, the option buyer pays a premium and will receive a payment from the option seller upon exercise if the reference rate or spread is less than a specified strike level at the applicable time, and will otherwise not be entitled to any payment from the option seller. If the option buyer pays the premium at the commencement of the Rates Transaction, the credit exposure under the Rates Transaction will be one-way (i.e., only the option buyer faces counterparty credit risk). If the option buyer pays the premium during or at the conclusion of the Rates Transaction, both parties will have counterparty credit risk.

A Rates Transaction commonly referred to as a “cap” is a series of call options on a specified reference rate, and a Rates Transaction commonly referred to as a “floor” is a series of put options on a specified reference rate. A party may enter into a cap or a floor as an individual Rates Transaction, or a cap and/or floor may be embedded in a Rates Transaction with other features.

A “collar” is a Rates Transaction in which one of the parties purchases a cap and sells a floor. The premium received from selling the floor may offset all or a portion of the premium for the purchased cap, or may in some instances be greater than the cap premium. As with other options, the sale of a floor or cap entails certain risks. See Section III.J – “Option Transactions present special considerations” – of the General Disclosure Statement. If you are considering purchasing a collar in order to hedge a floating rate borrowing, you should be aware that by selling the embedded floor you will forego any benefit from reduced borrowing costs if interest rates decline below the strike rate of the floor.

An interest rate swaption is an option that provides one party with the right, but not the obligation, to enter into an interest rate swap at an agreed-upon fixed rate on the specified future exercise date or dates. In a “pay-fixed” swaption, the holder of the swaption has the right to enter into an interest rate swap as a payer of the fixed rate and receiver of the floating rate, whereas in a “receive-fixed” swaption, the holder has the right to enter into an interest rate swap as a receiver of the fixed rate and a payer of the floating rate. In either case, the writer of the swaption has the obligation to enter into the opposite side of the interest rate swap from the holder. In some cases a swaption only uses the underlying swap as a means to determine the amount payable upon exercise of the swaption. In that case, the underlying swap will be treated as if it terminated immediately upon exercising the swaption.

Interest rate options and swaptions have the risks and characteristics described in Section III.J – “Option Transactions present special considerations” – of the General Disclosure Statement.

In some cases, you may decide to purchase an interest rate option or swaption to lock in interest rate hedging terms in advance of a future financing. You should be aware that if the future transaction is not consummated for any reason, you will have received no hedging benefit from the premium payment and other costs incurred in purchasing the

option or swaption.

In some cases, you may decide to sell an interest rate option or swaption. Selling an option or swaption may involve substantial risks. See Section III.J – “Option Transactions present special considerations” – of the General Disclosure Statement. Your objective in selling the option or swaption, for example, may be to capture the value of options you own, such as an option to redeem or prepay indebtedness, or your anticipated flexibility in determining when and whether to issue future indebtedness. You should be aware that such strategies are inherently risky, depend on a confluence of factors that are difficult to predict and may result in substantial losses.

A call option and a pay-fixed swaption generally increase in value as the underlying reference rate or spread, or the par swap rate (i.e., the value of the fixed rate at which a swap has zero present value) for the underlying swap, increases, assuming other relevant factors remain unchanged. The converse is true for a put option and a receive-fixed swaption. The price of any option or swaption will reflect both an intrinsic value component, which may be zero, and a time premium component. See Section III.J – “Option Transactions present special considerations” – of the General Disclosure Statement. The pricing of interest rate options and swaptions is inherently more complex than the pricing of many other options because the value is a function of the entire yield curve rather than a single market price. Valuation models differ in the parameters used to describe fluctuations of the yield curve, and may be significantly more complex than option pricing models employed for other asset classes based on a single volatility.

Options and swaptions have an exercise style, which may be European, American or Bermudan, and exercise may be subject to various conditions. You should review and understand the conditions and requirements for exercising an interest rate option or swaption and the consequences of exercise, as described in Section III.J of the General Disclosure Statement.

Forward volatility agreement

Under a typical interest rate forward volatility agreement, the parties agree on the trade date to enter into a “straddle” on a specified future date (the “reference date”) with terms that will be based on a volatility level that is agreed by the parties on the trade date. A “straddle” is a combination of a put option and a call option (or a pay-fixed swaption and a receive-fixed swaption) on a specified reference rate or spread (or underlying interest rate swap), both of which are purchased by the same party (the “option buyer”). The premiums for the options (or swaptions) will be determined by the calculation agent on the reference date based on the specified volatility level and other option pricing inputs as of the reference date. The strike prices for the options may also be determined by the calculation agent on the reference date based on such specified volatility level and/or other specified variables, or may be specified under the terms of the forward volatility agreement.

The specified volatility level may reflect an estimate or projection, as of the trade date, of what the implied volatility will be, on the reference date, for the specified reference rate, spread or underlying interest rate swap with respect to the period between the reference date and the expiration date. If such implied volatility, based on market prices for similar options or swaptions on the reference date, is less than the specified volatility level, then the

premiums paid by the option buyer will generally be greater than the market price of similar options on the reference date, and vice versa. For considerations relevant to the calculation of volatility, please refer to Section II.J – “General characteristics of variance- and volatility-linked Transactions” – of the General Disclosure Statement.

The calculation agent may be required to exercise judgment in determining the premiums and strike prices of the options or swaptions, and the calculation agent may make those determinations in a manner that is adverse to your interests. Please refer to Section IV.A.6 – “Act as calculation agent, valuation agent, collateral agent, or determining party” – of the General Disclosure Statement.

A forward volatility agreement is an agreement to buy or sell options, which have the risks and characteristics described in Section III.J – “Option Transactions present special considerations” – of the General Disclosure Statement.

Interest Rate Benchmark Modifications & Discontinuance

A compiling body, sponsor or administrator of an interest rate benchmark may make methodological or other changes that could change the value of the benchmark, including changes related to the method by which the benchmark is calculated, eligibility criteria applicable to contributing banks or funding sources, or timing related to submissions or the publication of the benchmark. In addition, the compiling body, sponsor or administrator may alter, discontinue or suspend calculation or dissemination of the benchmark (in which case a fallback method of determining the reference rate may apply, if specified in the relevant benchmark-based obligation or investment).

Regulatory and industry initiatives concerning benchmarks may result in changes or modifications affecting benchmark-based obligations and investments or benchmarks, such as a change in the compiling body, sponsor or administrator of an benchmark, the suspension, discontinuance or unavailability of an benchmark, the development of an alternative reference rate (“ARR”), a need to determine or agree a substitute or successor reference rate or ARR, and/or a need to determine or agree a spread to be added to or subtracted from, or to make other adjustments to, a substitute or successor reference rate or ARR to approximate an benchmark equivalent rate (as further described below), not all of which can be foreseen at the time you enter into, issue or acquire an benchmark-based obligation or investment. You should consider how benchmark-based obligations and investments and benchmarks may be affected by such initiatives, changes and modifications, and the extent to which the definition of a benchmark together with fallbacks in such definition, if any, provide for such eventualities.

Compiling bodies, sponsors and administrators of benchmarks, contributing banks on the relevant benchmark panel, reference banks providing benchmark quotations pursuant to interest rate setting or fallback provisions or otherwise, and developers of ARRs (including their participants) have no obligation to consider your interests in calculating, adjusting, converting, revising, discontinuing or developing any benchmark, ARR or fallbacks or in any of their submissions or quotations.

Any of the foregoing initiatives and actions, any delay or uncertainty regarding the same, or

any failure of an ARR to be developed or gain market acceptance, could adversely affect benchmark-based obligations and investments and their economics, including the price, value or liquidity of benchmark-based obligations and investments, their usefulness for your intended purpose, the timing or amount of payments or deliveries and, if applicable, the likelihood that you will be able to exercise any option rights.

Interest Rate Benchmark-Equivalency and Risks

If the composition or characteristics of an ARR differ in any material respect from those of a benchmark, such as an ARR that represents overnight secured funding transactions involving bank and non-bank market participants, it may be necessary to convert the ARR into benchmark-equivalent rates in a range of maturities before it is considered a suitable substitute or successor for the relevant benchmark.

Converting an ARR into one or more benchmark-equivalent rates may be possible by adding, subtracting or otherwise incorporating one or more interest rate spreads, or by making other appropriate adjustments, to the ARR to approximate a benchmark-equivalent rate. For example, statistical correlations between the performance of the ARR versus a benchmark in a range of maturities over time or for specific periods or points in time prior to a suspension, discontinuance or unavailability of a benchmark could serve as a basis for computing and incorporating spreads or making other adjustments to the ARR. The feasibility and appropriateness of such adjustments may depend on a variety of considerations, including market conditions, any disparate impact of monetary policy (or macroeconomic changes such as Brexit) on the respective rates during the observation period, and factors affecting the ARR's or a benchmark's integrity over the observation period, including liquidity, transaction volumes, the number and financial condition of contributing or reference banks, and other considerations.

Even with spreads or other adjustments, benchmark-equivalent ARRs may be only an estimate or approximation of the relevant benchmark, may not be subject to continued verification against the relevant benchmark if it is suspended, discontinued or unavailable, and may not result in a rate that is the economic equivalent of the specific benchmarks used in your benchmark-based obligations and investments. In addition, it may be necessary to make such spreads or other adjustments permanent in response to the suspension, discontinuance or unavailability of the relevant benchmark, in which case such spreads or other adjustments may reflect an historical correlation or relationship between the relevant rates without taking into account future potential changes in the markets the benchmark was initially intended to represent.

It is impossible to predict with any certainty whether and how conversions of ARRs into benchmark-equivalent rates would or could be made and by whom. For example, conversions and adjustments could be made by developers of ARRs or by compiling bodies, sponsors or administrators of ARRs, or by a method or mechanism established by them. Due to competition laws or other legal constraints, developers and other market participants may be unable or reluctant to act collectively in certain respects in reforming or replacing benchmarks, such as setting or agreeing spreads or making other adjustments to ARRs at the financial industry level without central bank or government involvement, endorsement or other intervention.

If ARR's are developed with the expectation that conversions would be made bilaterally in the context of individual contracts, transactions, undertakings or investments, then decisions whether and how to convert them into approximations of benchmark-equivalent rates, including establishing processes for doing so, may be left to the parties, or their calculation agents or determining parties under benchmark-based obligations and investments, subject to whatever agreements, amendments, approvals, consents or other actions that may be necessary or required.

Alternatively, if the applicable interest rate under a benchmark-based obligation or investment is a combination of a benchmark and an agreed spread, it may be that the agreed spread is to be adjusted instead.

In either case, you should expect that our interest, involvement or role in benchmark-based obligations and investments will vary, and we may make decisions and act independently with respect to each such benchmark-based obligation or investment, without any obligation to treat all benchmark-based obligations and investments alike, including, without limitation, agreeing or applying the same spreads or adjustments to ARR's for purposes of converting them into approximations of benchmark-equivalent rates.

Potential Insufficiency of Fallbacks

Just as benchmarks remain vulnerable to contributing bank withdrawals, certain benchmark fallback provisions that call for the polling of reference banks could likewise be vulnerable if reference banks are reluctant to provide benchmark quotations, perhaps for reasons similar to those of withdrawing contributing banks. Better suited for a temporary benchmark interruption, such polling of reference banks under primary or secondary fallbacks may also become impractical if carried out on a large scale or for prolonged periods in response to the discontinuance of a benchmark.

Fallbacks currently in use in the financial markets may not necessarily contemplate the substitution of benchmark with another rate, or in certain cases they could be commercially suboptimal, such as with respect to an interest rate swap hedging a floating rate note issuance, for example, where the note's benchmark fallback provisions lead to a different fallback rate than the related swap. Such a result could undermine a noteholder's hedging strategy, since benchmark fallback provisions used in ISDA definitional booklets for swaps may not match those of the underlying hedged asset or investment. Accordingly, it may become necessary or desirable in the future to replace benchmarks with ARR's in your benchmark-based obligations and investments, which may require that other parties or interested persons agree, approve or consent.

The Need for Future Amendments

Replacing benchmarks with ARR's may not be possible unless appropriate amendments are made in the future to contracts, transactions, undertakings or investments, either bilaterally or through an ISDA protocol or other multilateral amendment process, assuming such methods are developed. Whether these methods are successful may depend, in part, on market acceptance of ARR's.

You may also need to evaluate the pros and cons of provisions that permit unilateral amendments in response to benchmark discontinuance, or that authorize a calculation agent or other determining party to use its discretion in administering fallbacks, selecting a substitute or successor rate or ARR, or making benchmark-equivalency determinations. For example, swaps that are part of a financing may have indentures that could specify that the issuer and the trustee may enter into a supplemental indenture to replace a discontinued benchmark without requiring the consent of floating rate note holders.

You should review the scope of the duties of the calculation agent under your contracts and the applicable standards of care. If you will be acting as a calculation agent or determining party, you may wish to consider your exposure to litigation risk if parties dispute your calculations and determinations under fallback provisions, especially if you are called upon to use your discretion.



International Swaps and Derivatives Association, Inc.

Disclosure Annex for Commodity Derivative Transactions

This Annex supplements and should be read in conjunction with the General Disclosure Statement. NOTHING IN THIS ANNEX AMENDS OR SUPERSEDES THE EXPRESS TERMS OF ANY TRANSACTION BETWEEN YOU AND US OR ANY RELATED GOVERNING DOCUMENTATION. Accordingly, descriptions in this Annex of the operation of Commodity Transactions (as defined below) and the consequences of various events are in all cases subject to the actual terms of a Commodity Transaction executed between you and us and its governing documentation (whether or not such qualification is expressly stated).

We refer to Transactions in which the Underliers are physical commodities, contracts for the future delivery of physical commodities, physical events (such as weather, transportation or emissions), rights or indexes relating to physical commodities, contracts for the future delivery of physical commodities or physical events (a “**commodity index**”) or an index of commodity indexes, as “**Commodity Transactions**”. The terms of a Commodity Transaction may incorporate standard definitions, annexes thereto and other market standard terms, including terms, customs and usages from the physical markets for Underliers. Such terms may in turn be amended or customized pursuant to the terms of the Commodity Transaction and its governing documentation. Before entering into a Commodity Transaction, you should obtain and review carefully any such materials incorporated by reference as their content could materially affect your rights and obligations under the Commodity Transaction, its value and its appropriateness for your particular objectives.

Physical Markets and Price Sources

Markets in physical commodities are highly differentiated by location, supply and demand, time and manner of delivery, quality standards for deliverable products and other factors. The depth, liquidity and number and nature of participants may vary greatly among segments in the market for the same commodity. Prices prevailing in different segments generally will differ, and historically observed relationships, if any, between prices in different segments or for different commodities may not persist.

The terms of a Commodity Transaction (including certain physically-settled Commodity Transactions) will specify the source or method of determining the prices, levels or values (“**commodity reference prices**”) relevant to the computation of payments and deliveries and the satisfaction of exercise and other conditions, such as automatic exercise and knock-in or knock-out events. Examples of commodity reference prices include price indexes compiled and published by market data providers and prices used to settle exchange-traded or cleared futures or other contracts related to an Underlier. You should independently evaluate the appropriateness of the selected commodity reference price(s) to your objectives for entering into a Commodity Transaction, including whether a specified commodity reference price accurately

reflects the prevailing cash market fundamentals in a relevant physical market segment and the potential that it may be susceptible to distortion or manipulation.

Market data providers may compile their commodity reference prices from pricing data submitted voluntarily by market participants. You should be aware that price submissions to a market data provider may or may not be based on actual transactions and that the data provider may not be able to audit submissions for their accuracy or completeness. Other factors you should consider include:

- computational procedures used by the market data provider to reduce the impact of potentially unrepresentative data, such as requiring a minimum number of submissions and the rejection of outlying data;
- conflicts of interest that may affect the market data provider;
- the information the market data provider publicly discloses, which may or may not accurately reflect all relevant information available to the market data provider; and
- governance of the market data provider, whether it is subject to regulatory oversight and the nature of such regulatory oversight.

Market data providers may make certain information relevant to this assessment publicly available, and we urge you to consider such information carefully. If we or an affiliate make submissions that are used to compile a commodity reference price and also act as principal in Commodity Transactions that use the commodity reference price as an Underlier, then we face an inherent conflict of interest.

Prices of exchange-traded contracts may be affected by the method used for determining the official settlement price, including discretionary determinations of an exchange or clearinghouse settlement committee (on which we or an affiliate may participate), and by market disruption events as described below.

An exchange, clearinghouse, market data provider, government agency or other body that determines a commodity reference price may make methodological or other changes that could change the value of the commodity reference price, including changes related to the method by which the commodity reference price is calculated, or the timing for publication of the commodity reference price. In addition, the determining body may alter, discontinue or suspend calculation or dissemination of the commodity reference price, or change the terms of or de-list a contract that defines a commodity reference price. Determining bodies and the institutions that make submissions in the commodity reference price determination process, which may include us and our affiliates, have no obligation to consider your interests in calculating, revising, discontinuing or taking other actions that may affect any commodity reference price.

Other Factors Relevant to the Valuation of Commodity Transactions

Please refer to Section II.F – “The economic return of a Transaction may not be the same as the return from the Underlier” – and Section III.A – “Transactions are subject to market risk” – of

the General Disclosure Statement regarding other factors (in addition to the commodity reference price) that may be relevant to the valuation of a Commodity Transaction.

A. Market Value Affected by Many Factors

The performance of a Commodity Transaction is unpredictable. Commodity prices are inherently volatile. The market value of a Commodity Transaction may be influenced by many unpredictable factors, such as:

- prevailing spot prices for the Underlier or the commodity or commodities underlying a commodity index that is an Underlier for a Commodity Transaction (a “**Commodity Index Underlier**”);
- supply and demand for the Underlier or the commodity or commodities underlying a Commodity Index Underlier;
- market activity;
- liquidity;
- economic, financial, political, regulatory, geographical, biological, or judicial events; and
- the general interest rate environment.

These factors interrelate in complex ways, and the effect of one factor on the market value of the Commodity Transaction may offset or enhance the effect of another factor.

B. Volatility of Commodity Prices

Commodity prices may change unpredictably, affecting the value of commodities or commodity indexes in unforeseeable ways. Market prices may fluctuate rapidly based on numerous factors, including:

- changes in supply and demand relationships (whether actual, perceived, anticipated, unanticipated or unrealized);
- weather;
- agriculture;
- trade;
- fiscal, monetary and exchange control programs;
- domestic and foreign political and economic events and policies;
- disease;
- pestilence;
- technological developments;
- changes in interest rates, whether through governmental action or market movements; and

- monetary and other governmental policies, action and inaction.

The current or “spot” prices of physical commodities also may affect, in a volatile and inconsistent manner, the prices of futures contracts in respect of a commodity. These factors may affect the value of the commodity or a commodity index, and therefore the value of the Commodity Transaction, and may cause such values to move in a sudden and unexpected manner.

C. Supply and Demand

Supply of and demand for physical commodities tends to be particularly concentrated, so prices are likely to be volatile.

The prices of physical commodities, including the commodities underlying a commodity index, can fluctuate widely due to supply and demand disruptions in major producing or consuming regions or industries.

Certain commodities are used primarily in one industry, and fluctuations in levels of activity in (or the availability of alternative resources to) one industry may have a disproportionate effect on global demand for a particular commodity. Political, economic and other developments that affect that industry may affect the value of a commodity or the commodities included in a commodity index.

In addition, because certain commodities and certain of the commodities underlying a commodity index may be produced in a limited number of countries and may be controlled by a small number of producers, political, economic and supply-related events in such countries or with such producers could have a disproportionate impact on the prices of such commodities.

Suspension or disruptions of market trading in commodities and related futures contracts may adversely affect the value of commodities.

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 some 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 beyond the limit, or trading may be limited for a set period of time. Limit prices effectively preclude trading in a particular contract or force the liquidation of contracts at potentially disadvantageous times or prices.

These circumstances could adversely affect the value of any commodity or commodity index and therefore any related Commodity Transaction.

D. Negative Prices

Certain factors can cause prices of a commodity, a futures contract in respect of a commodity or a commodity index to become negative. When prices fall below zero, the situation may or may not lead to outcomes that differ from expectations on the performance of a Commodity Transaction. These consequences could include the following:

- Margin requirements may vary from projected amounts in light of negative prices.
- The value of a commodity and a futures contract in respect of that commodity may diverge and give rise to a mismatch between these respective markets if one were priced at a positive amount and the other priced at a negative amount for the same commodity.
- Technology failures of a market arising from negative prices could lead to unexpected repercussions.

The potential or frequency of any negative pricing may be influenced by unpredictable factors. These include the considerations described above regarding market value, volatility and supply and demand, but may also include other determinants, such as:

- availability or market expectations on availability of infrastructure to store, deliver or otherwise handle a commodity, or construction of any such new infrastructure or any decommissioning of any such existing infrastructure;
- with respect to physically-delivered contracts, a market's capability to monitor the supply of a commodity and its adequacy to satisfy the delivery requirements of that commodity and the sufficiency of procedures to resolve any conditions that threaten the adequacy of supplies or the delivery process;
- with respect to cash-settled contracts, a market's capability to monitor the pricing of the index to which the contracts settle and the continued appropriateness of the methodology for deriving the index; and
- enactment, amendment or withdrawal of any regulations or rules that impact the price at which a commodity can be bid or offered into a market.

You should review the terms of each prospective Commodity Transaction carefully, including how negative prices affect such Commodity Transaction. Commodity Transactions may or may not include additional specific terms relating to the effect of commodity prices, futures contract prices [or a commodity index] becoming negative. The consequences of negative prices under the terms of a Commodity Transaction may include (without limitation) a reduction in the amount payable by a party with respect to a

commodity price or, if the amount payable by a party with respect to a commodity price is a negative number, then the amount payable by that party being deemed to be zero, and either:

- the other party having an obligation to pay to that party the absolute value of that negative amount as calculated, in addition to any amounts otherwise payable by that other party; or
- the other party not having an obligation to pay to that party the absolute value of the negative amount as calculated and only being required to pay those amounts otherwise payable by the other party.

You should evaluate the potential consequences with such professional advice as appropriate to your circumstances. You should also evaluate the extent to which the consequences of negative prices on your transaction converge with or diverge from any consequences that would apply under your other Commodity Transactions or related instruments in the same commodity and the appropriateness thereof.

Corrections to Published Prices

A price source may announce corrections to a previously published commodity reference price. You should review the terms of a prospective Commodity Transaction to determine how such corrections are treated. The terms of a Commodity Transaction may specify that if the price source for a price that has previously been used to determine a payment or delivery amount under a Commodity Transaction subsequently publishes a correction to that price, and if the correction is announced within a specified time period after the original publication date, then a retroactive adjustment may apply to payments and deliveries, including the payment of accrued interest (at a rate determined by the calculation agent) on amounts payable as a result of the correction.

Market Disruption Events

The terms of a Commodity Transaction may specify that certain events and conditions affecting the market for a commodity or related exchange-traded or cleared contract, or a price source, will be treated as market disruptions and their occurrence may result in the consequences discussed below (see “Consequences of Disruption Events”), including, if applicable, postponement of pricing dates and/or changes in the method by which the price, level or value of an Underlier is determined. Subject to the terms of a Commodity Transaction and the governing documentation, such events may include:

- failure of a price source to publish a price, discontinuance of the price source or cessation of trading of the Underlier;
- divergences by more than a specified amount of alternative price sources from one another, such as between a price published by a market data provider and one derived from quotations obtained by the calculation agent from reference dealers;

- inability of the calculation agent to obtain quotations from the requisite number of reference dealers;
- suspension of or limitations on trading in an Underlier (or in its components in the case of an index or basket) or related instruments, including the triggering of price fluctuation limits, the establishment by a regulator of price caps or floors, or the unscheduled early closing of a market for an Underlier or related instruments (including market closure due to technological failures or force majeure events);
- changes in the method for determining a commodity reference price or in the composition of an Underlier or related instruments; and
- the imposition of, change in or removal of certain taxes on positions in the Underlier.

The existence of such disruption events and their consequences may be subject to discretionary determinations by the determining party or calculation agent, which may involve subjective judgment and uncertainty. Such disruption events also may apply to any contract or index that underlies a Commodity Index Underlier.

You should be aware of the potential risks of any market disruptions and should understand their effect on each prospective Commodity Transaction, including the consequences, if any, of any such event specified under the terms of the Commodity Transaction as well as the possibility that certain events might not be expressly contemplated.

Consequences of Disruption Events

The terms and conditions of a Commodity Transaction may specify alternative methods, or “**disruption fallbacks**”, that apply when disruption events occur for determining any affected commodity reference price. If the applicable disruption fallback so provides, then consequences including the following may occur:

- the price sources used by the calculation agent under your Commodity Transaction for determining the price or level of the Underlier may not be the same as those used prior to the disruption event;
- the calculation agent may determine any affected prices or levels in a manner specified under the terms of the Commodity Transaction, which may include taking into account quotations obtained from dealers in the relevant market, unpublished or unannounced sources and other information the calculation agent deems relevant, and employing its own calculations and estimates;
- the calculation agent may calculate the affected price using the methodology that was in place at the time the Commodity Transaction was entered into such that the prices referenced in the Commodity Transaction may not reflect the price currently published by the index sponsor.

- the value of the affected price or level used by the calculation agent to determine any amount payable may be materially different from the value of any previously used published price source;
- the determination of the affected price or level may be deferred until the relevant disruption event is no longer continuing, which may result in the use of a price prevailing on a date other than the originally chosen pricing date (“price postponement”), or may result in the use of the price as of the original pricing date if such price is published before an alternative fallback becomes applicable;
- the value of the price or level may be determined at a different time than the date on which it was originally scheduled to be determined, or the value of an average price or level may be based on different pricing dates than originally scheduled;
- the index sponsor of a Commodity Index Underlier may change during the life of the Commodity Transaction to either another index sponsor or the calculation agent;
- the terms of the Commodity Transaction may require the parties to negotiate fallback arrangements in good faith; and/or
- the termination of the Commodity Transaction.

The determinations or negotiations called for by a disruption fallback may need to occur under uncertain market conditions. Depending on the terms of your Commodity Transaction, the operation of a disruption fallback may be subject to a specified maximum duration, after which time a different disruption fallback may prevail. Two or more disruption fallbacks may operate concurrently. You should evaluate carefully the interaction of various disruption fallbacks with one another and with any impossibility, illegality or force majeure provisions of the master agreement and other documentation, if any, governing the Commodity Transaction.

Application of disruption fallbacks (including related determinations by the calculation agent, if applicable) may have a significantly detrimental effect on the economics of a Commodity Transaction.

Multiple Underliers

For Commodity Transactions with more than one Underlier, including for example basis swaps, calendar spreads and basket transactions, it may be important for your intended purpose whether or not disruption fallbacks could result in the use of different pricing dates for different Underliers. You should review the terms of each prospective Commodity Transaction carefully, including to determine whether or not the prospective Commodity Transaction includes “common pricing” provisions to address the possible divergence of pricing dates.

Effects of Regulatory Changes and Actions on our Hedging Positions

Commodity futures contracts, options on such contracts and, in some cases, economically-related instruments are subject to extensive and changing regulatory and self-regulatory requirements.

The U.S. Commodity Futures Trading Commission (“CFTC”), for example, is authorized to direct exchanges, derivatives clearing organizations and other registered entities under its jurisdiction to take extraordinary action in the event of a market emergency, including the setting of temporary emergency margin levels and retroactive position limits. Regulators in various jurisdictions are examining the effects of speculative trading and financial investing on commodity markets. Although it is impossible to predict the outcome of such regulatory initiatives, they may include the imposition of new or more restrictive position limits on commodity futures contracts and economically related instruments. Notably, the CFTC issued a final rule imposing position limits on certain physical commodity futures contracts traded on U.S. futures exchanges and economically related swaps. The final rule has been vacated by a U.S. federal court and remanded to the CFTC. However, the position limits relating to futures and options under 17 CFR §150.2 were not vacated by the court. Further developments are uncertain.

Legal and regulatory developments or the exercise of existing regulatory authority may affect our own or one of our affiliate’s ability to hedge our exposures resulting from Commodity Transaction and cause us to invoke the types of provisions described in Section III.P – “Dependence of Transactions on our Hedging Positions” – of the General Disclosure Statement, which may adversely affect the economics of a Commodity Transaction of a Commodity Transaction.

Physical Settlement

If you enter into a physically settled Commodity Transaction, you (either directly or through a third party acting on your behalf) must have the operational capabilities to make or take delivery of the Underlier in accordance with the terms of the Commodity Transaction and you should be thoroughly familiar with delivery practices, procedures, customs and usages of the physical market and the governing contractual provisions, laws and regulations. Issues with which you should be familiar include, as applicable:

- delivery instruments (e.g., warehouse receipts, bills of lading, warehouse releases, consignment agreements or other instruments);
- the time and location at which title to the Underlier and/or risk of loss passes to the recipient;
- the conditions, if any, under which delivery may be excused, delayed or prevented;
- quality or quantity discrepancies with respect to a delivered commodity;
- the possibility that congestion in the deliverable supply of a commodity could prevent you from acquiring the commodity to meet your delivery obligations or make it significantly more costly for you to do so;
- the consequences of failing to make or take delivery in accordance with the terms of a Commodity Transaction, including the applicable measure of damages and additional liabilities such as borrowing costs, imbalance charges, storage, transportation costs such

as demurrage, regulatory penalties, and other costs, damages or expenses recoverable in a particular Commodity Transaction;

- various modes of delivering or transporting the commodity subject to a Commodity Transaction and related legal instruments (e.g., rail/trucking and other freight and handling agreements, container line contracts of carriage, charter parties and contracts of affreightment), as well as any regulatory, health and safety, compliance and other related procedures, rules, tariffs and regulations incident thereto;
- indemnification obligations of the parties, including with respect to title defects and liabilities to third parties;
- limitations on liability or exclusions thereto, if any;
- features of transmission, transportation or electronic tracking systems generally, including, in particular, those that may result in mis-delivery or under-delivery and the process for reconciling outstanding balances among users of the system and between us under a Commodity Transaction;
- availability of insurance and scope of applicable policy coverage;
- settlement risk when payment dates occur after delivery dates; and
- in the case of physically settled Commodity Transactions subject to the rules of an exchange or clearinghouse, the rules and procedures governing delivery, including notice requirements and the procedures for matching long and short positions for delivery.

You should be aware, however, that not all contracts or transactions with such physical delivery features are Commodity Transactions or Transactions and that various differences in the applicable regulatory regimes and other circumstances may follow from this distinction. Please see Section II.A – “Arm’s length contractual counterparty to Transactions” – of the General Disclosure Statement.

Diversification of Commodity Indexes

Commodity Transactions linked to one or more commodities or commodity indexes comprised of one or more contracts on physical commodities are likely to be less diversified than other funds, investment portfolios or indexes investing in or tracking a broader range of products and, therefore, could experience greater volatility. Investors should be aware, in particular, that some commodity indexes are more diversified than others in terms of both the number of and variety of futures contracts. A Commodity Transaction involving a less-diversified Commodity Index Underlier may carry risks similar to a concentrated position in a limited number of industries or sectors, or in one industry or sector.

Exchange-Traded Futures Contracts

The Underlier to your Commodity Transaction may be a commodity futures contract. Unlike equity securities, 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. Futures contracts trade on regulated futures exchanges, and physical products and other derivatives on commodities trade in the over-the-counter market and on various types of physical and electronic trading facilities and markets. An exchange-traded futures contract provides for the purchase and sale of a specified type and quantity of a product or financial instrument during a stated delivery month for a fixed price. A futures contract on an index of products provides for the payment and receipt of cash based on the level of the index at settlement or liquidation of the contract. A futures contract provides for a specified settlement month in which the cash settlement is made or in which the product or financial instrument is to be delivered by the seller (whose position is described as “short”) and acquired by the purchaser (whose position is described as “long”). A market participant wishing to maintain its exposure to a futures contract on a particular product with the nearest expiration must close out its position in the expiring contract and establish a new position in the contract for the next delivery month, a process referred to as “rolling”. For example, a market participant with a long position in November crude oil futures that wishes to maintain a position in the nearest delivery month will, as the November contract nears expiration, sell the November futures contract, which serves to close out the existing long position, and buy a December futures contract. This will “roll” the November position into a December position, and, when the November contract expires, the market participant will still have a long position in the nearest delivery month.

There is no purchase price paid or received on the purchase or sale of a futures contract. Instead, an amount of cash or cash equivalents must be deposited with a broker as “initial margin”. This amount varies based on the requirements imposed by the exchange clearing houses, but may be lower than 5 percent of the notional amount of the futures contract. This margin deposit provides collateral for the obligations of the parties to the futures contract.

By depositing margin, which may vary in form depending on the exchange, with the clearing house or broker involved, a market participant may be able to earn interest on its margin funds, thereby increasing the total return that it may realize from an investment in futures contracts. The market participant normally makes to, and receives from, the broker subsequent daily payments as the price of the futures contract fluctuates. These payments are called “variation margin” and are made as the existing positions in the futures contract become more or less valuable, a process known as “marking to market”.

Futures contracts are traded on organized exchanges, known as “designated contract markets” in the US. At any time prior to the expiration of a futures contract, subject to the availability of a liquid secondary market, a trader may elect to close out its position by taking an opposite position on the exchange on which the trader obtained the position. This operates to terminate the position and fix the trader’s profit or loss. Futures contracts are cleared through the facilities of a centralized clearing house and a brokerage firm, referred to as a “futures commission merchant”, which is a member of the clearing house. The clearing house guarantees the performance of each clearing member that is a party to a futures contract by, in effect, taking the opposite side of the transaction. Clearing houses do not guarantee the performance by clearing members of their obligations to their customers.

The above features of exchange-traded commodity futures contracts may impact the value of a Commodity Transaction with a commodity futures contract or index comprised of commodity futures contracts as the Underlier.

Indexes Composed of Futures Contracts

Many commodity indexes are comprised, at least in part, of exchange-traded futures contracts. As exchange-traded futures contracts that comprise a commodity index approach expiration, they are replaced by similar contracts that have a later expiration. For example, a futures contract purchased and held in August may specify an October expiration. As time passes, the contract expiring in October may be replaced by a contract for delivery in November.

If the market for these contracts is (putting aside other considerations) in “backwardation”, which means that 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 “roll yield”. The actual realization of a potential roll yield will be dependent upon the level of the related spot price relative to the unwind price of the commodity futures contract at the time of sale of the contract.

While many of the contracts included in commodity indexes have historically exhibited consistent periods of backwardation, backwardation will most likely not exist at all times. Moreover, certain of the commodities reflected in commodity indexes have historically traded in “contango” markets. Contango markets are those in which the prices of contracts are higher in the distant delivery months than in the nearer delivery months. Contango in the commodity markets could result in negative “roll yields”, which could adversely affect the value of a commodity index.

Commodity indexes are typically based solely on futures contracts traded on regulated futures exchanges. However, a commodity index may include over-the-counter contracts traded on trading facilities that are subject to lesser degrees of regulation or, in some cases, no substantive regulation. As a result, trading in such contracts and the manner in which prices and volumes are reported by the relevant trading facilities may not be subject to the provisions of, and the protections afforded by, applicable statutes and related regulations that govern trading on regulated futures exchanges.

In addition, many electronic trading facilities have only recently initiated trading and do not have significant trading histories. As a result, the trading of contracts on such facilities, and the inclusion of such contracts in a commodity index, may be subject to certain risks not presented by, for example, U.S. or UK exchange-traded futures contracts, including risks related to the liquidity and price histories of the relevant contracts.

A commodity index is not a substitute for physical commodities or the futures contracts that may underlie such index, and returns on a commodity index may not reflect the returns that could be obtained by owning the components of such index.

These features of indexes comprised of commodity futures contracts may impact the value of a Commodity Transaction with a Commodity Index Underlier.

Additional Risks Associated with Commodity Transactions

A. Additional Risks Associated with Commodity Transactions Linked to the Price of Aluminum, Copper, Lead, Nickel, Tin or Zinc

Commodity Transactions linked to the price of aluminum, copper, lead, nickel, tin or zinc may be subject to certain specific risks.

Aluminum, copper, lead, nickel, tin and zinc are industrial metals. Consequently, in addition to factors affecting commodities generally that are described above, Commodity Transactions that are linked to the price of such commodities may be subject to a number of additional factors specific to industrial metals that might cause price volatility. These may include, among others:

- changes in the level of industrial activity using industrial metals, and, in particular, aluminum, copper, lead, nickel, tin or zinc, including the availability of substitutes such as man-made or synthetic substitutes;
- disruptions in the supply chain, from mining to storage to smelting or refining;
- adjustments to inventory;
- variations in production costs, including storage, labor and energy costs;
- costs associated with regulatory compliance, including environmental regulations; and
- changes in industrial, government and consumer demand, both in individual consuming nations and internationally.

These factors interrelate in complex ways, and the effect of one factor on the market value of Commodity Transactions linked to the price of aluminum, copper, lead, nickel, tin or zinc, may offset or enhance the effect of another factor.

The London Metal Exchange's (the "LME") use of or omission to use price controls may result in limited appreciation but unlimited depreciation in the price of aluminum, copper, lead, nickel, tin or zinc futures contracts traded on the LME and, therefore, the value of Commodity Transactions linked to the price of such aluminum, copper, lead, nickel, tin or zinc futures contracts.

U.S. exchanges have daily price fluctuation limits that apply to some futures contracts. In contrast, futures contracts on aluminum, copper, lead, nickel, tin and zinc that are traded on the LME are not subject to daily price fluctuation limits to restrict the extent of daily fluctuations in the prices of such contracts. In a declining market, therefore, it is possible that prices for one or more contracts traded on the LME would continue to decline without limitation within a trading day or over a period of trading days. A steep decline in the price of the futures contract could have a significant adverse impact on the value of any Commodity Transaction linked to such aluminum, copper, lead, nickel, tin, or zinc futures contracts traded on the LME as compared to similar contracts traded on a U.S. exchange.

Moreover, the LME has discretion to impose “backwardation limits” by permitting short sellers who are unable to effect delivery of an underlying commodity and/or borrow such commodity at a price per day that is no greater than the backwardation limit to defer their delivery obligations by paying a penalty in the amount of the backwardation limit to buyers for whom delivery was deferred. Backwardation limits tend to either constrain appreciation or cause depreciation of the prices of futures contracts expiring in near delivery months. Impositions of such backwardation limits could adversely affect the value of any Commodity Transaction linked to such aluminum, copper, lead or nickel futures contracts.

Contracts traded on the LME are exposed to concentration risks beyond those characteristic of futures contracts on U.S. futures exchanges. Futures contracts traded on U.S. futures exchanges generally call for delivery of the physical commodities to which such contracts relate in stated delivery months. In contrast, contracts traded on the LME may call for delivery on a daily, weekly or monthly basis. As a result, there may be a greater risk of concentration of positions in contracts trading on the LME on particular delivery dates than for futures contracts traded on U.S. futures exchanges, since, for example, contracts calling for delivery on a daily, weekly or monthly basis could call for delivery on the same or approximately the same date. Such a concentration of positions, in turn, could cause temporary aberrations in the prices of contracts traded on the LME for delivery dates to which such positions relate. To the extent such aberrations are in evidence on a given pricing date with respect to the price of any such futures contract, they could adversely affect the value of any Commodity Transaction linked to such futures contracts.

B. Additional Risks Associated with Commodity Transactions Linked to the Price of Cocoa, Coffee, Corn, Cotton, Soybeans, Soybean Oil, Sugar or Wheat

Commodity Transactions linked to the price of cocoa, coffee, corn, cotton, soybeans, soybean oil, sugar or wheat may be subject to certain specific risks.

Cocoa, coffee, corn, cotton, soybeans, soybean oil, sugar and wheat are agricultural commodities. Cocoa, coffee, cotton and sugar are soft commodities, and corn, soybeans and wheat are grains. Consequently, in addition to factors affecting commodities generally that are described above, Commodity Transactions that are linked to the price of such commodities may be subject to a number of additional factors specific to agricultural commodities that might cause price volatility. These may include, among others:

- weather conditions, including floods, drought and freezing conditions;
- changes in government policies;
- changes in global demand for food or clothing;
- planting decisions;
- changes in bio-diesel or ethanol demand; and

- changes in demand for agricultural products, softs or grains, both with end users and as inputs into various industries.

These factors interrelate in complex ways, and the effect of one factor on the market value of Commodity Transactions linked to the price of cocoa, coffee, corn, cotton, soybeans, soybean oil, sugar or wheat may offset or enhance the effect of another factor.

C. Additional Risks Associated with Commodity Transactions Linked to the Price of Crude Oil, Electricity, Heating Oil, Natural Gas or Unleaded Gasoline

Commodity Transactions linked to the price of crude oil, heating oil, natural gas or unleaded gasoline may be subject to certain specific risks.

Crude oil, heating oil, natural gas and unleaded gasoline are energy commodities. Consequently, in addition to factors affecting commodities generally that are described above, Commodity Transactions linked to the price of such commodities may be subject to a number of additional factors specific to energy commodities that might cause price volatility. These may include, among others:

- changes in global demand for (whether by consumers or the agricultural, manufacturing and transportation industries) and supply of the relevant energy commodity and its related end-products;
- governmental regulations and policies, such as environmental or consumption policies;
- speculative actions and/or stockpiling;
- currency exchange rates;
- political events, labor activity and, in particular, direct government intervention (such as embargos) or supply disruptions (or resolutions thereof) in major oil producing regions of the world (such as disruptions caused by war, natural events, accidents or acts of terrorism);
- discoveries of new oil reserves and development of new technologies; and
- general interest rate environment and global economic trends.

These factors interrelate in complex ways, and the effect of one factor on the market value of Commodity Transactions linked to the price of crude oil, heating oil, natural gas or unleaded gasoline may offset or enhance the effect of another factor.

D. Additional Risks Associated with Commodity Transactions Linked to the Price of Gold, Silver, Platinum or Palladium

Commodity Transactions linked to the price of gold, silver, platinum or palladium may be subject to certain specific risks.

Gold, silver, platinum and palladium are precious metals. Consequently, in addition to factors affecting commodities generally that are described above, Commodity

Transactions linked to the price of such commodities may be subject to a number of additional factors specific to precious metals that might cause price volatility. These may include, among others:

- disruptions in the supply chain, from mining to storage to smelting or refining;
- adjustments to inventory;
- variations in production costs, including storage, labor and energy costs;
- costs associated with regulatory compliance, including environmental regulations;
- changes in industrial, government and consumer demand, both in individual consuming nations and internationally;
- precious metal leasing rates;
- currency exchange rates;
- level of economic growth and inflation; and
- degree to which consumers, governments and corporate and financial institutions hold physical gold as a safe haven asset (hoarding) which may be caused by a banking crisis/recovery, a rapid change in the value of other assets (both financial and physical) or changes in the level of geopolitical tension.

These factors interrelate in complex ways, and the effect of one factor on the market value of Commodity Transactions linked to the price of gold, silver, platinum or palladium may offset or enhance the effect of another factor.

E. Additional Risks Associated with Commodity Transactions Linked to the Price of Lean Hogs or Live Cattle

Commodity Transactions linked to the price of lean hogs or live cattle may be subject to certain specific risks.

Lean hogs and live cattle are a type of livestock. Consequently, in addition to factors affecting commodities generally that are described above, Commodity Transactions linked to the price of lean hogs or live cattle may be subject to a number of additional factors specific to livestock, and, in particular, lean hogs or live cattle, that might cause price volatility. These may include, among others:

- weather conditions, including floods, drought and freezing conditions;
- disease and famine;
- changes in government policies; and
- changes in end-user demand for livestock.

These factors interrelate in complex ways, and the effect of one factor on the market value of Commodity Transactions linked to the price of lean hogs or live cattle may offset or enhance the effect of another factor.

Additional Considerations for Specific Product Types

The following is a discussion of certain material risks, terms and characteristics of some common types of Commodity Transactions. The categories employed below are illustrative only, and are intended to assist you in understanding key features of certain prospective Commodity Transactions. The discussion should not be viewed as a comprehensive description of any particular Commodity Transaction that may be under discussion between you and us. Because nomenclature is neither standardized nor sufficiently descriptive to capture all important transaction features and variations, a particular Commodity Transaction may have additional or different risks, terms and characteristics than described below, even if it is referred to by one of the following category names.

Commodity swaps

- *Fixed-for-floating swaps*: In a fixed-for-floating commodity swap, one party (the “fixed price payer”) makes periodic payments based on a fixed price for a specified commodity that is agreed upon at the execution of the swap, while the other party (the “floating price payer”) makes payments based on a floating price for such commodity that is reset periodically. The floating price may be a spot price for the specified commodity, the price for a specified nearest futures contract for such commodity or an average price of such spot prices or futures contracts prices calculated over a period. For example, the floating price for a fixed-for-floating swap on U.S. crude oil with monthly payments may be based on the average of the settlement prices for the first nearby month NYMEX WTI Crude Oil Futures for each day of the relevant month. From the perspective of the fixed price payer, an increase in the overall price of the relevant commodity in the market will cause the swap to increase in value, because the fixed price payer’s contractually specified fixed price obligations will be lower than the commodity price then prevailing in the market. Conversely, if the overall price of the relevant commodity falls, the value of the swap to the fixed price payer will decline. From the perspective of the floating price payer, the corresponding value changes will be reversed.
- *Index return swaps*. There are two main types of index return swaps: excess return swaps and total return swaps. In either case, payments are made by the parties (either on a periodic basis or only upon termination of the transaction) based on a fee paid to the seller of the swap, and based on a floating commodity reference price determined by reference to changes in the level of a commodity index from an initial level to a level observed on one or more valuation dates. The commodity index is typically an index comprised of futures contracts on various commodities. Indices can be broad-based (i.e., comprised of futures contracts on a wide range of commodities such as energy, agricultural, metals, etc.) or based upon one or more particular sectors (e.g., energy commodities only, all commodities except agricultural, etc.) or based on a particular commodity (e.g., crude oil). One party will receive a payment based upon the change in the level of the index between two valuation dates (multiplied by the notional amount of the swap), as modified by the fee paid to the seller of the swap. If the level of the index increases, the buyer of the swap will be entitled to a payment based on this performance, as such payment may be reduced (or negated) by the fee paid to the seller of the swap. If the level of the index decreases, the seller of the swap will be entitled to a payment based

on this performance, as such payment may be increased by the fee paid to the seller of the swap. In an excess return swap, the change in the level of the index will be equal to the returns generated primarily by the changes in price of each of the futures contracts that comprise the index. In a total return swap, the change in the level of the index will be equal to the returns generated by the change in price of each of the futures contracts that comprise the index plus a return based upon interest earned on any cash collateral posted upon the purchase of the futures contracts comprising the index. The value of either the excess return or the total return swap is sensitive to the performance of the futures contracts that comprise the index.

- *Basis swaps*: In a commodity basis swap, periodic payments are exchanged based on two floating commodity reference prices. The two floating commodity reference prices are often related to each other, yet different. For example, one of the floating commodity reference prices may be for a liquid, highly-traded commodity or contract while the other is for a similar but less frequently traded reference commodity or contract. Alternatively, one of the floating prices may be a spot price for a commodity while the other is a futures price (or forward price) for the same commodity. As a final example, one of the floating prices may be for a futures contract for delivery of a commodity to a particular location and the other is a futures contract for delivery to a different location. The value of a basis swap generally is sensitive to changes in the relationship between the two floating commodity reference prices, which in turn depends on market conditions affecting the supply and demand for the relevant reference commodities. An alternative structure for a commodity basis swap involves a fixed price payment (which may be negative) on one leg and a floating price payment equal to the difference between two specified floating prices on the other leg. If a leg is a negative amount, the applicable “payer” will receive that amount from its counterparty instead of paying such amount. Please see “Commodity basket transactions” below for considerations relating to transactions with multiple Underliers.
- *Range accrual swaps*. In a typical range accrual swap, one payment leg is either a fixed or floating commodity reference price. The other payment leg can either be fixed or floating as well, but payments will only accrue at the specified rate on days on which a certain condition is met. For example, payments may only accrue for the second payer on days when the commodity reference price is within a specified range. The party paying the simple fixed or floating payment assumes the risk that the commodity reference price will stay outside of the specified range in which payments accrue (or, more generally, that the specified accrual condition does not occur). The condition for accrual may be observed daily, weekly, monthly or such other time period as agreed upon by the parties. The range can stay the same throughout the life of the swap or could change according to a predefined schedule.

A Commodity Transaction of the kind described in the immediately preceding paragraph also may be referred to as an “accumulator” in your Transaction documentation. Please also review the characteristics and risks associated with an “accumulator” in “Commodity options—Accumulators” below.

- *Extendable swaps.* An extendable swap is a swap that provides a party (typically the fixed price payer) the option to lengthen the term of the swap beyond the original termination date. The fixed price payer may want to exercise its right to extend the swap if the relevant commodity reference price is rising, since the fixed price payer would benefit from continuing to pay a fixed price that is now likely below market levels while receiving a floating price for an underlying commodity that is increasing in price. Fixed price payers are likely to pay a premium for this extension option in the form of paying a higher fixed price than they otherwise would for a more vanilla fixed-for-floating commodity swap. If you sell an extendable swap to us and we, as the fixed price payer, exercise our option to extend the swap, you must continue to pay us the agreed-upon floating price, which likely will result in a swap with terms less favorable to you than if you entered into a new vanilla fixed-for-floating commodity swap at the time of extension.

The first part of an extendable swap is simply a commodity swap and therefore involves the risks and characteristics associated with a commodity swap with similar terms and features. An extendable swap also essentially contains an option to enter into another swap, and therefore involves the same risks and characteristics as swaptions described under “Commodity Swaptions” below.

- *Variance swaps.* A variance swap typically is a Commodity Transaction under which a “variance buyer” and a “variance seller” agree to exchange payments based on the difference between (i) an amount proportional to the observed variance (as defined under the terms of the variance swap) in the prices or levels of a specified commodity Underlier realized over a stated observation period and (ii) a fixed amount of variance that is agreed upon at execution. If this difference is positive, the variance buyer will receive a payment from the variance seller based on such difference, and if negative, the variance seller will receive a payment from the variance buyer based on such difference. If specified in the terms of the variance swap, the payment by the variance seller may be subject to an agreed upon cap. In the absence of a cap, the variance seller’s potential loss under a variance swap is not quantifiable and is potentially unlimited. Variance is not a measure of the rate of return on an Underlier. Variance differs from other measures, such as volatility, of the variability of the price or level of an Underlier.

A variance swap referencing a commodity Underlier will generally have the characteristics and risks described in Section II.J – “General characteristics of variance- and volatility-linked Transactions” in the General Disclosure Statement.

The variance of a commodity Underlier may be affected by a number of factors. For example, government intervention or regulation in commodities markets may have the effect of keeping commodity prices relatively stable, which will tend to decrease the variance of the relevant commodity price, or may cause commodity prices to change unpredictably, which will tend to increase the variance of the relevant commodity price. Variance also may be affected by changes in supply and demand relationships for commodities; eco-political events and policies and international trade conditions, including conflicts in producing or transit countries; weather and acts of nature; agricultural conditions; governmental fiscal, monetary and exchange control programs;

changes in exchange rates; changes in interest rates; and speculation in commodities.

The terms of commodity variance swaps may specify that the observed variance is computed based on the settlement prices of a commodity futures contract on a particular exchange. You should be aware that under this methodology technical factors that may affect the settlement price, including the imposition or triggering of price fluctuation limits or changes in the methodology by which a derivatives or other exchange determines an official settlement price, may affect the computed variance and could adversely affect the economics of a Commodity Transaction.

In some cases, your objective in entering into a variance swap may be to hedge or offset other exposure you may have. There can be no assurance that prior observed relationships, if any, between realized variance and such other exposure will continue, or that payments under the variance swap will match such other exposure. See Section II.H – “No assurance of Transactions achieving your desired hedging objectives” in the General Disclosure Statement.

- *Volatility swaps.* A volatility swap is similar to a variance swap, except that payments under a volatility swap are determined by reference to observed volatility (as defined under the terms of the volatility swap), rather than variance, in the prices or levels of a specified commodity Underlier realized over a stated observation period. Please refer to “Variance swaps” above and Section II.J – “General characteristics of volatility swaps and variance swaps” in the General Disclosure Statement.

In some cases, your objective in entering into a volatility swap may be to hedge or offset other exposure you may have. There can be no assurance that prior observed relationships, if any, between realized volatility and such other exposure will continue, or that payments under the volatility swap will match such other exposure. See Section II.H – “No assurance of Transactions achieving your desired hedging objectives” in the General Disclosure Statement.

Physically-settled commodity forwards

A physically-settled commodity forward is an agreement under which one party is obligated to deliver a commodity Underlier on or as of a specified future date and the other party is obligated to pay a price (the “forward price”) that is fixed (or in some cases determined under a formula, the parameters of which are fixed) on the trade date. In a physically-settled commodity forward the commodity must be actually delivered and accepted on the specified date, unlike cash-settled forwards. Cash-settled forwards (i.e., transactions for forward settlement that the parties at the time of trade execution intend to be financially-settled) are swaps and subject to all the requirements of swap transactions under the US Commodity Exchange Act (“CEA”) and CFTC regulations.

Because physically-settled forwards involve actual delivery of a commodity, you should be particularly aware of the specific terms of a physically-settled commodity forward that deal with such delivery and acceptance. For example, you should be aware of those terms that specify when title to the commodity passes, who bears the risk of loss during transportation, inspection

of the commodity that is delivered and consequences for failure to deliver or accept delivery of the commodity. Please refer to “Physical Settlement” above. Further, physically-settled commodity forwards are excluded from the CEA’s definition of “swaps” and therefore from the attendant clearing and margin requirements, only if certain criteria are met. Namely, the forward must be (i) on a nonfinancial commodity, (ii) a sale for deferred shipment or delivery, and (iii) intended to be physically settled. The application of the CFTC’s facts and circumstances analysis of intent to physically settle may lead to an outcome that differs from your initial expectations. If these criteria are not met, the transaction will be characterized as a swap and will be subject to several new requirements (including, without limitation, reporting of such transaction to a swap data repository). If the swap is subject to mandatory clearing by the CFTC and you do not otherwise qualify for or elect to use an exception from clearing from such swap, you will be subject to new mandatory clearing requirements. In addition, you may be subject to mandatory margining requirements. You may need to negotiate new execution and clearing agreements, choose the clearinghouses at which you would like to clear the transaction and enter into or negotiate new documentation, including, without limitation, those designed for cleared swaps. You also may have to post initial and variation margin on the transaction. Most notably, if a physically-settled commodity forward is not excluded from the definition of a “swap” and you are not an eligible contract participant, as such term is defined by the CFTC, it is unlawful for you to enter into such a forward contract.

Commodity options

A commodity option is an option where the Underlier is a commodity, a contract for future delivery of a commodity, or rights or indexes relating to commodities or events. All commodity options are “swaps” as defined in the CEA and CFTC regulations, whether financially-settled or physically-settled. Under a conventional cash-settled commodity option, the purchaser of the option pays a premium in exchange for the right to receive upon exercise of the option (i) in the case of a call option, the excess, if any, of the commodity reference price (as determined pursuant to the terms of the option) above the option’s strike price, or (ii) in the case of a put option, the excess, if any, of the option’s strike price above the commodity reference price (as so determined). The commodity reference price may be the spot price of a specified commodity or the price for a specified futures contract on a commodity, among other things. Under a conventional physically-settled option structure, the purchaser of a call option has the right to purchase a specified quantity of the underlying commodity at the strike price, and the purchaser of a put option has the right to sell a specified quantity of the underlying commodity at the strike price. Because all commodity options are swaps, they are subject to all swap regulations unless the option qualifies as a “trade option”. A “trade option” is an option that at the time of trade execution the offeror and offeree intend to physically settle if exercised and where (i) the offeror (a) is either an eligible contract participant or a producer, processor, commercial user of, or merchant handling the underlying commodity and is offering to enter into the option solely for purposes related to its business as such, and (b) has a reasonable basis to believe that the offeree is a producer, processor, commercial user of, or merchant handling the underlying commodity and is offered or entering into the option solely for purposes related to its business as such, and (ii) the offeree is a producer, processor, commercial user of, or merchant handling the underlying commodity and is offered or entering into the option solely for purposes related to its business as such. Trade options are exempt from mandatory clearing and real-time reporting, but are subject

to swap data reporting and recordkeeping requirements. Please refer to Section III.J – “Option Transactions present special considerations” – of the General Disclosure Statement.

- *Cap/floor.* A cap or a floor is an option or series of options on a floating commodity reference price in which the buyer of the cap or floor receives a payment only if the floating price exceeds an agreed upon strike price (in the case of a cap) or falls below the strike price (in the case of a floor), on a specified date or dates. If the buyer of a cap or floor pays the entire premium at the commencement of the transaction, only the buyer will have counterparty credit risk. If the buyer of a cap or floor pays the premium during or at the conclusion of the trade, both the buyer and seller will have counterparty credit risk.
- *Collar.* A collar is a type of option in which one of the parties purchases a cap and sells a floor. The premium received from selling the floor may offset all or a portion of the premium for the purchased cap, or may in some instances be greater than the cap premium. As with other options, the sale of a floor or cap entails certain risks. See Section III.J – “Option Transactions present special considerations” – of the General Disclosure Statement.
- *Barrier.* A barrier option is an option under which the right to exercise may be created or extinguished, or the terms of which may change in some other pre-defined manner, upon the occurrence of an event or condition (a “barrier event”) defined by reference to observed values of the underlying commodity during the term of the option. A barrier event may consist, for example, of the price of the underlying commodity reaching or exceeding a predetermined barrier price or may require more complex conditions on the path of the relevant underlying commodity. A barrier option that becomes potentially exercisable upon the occurrence of a barrier event is known as a “knock-in” option, while a barrier option that is extinguished upon the occurrence of a barrier event is known as a “knock-out” option. Other types of barrier options include “one-touch” barrier options (the holder of the option receives a payment if the price of the underlying commodity reaches or surpasses a predetermined barrier price by its expiration date) and “no-touch” barrier options (the holder of the option receives a payment if the price of the underlying commodity never reaches a predetermined barrier price by its expiration date). The value of a barrier option may change non-linearly and abruptly, particularly as the relevant commodity reference price approaches the level that triggers the barrier event.

Barrier events are typically identified under the terms of a particular Commodity Transaction and may provide that the calculation agent or other designated party will determine whether a barrier event has occurred. Barrier events may occur unexpectedly and, subject to the terms of the relevant Commodity Transaction documentation, based upon information available to the calculation agent or other designated party that may not be contemporaneously (if at all) observable by you. You should review and understand thoroughly the applicable barrier event, including such factors as whether there is a requirement that an actual transaction at the price or level that triggers a barrier event (the “barrier price”) has occurred, and whether a specified minimum size or other criteria apply to the observed triggering event. There can be no assurance that you will be able to execute a spot or other transaction at the barrier price, even if you have placed a limit

order at such price with us or in an unrelated trading venue. Accordingly, any trading or hedging strategy that relies on the execution of a transaction at the barrier price (such as reliance on a stop-loss order to mitigate losses in the event that a purchased barrier option is extinguished) may not be effective.

Subject to any express agreement in the documentation governing a barrier option between us, we may, in our discretion, decide to engage in hedging activities with respect to the barrier option. Such activities may include buying and selling, on a dynamic basis, the underlying commodity in the spot market or entering into derivatives on such underlying commodity. Our hedging strategy may entail unwinding our hedge when a barrier event occurs under your option. We may anticipate the barrier event and begin unwinding our hedge before the barrier event occurs, or our hedging strategy may require greater and more frequent dynamic adjustments to our hedge as market prices approach the barrier price. Unwinding or adjusting the hedge typically consists of buying or selling a quantity of the underlying commodity, or terminating or entering into derivatives positions with market counterparties. This activity may affect the likelihood of the barrier event occurring or not occurring. In addition, spot or derivative transactions that we execute in other capacities (such as those described in Section IV.A.2 – “Trade for our own account or the account of customers” – of the General Disclosure Statement) may affect the probability that a barrier event will occur.

- *Binary.* A binary, or “digital,” option is an option in which the buyer of the option, in exchange for a premium, either receives a fixed amount or nothing at all. If the commodity reference price on the specified observation date(s) is above or below the applicable strike price, the buyer will receive the specified fixed amount, regardless of the extent by which the commodity reference price may exceed or be less than the strike price, as the case may be. The binary payout may contain more than one component; for instance it may increase, decrease or terminate depending on whether the commodity reference price crosses one or more barrier levels during a specified period. Other variations may involve an option that has a “knock-in” to a binary payout, or a traditional option that has a “knock-out” or barrier into a binary payout, if the commodity reference price on a specified observation date or in a specified observation period exceeds or is less than a certain level. Unlike traditional options, the ultimate payout of a binary option is fixed and, therefore, a purchaser’s benefit is capped while the entire premium paid is at risk.
- *Accumulators.* An accumulator is a contract pursuant to which one party is obligated to purchase from the other party a specified quantity of a commodity at a pre-determined price on a series of pre-determined dates over a specified period of time. If the commodity reference price is either above or below a pre-determined “knock-out” price, all accumulations remaining in the specified period are cancelled. The notional amount of the contract may increase periodically, increasing leverage, based on whether a predefined condition is triggered (e.g., if the commodity reference price falls below a certain level during the specified period). Therefore, the notional amount may increase at a time when the price for the underlying commodity is falling, but the price at which the purchaser must pay for the underlying commodity remains fixed. This feature may magnify losses for the purchaser of an accumulator. An accumulator is unlike a typical

option contract in that it typically involves, like a forward contract, the obligation and not the option to buy the underlying commodity. An accumulator may be cash- or physically-settled and you should therefore be aware of the risks and characteristics described in “Physical Settlement” above. Since an accumulator involves the periodic purchase of the underlying commodity, a buyer is essentially entering into a complex series of option contracts that it buys and/or sells periodically. The purchase and sale of options entails certain risks discussed herein and in Section III.J – “Option Transactions present special considerations” – of the General Disclosure Statement.

A Commodity Transaction labeled as an “accumulator” in your Transaction documentation may alternatively refer to the kind of Commodity Transaction described in “Commodity swaps—Range accrual swaps” above. Please also review the characteristics and risks associated with a range accrual swap above.

Commodity swaptions

A commodity swaption is an option that provides one party with the right, but not the obligation, to enter into a commodity swap at an agreed-upon fixed price on the specified future exercise date or dates. In a “pay-fixed” commodity swaption, the holder of the swaption has the right to enter into a commodity swap as a payer of the fixed price and receiver of the floating price, whereas in a “receive-fixed” swaption, the holder has the right to enter into a commodity swap as a receiver of the fixed price and a payer of the floating price. In either case, the writer of the swaption has the obligation to enter into the opposite side of the commodity swap from the holder. Swaptions are options and have the risks and characteristics described in “Commodity options” above and in Section III.J – “Option Transactions present special considerations” – of the General Disclosure Statement.

In some cases, you may decide to purchase a commodity swaption to lock in commodity hedging terms in advance of a future transaction or in anticipation of future requirements or exposure. You should be aware that if the future transaction is not consummated or the future requirements or exposure do not come about for any reason, you will have received no hedging benefit from the premium payment and other costs incurred in purchasing the swaption.

In some cases, you may decide to sell a commodity swaption. Selling a swaption may involve substantial risks analogous to uncovered option writing. See Section III.J – “Option Transactions present special considerations” – of the General Disclosure Statement. Your objective in selling the swaption, for example, may be to capture the value of options you own. You should be aware that such strategies are inherently risky, depend on a confluence of factors that are difficult to predict and may result in substantial losses.

As with other options, a swaption has an exercise style, which may be European, American or Bermudan, and exercise may be subject to various conditions. You should review and understand the conditions and requirements for exercising a swaption and the consequences of exercise, as described in Section III.J of the General Disclosure Statement.

Commodity basket transactions

A Commodity Transaction described above may be based upon a basket of commodities or futures contracts and therefore have multiple commodity reference prices. Please refer to “Multiple Underliers” above. For example, a fixed-for-floating commodity swap may have a fixed rate for a specified basket of commodities that is agreed upon at the execution of the swap, while the floating rate is based on the rates for such basket of commodities. The value of commodity basket transactions will depend on factors affecting each of the commodities or contracts included in the basket. You also should be aware of whether a Commodity Transaction with multiple Underliers has “common pricing” provisions. “Common pricing” provisions provide that no date will be a pricing date under the terms of the relevant Commodity Transaction unless such date is a day on which all referenced commodity reference prices are scheduled to be published or announced. You should carefully review the disruption fallbacks for commodity basket transactions. See “Consequences of Disruption Events” above.