

DEUTSCHE BANK AKTIENGESELLSCHAFT  
Form 424B2  
August 18, 2015

Underlying Supplement No. 1

*To prospectus dated July 31, 2015 and prospectus supplement dated July 31, 2015 and*

*warrants prospectus supplement dated July 31, 2015, each as may be amended*

**Registration Statement No. 333-206013**

**Dated August 17, 2015**

**Securities Act of 1933, Rule 424(b)(2)**

**Notes, Securities or Warrants Linked to an Index and/or an Exchange Traded Fund, or a Basket of Indices and/or Exchange Traded Funds**

Deutsche Bank AG may from time to time offer and sell notes or securities, as part of our Global Notes Program, Series A, or warrants (collectively, the “**securities**”), in each case, linked to one or more indices and/or exchange traded fund, or a basket of indices and/or exchange traded funds, or other underlying assets. This underlying supplement describes some of the potential indices and exchange traded funds to which the securities may be linked, as well as related matters concerning the relationship, if any, between Deutsche Bank AG and the sponsor or publisher of the index, indices and/or exchange traded fund(s), as applicable. Additional specific terms of any securities that we offer, including any additions or changes to the terms specified in the product supplement relating to your securities or the description of the index, indices and/or exchange traded fund(s) contained in this underlying supplement, will be described in a separate free writing prospectus, term sheet or pricing supplement, which we refer to generally as a “**pricing supplement.**” Any relevant pricing supplement, including any free writing prospectus, should be read in connection with this underlying supplement, the relevant product supplement and the accompanying prospectus and notes prospectus supplement or warrants prospectus supplement, as applicable. If there is any inconsistency between the terms described in the relevant pricing supplement and those described in this underlying supplement or in the accompanying prospectus, prospectus supplement or product supplement, the terms described in the relevant pricing supplement will be controlling.

***Underlying Indices and Exchange Traded Funds:*** The NYSE Arca Gold Miners Index, The Bloomberg Commodity Index<sup>SM</sup>, The CBOE S&P 500 BuyWrite Index<sup>SM</sup>, The CNX Nifty Index, The DAX<sup>®</sup> Index, The FTSE<sup>TM</sup> 100 Index, The FTSE China 50 Index, The Hang Seng Indices, The JPX-Nikkei Index 400, The KOSPI 200 Index, The MSCI Indices, The NASDAQ-100<sup>®</sup> Index, The Nikkei 225 Index, The Russell Indices, The S&P Dow Jones Indices, The STOXX Indices, The Swiss Market Index (“**SMI**”), The Tokyo Stock Price Index, The iShare<sup>®</sup> Exchange Traded Funds, The Market Vectors ETF Trust, The Market Vectors Oil Services ETF, The Market Vectors Gold Miners ETF, The PowerShares QQQ<sup>SM</sup>, The Select Sector SPDR Exchange Traded Funds, The SPDR<sup>®</sup> Exchange Traded Funds, the United States Oil Fund, LP and the Vanguard FTSE Emerging Markets ETF.

**Investing in the securities involves risks not associated with an investment in conventional securities. See “Risk Factors” beginning on page 12 of the accompanying prospectus and page 5 of the accompanying prospectus supplement, “Risk Factors” in the relevant product supplement and “Selected Risk Considerations” in the relevant pricing supplement for risks related to an investment in the securities.**

**Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of the securities or passed upon the adequacy or accuracy of this underlying supplement, the accompanying prospectus, prospectus supplement or warrants prospectus supplement, as applicable, product supplement or any relevant pricing supplement. Any representation to the contrary is a criminal offense.**

The securities are not deposits or savings accounts and are not insured or guaranteed by the Federal Deposit Insurance Corporation or any other U.S. or foreign governmental agency or instrumentality.

August 17, 2015

## **ADDITIONAL INFORMATION ABOUT THE SECURITIES**

You should read this underlying supplement together with the prospectus dated July 31, 2015, as supplemented by the prospectus supplement dated July 31, 2015, relating to our Series A global notes, or the warrants prospectus supplement dated July 31, 2015, relating to our warrants, of which these securities are a part, and any relevant product supplement and pricing supplement that we may file with the SEC from time to time, which contains a description of the terms of particular categories of securities or the specific terms of your securities.

Our Central Index Key, or CIK, on the SEC website is 0001159508. As used in this underlying supplement, “we,” “us” or “our” refers to Deutsche Bank AG, including, as the context requires, acting through one of its branches.

You should carefully consider, among other things, the risk considerations set forth in accompanying prospectus and prospectus supplement and the relevant product supplement and pricing supplement, as the securities involve risks not associated with conventional debt securities. We urge you to consult your investment, legal, tax, accounting and other advisers before deciding to invest in the securities.

This underlying supplement describes some of the potential indices and/or exchange traded funds to which the securities may be linked and the relationship, if any, between Deutsche Bank AG and the sponsor or publisher of the indices or exchange traded funds. If there is any inconsistency between the terms described in the relevant pricing supplement and those described in this underlying supplement, the terms described in the relevant pricing supplement will be controlling. Any relevant pricing supplement should also be read in connection with this underlying supplement, the relevant product supplement, if any, and the accompanying prospectus and prospectus supplement.

In this underlying supplement, when we refer to the “**securities**,” we mean certain securities, notes or warrants that may be offered by Deutsche Bank AG from time to time linked to one or more indices, exchange traded funds or other underlying assets. Also, references to the “**accompanying prospectus**” and “**prospectus supplement**” mean, respectively, the accompanying prospectus, dated July 31, 2015, relating to our Series A global notes, or the warrants prospectus supplement dated July 31, 2015, relating to our warrants, as applicable, of Deutsche Bank AG and the prospectus supplement, dated July 31, 2015, of Deutsche Bank AG, and references to “**relevant product supplement**” refer to the relevant product supplement that we may file from time to time relating to the particular category of your securities. References to the “**relevant pricing supplement**” mean the pricing supplement and any free writing prospectus that describe the specific terms of your securities.

Specific Terms Will Be Described in Relevant Pricing Supplements

The specific terms of your securities will be described in the relevant pricing supplement, including any additions or changes to the terms specified in the relevant product supplement or the description of the relevant index, indices or exchange traded fund(s) set forth in this underlying supplement.

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## The NYSE Arca Gold Miners Index

We have derived all information contained in this underlying supplement regarding the NYSE Arca Gold Miners Index, including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information, and we have not participated in the preparation of, or verified, such publicly available information. Such information reflects the policies of, and is subject to change by, the NYSE Arca, Inc. (the “**NYSE ARCA**”). The NYSE Arca Gold Miners Index was developed by the NYSE Amex (formerly the American Stock Exchange) and is calculated, maintained and published by the NYSE Arca. The NYSE Arca has no obligation to continue to publish, and may discontinue the publication of, the NYSE Arca Gold Miners Index.

The NYSE Arca Gold Miners Index is reported by Bloomberg under the ticker symbol “GDM.”

## General

The NYSE Arca Gold Miners Index is a modified market capitalization weighted index primarily composed of publicly traded companies involved in the mining of gold and silver. The NYSE Arca Gold Miners Index includes common stocks, ADRs and GDRs of selected companies that are involved in mining for gold and silver and that are listed for trading and electronically quoted on a major stock market that is accessible by foreign investors. Only companies with market capitalization greater than \$750 million, an average daily trading volume of at least 50,000 shares over the past three months and an average daily value traded of at least \$1 million over the past three months are eligible for inclusion in the NYSE Arca Gold Miners Index.

## Index Calculation

The NYSE Arca Gold Miners Index is calculated using a modified market capitalization weighting methodology. The NYSE Arca Gold Miners Index is weighted based on the market capitalization of each of the component securities, modified to conform to the following asset diversification requirements, which are applied in conjunction with the scheduled quarterly adjustments to the NYSE Arca Gold Miners Index:

- (1) the weight of any single component security may not account for more than 20% of the total value of the NYSE Arca Gold Miners Index;
- (2) the component securities are split into two subgroups — large and small, which are ranked by market capitalization weight in the NYSE Arca Gold Miners Index. Large stocks are defined as having a starting NYSE Arca Gold



Miners Index weight greater than or equal to 5%. Small securities are defined as having a starting NYSE Arca Gold Miners Index weight below 5%. The large group and small group will represent 45% and 55%, respectively, of the NYSE Arca Gold Miners Index; and

the final aggregate weight of those component securities which individually represent more than 4.5% of the total (3) value of the NYSE Arca Gold Miners Index may not account for more than 45% of the total NYSE Arca Gold Miners Index value.

At the time of the quarterly rebalance, the weights for the components stocks (taking into account expected component changes and share adjustments), are modified in accordance with the following procedures.

*Diversification Rule 1:* If any component security exceeds 20% of the total value of the NYSE Arca Gold Miners Index, then all stocks greater than 20% of the NYSE Arca Gold Miners Index are reduced to represent 20% of the value of the NYSE Arca Gold Miners Index. The aggregate amount by which all component securities are reduced is redistributed proportionately across the remaining stocks that represent less than 20% of the index value. After this redistribution, if any other stock then exceeds 20%, the stock is set to 20% of the index value and the redistribution is repeated.

*Diversification Rule 2:* The components are sorted into two groups, large are components with a starting index weight of 5% or greater and small are those that are under 5% (after any adjustments for Diversification Rule 1). If there are no components that classify as Large components after Diversification Rule 1 is run, then Diversification Rule 2 is not executed. Alternatively, if the starting aggregate weight of the Large components after Diversification Rule 1 is run is not greater than 45% of the starting index weight, then Diversification Rule 2 is not executed.

If Diversification Rule 2 is indeed executed, then the large group and small group in aggregate will represent 45% and 55%, respectively, of the final index weight. The weight of each of the large stocks will be scaled down proportionately with a floor of 5% so that the aggregate weight of the large components will be reduced to represent 45% of the NYSE Arca Gold Miners Index. If any large component stock falls below a weight equal to the product of 5% and the proportion by which the stocks were scaled down following this distribution, then the weight of the stock is set equal to the product of 5% and the components with weights greater than 5% will be reduced proportionately. The weight of each of the small components will be scaled up proportionately from the redistribution of the large components. If any small component stock exceeds a weight equal to the product of 4.5% and the proportion by which the stocks were scaled down following this distribution, then the weight of the stock is set equal to 4.5%. The redistribution of weight to the remaining stocks is repeated until the entire amount has been redistributed.

## **Index Maintenance**

The NYSE Arca Gold Miners Index is reviewed quarterly to ensure that at least 90% of the index weight is accounted for by index components that continue to meet the initial eligibility requirements. Components will be removed from the NYSE Arca Gold Miners Index during the quarterly review if (i) the market capitalization falls below \$450 million or, (ii) the average daily volume for the previous three months is lower than 30,000 shares and the average daily value traded for the previous three months is lower than \$600,000. In addition, the NYSE Arca Gold Miners Index is reviewed quarterly so that the NYSE Arca Gold Miners Index components continue to represent the universe of companies involved in the gold mining industry. The NYSE Arca may at any time and from time to time change the number of securities composing the group by adding or deleting one or more securities, or replacing one or more securities contained in the group with one or more substitute securities of its choice, if in the NYSE Arca's discretion such addition, deletion or substitution is necessary or appropriate to maintain the quality and/or character of the NYSE Arca Gold Miners Index. Changes to the NYSE Arca Gold Miners Index compositions and/or the component share weights in the NYSE Arca Gold Miners Index typically take effect after the close of trading on the third Friday of each calendar quarter month in connection with the quarterly index rebalance. The share quantity of each component security in the index portfolio remains fixed between quarterly reviews except in the event of certain types of corporate actions such as stock splits, reverse stock splits, stock dividends, or similar events. The share quantities used in the index calculation are not typically adjusted for shares issued or repurchased between quarterly reviews. However, in the event of a merger between two components, the share quantity of the surviving entity may be adjusted to account for any stock issued in the acquisition. The NYSE Arca may substitute stocks or change the number of stocks included in the NYSE Arca Gold Miners Index, based on changing conditions in the industry or in the event of certain types of corporate actions, including mergers, acquisitions, spin-offs, and reorganizations. In the event of component or share quantity changes to the index portfolio, the payment of dividends other than ordinary cash dividends, spin-offs, rights offerings, re-capitalization, or other corporate actions affecting a component security of the NYSE Arca Gold Miners Index; the index divisor may be adjusted to ensure that there are no changes to the index level as a result of non-market forces.

## The Bloomberg Commodity Index<sup>SM</sup>

We have derived all information contained in this underlying supplement regarding the Bloomberg Commodity Index<sup>SM</sup> (the “**BCOM Index**”), including, without limitation, its make-up, method of calculation and changes in its components from publicly available information, and we have not participated in the preparation of, or verified, such publicly available information. Such information reflects the policies of, and is subject to change by, Bloomberg Finance L.P. Bloomberg Finance L.P. has no obligation to continue to publish the BCOM Index, and may discontinue publication of the BCOM Index at any time in its sole discretion.

On July 1, 2014, Bloomberg Finance L.P. became responsible for the governance, calculation, distribution and licensing of the BCOM Index. The BCOM Index was renamed from the Dow Jones–UBS Commodity Index<sup>SM</sup> to the Bloomberg Commodity Index<sup>SM</sup> and the ticker changed from “DJUBS” to “BCOM.” UBS Securities LLC has maintained its ownership, but will have no role in any aspect of index governance or calculation.

## General

The BCOM Index was established in July 1998 to provide a liquid and diversified benchmark for commodities. The BCOM Index is currently composed of futures contracts on 22 physical commodities. A commodity futures contract is an agreement that provides for the purchase and sale of a specified type and quantity of a commodity during a stated delivery month for a fixed price. The 22 commodities for 2015 that compose the BCOM Index (each an “**Index Commodity**” and collectively, the “**Index Commodities**”) are: Aluminum, Brent Crude Oil, Coffee, Copper, Corn, Cotton, Gold, Heating Oil, Lean Hogs, Live Cattle, Natural Gas, Nickel, Silver, Soybeans, Soybean Meal, Soybean Oil, Sugar, Unleaded Gasoline, Chicago Wheat, Kansas Wheat, WTI Crude Oil and Zinc. Futures contracts on the BCOM Index are currently listed for trading on the Chicago Board of Trade (the “**CBOT**”). The Index Commodities currently trade on United States exchanges, with the exception of aluminum, nickel and zinc, which trade on the London Metal Exchange.

The BCOM Index is calculated on an excess return basis and on a total return basis. The former reflects the return of underlying commodity futures price movements only, while the latter reflects the return on fully collateralized positions in the underlying commodity futures. The Bloomberg Commodity Index Excess Return<sup>SM</sup> and the Bloomberg Commodity Index Total Return<sup>SM</sup> are reported by Bloomberg Finance L.P. under the ticker symbols “BCOM” and “BCOMTR,” respectively.

## Methodology

The BCOM Index tracks what is known as a rolling futures position, which is a position where, on a periodic basis, futures contracts on physical commodities specifying delivery on a nearby date must be sold and futures contracts on physical commodities that have not yet reached the delivery period must be purchased. An investor with a rolling futures position is able to avoid delivering underlying physical commodities while maintaining exposure to those commodities. The rollover for each BCOM Index component occurs over a period of five BCOM Business Days each month according to a pre-determined schedule.

The methodology for determining the composition and weighting of the BCOM Index and for calculating its level is subject to modification by Bloomberg Finance L.P. at any time. Bloomberg Finance L.P. publishes a daily index closing level for the BCOM Index at approximately 5:00 p.m., New York City time, on each BCOM Business Day on the Bloomberg page set forth above.

A “**BCOM Business Day**” means a day on which the sum of the BCOM Index percentages (as described below under “—Annual Reweighting and Rebalancing of the BCOM Index”) for the Index Commodities that are open for trading is greater than 50%.

The BCOM Index was created using the following four main principles

*Economic Significance:* To achieve a fair representation of a diversified group of commodities to the world economy, the BCOM Index uses both liquidity data and U.S. dollar-weighted production data in determining the relative quantities of included commodities. The BCOM Index primarily relies on liquidity data, or the relative amount of trading activity of a particular commodity, as an important indicator of the value placed on that commodity by financial and physical market participants. The BCOM Index also relies on production data as a useful measure of the importance of a commodity to the world economy.

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*Diversification:* In order to avoid the BCOM Index being subjected to micro-economic shocks in one commodity or sector, diversification rules have been established and are applied annually on a price-percentage basis in order to maintain diversified commodities exposure over time.

*Continuity:* The BCOM Index is intended to provide a stable benchmark so that there is confidence that historical performance data is based on a structure that bears some resemblance to both the current and future composition of the BCOM Index.

*Liquidity:* The inclusion of liquidity as a weighting factor helps to ensure that the BCOM Index can accommodate substantial investment flows.

#### Designated Contracts for each Index Commodity

A futures contract known as a designated contract is selected for each of the 24 commodities eligible for inclusion in the BCOM Index. With the exception of several LME contracts, crude oil and wheat, where there exists more than one futures contract with sufficient liquidity to be chosen as a designated contract for an eligible commodity, the futures contract that is traded in North America and denominated in United States dollars has been chosen. If more than one of those contracts exists, the most actively traded contract is chosen. Data concerning this designated contract will be used to calculate the BCOM Index. The termination or replacement of a futures contract on an established exchange occurs infrequently. If a designated contract were to be terminated or replaced, a comparable futures contract would be selected, if available, to replace that designated contract. The 24 commodities eligible for inclusion in the BCOM Index are traded on the LME, CBOT, the New York Board of Trade (“NYBOT”), the New York Commodities Exchange (“COMEX”), the Chicago Mercantile Exchange (“CME”), the New York Mercantile Exchange (the “NYMEX”) and the IntercontinentalExchange (“ICE”), and are as follows:

<b>Commodity</b>	<b>Designated Contract</b>	<b>Exchange</b>	<b>Units</b>	<b>Price quote</b>
Aluminum	High Grade Primary Aluminum	LME	25 metric tons	\$/metric ton
Brent Oil	Brent Crude Oil	ICE	1,000 barrels	\$/barrel
Cocoa	Cocoa	NYBOT	10 metric tons	\$/metric ton
Coffee	Coffee “C”	NYBOT	37,500 lbs	cents/pound
Copper	Copper	COMEX*	25,000 lbs	cents/pound
Corn	Corn	CBOT	5,000 bushels	cents/bushel
Cotton	Cotton	NYBOT	50,000 lbs	cents/pound
Gold	Gold	COMEX	100 troy oz.	\$/troy oz.
Heating Oil	Heating Oil	NYMEX	42,000 gallons	cents/gallon
Lead	Refined Standard Lead	LME	25 metric tons	\$/metric ton
Lean Hogs	Lean Hogs	CME	40,000 lbs	cents/pound
Live Cattle	Live Cattle	CME	40,000 lbs	cents/pound
Natural Gas	Henry Hub Natural Gas	NYMEX	10,000 mmbtu	\$/mmbtu

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Nickel	Primary Nickel	LME	6 metric tons	\$/metric ton
Platinum	Platinum	NYMEX	50 troy oz.	\$/troy oz
Silver	Silver	COMEX	5,000 troy oz.	cents/troy oz.
Soybeans	Soybeans	CBOT	5,000 bushels	cents/bushel
Soybean Meal	Soybean Meal	CBOT	100 short tons	\$/short ton
Soybean Oil	Soybean Oil	CBOT	60,000 lbs	cents/pound
Sugar	World Sugar No. 11	NYBOT	112,000 lbs	cents/pound
Tin	Refined Tin	LME	5 metric tons	\$/metric ton
Unleaded Gasoline	Reformulated Blendstock for Oxygen Blending	NYMEX	42,000 gal	cents/gallon
Chicago Wheat	Soft Wheat	CBOT	5,000 bushels	cents/bushel

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Kansas Wheat	Hard Red Winter Wheat	CME**	5,000 bushels	cents/bushel
WTI Crude Oil	Light, Sweet Crude Oil	NYMEX	1,000 barrels	\$/barrel
Zinc	Special High Grade Zinc	LME	25 metric tons	\$/metric ton

\*The BCOM Index uses the High Grade Copper Contract traded on the COMEX division of the New York Mercantile Exchange for copper contract prices and LME volume data in determining the weighting for the BCOM Index.

\*\*On June 4, 2013 CME announced its acquisition of the Kansas City Board of Trade hard red winter wheat futures contracts. The hard red winter wheat futures contracts began trading on the CME on July 1, 2013.

### Commodity Groups

For purposes of applying the diversification rules discussed above and below, the commodities available for inclusion in the BCOM Index are assigned to “Commodity Groups.” The Commodity Groups, and the commodities currently included in each Commodity Group, are as follows:

<u>Commodity Group:</u>	<u>Commodities:</u>	<u>Commodity Group:</u>	<u>Commodities:</u>
	Crude Oil (WTI and Brent)		
Energy	Heating Oil Natural Gas Unleaded Gasoline	Livestock	Live Cattle Lean Hogs
Industrial Metals	Aluminum Copper Nickel Zinc Lead*** Tin***	Precious Metals	Gold Silver Platinum***
Grains	Corn Soybeans Soybean Oil      Wheat (Chicago and KC HRW)	Softs	Coffee Cotton Sugar Cocoa***

\*\*\* Out of the 24 commodities available for inclusion annually in the BCOM Index, only those four commodities marked in the table above with asterisks are currently not included in the BCOM Index.

#### Annual Reweighting and Rebalancing of the BCOM Index

The BCOM Index is reweighted and rebalanced each year in January on a price-percentage basis. The annual weightings for the BCOM Index are determined each year in June or July. The annual weightings are announced in July and implemented the following January.

The relative weightings of the component commodities included in the BCOM Index are determined annually according to both liquidity and U.S. dollar-adjusted production data in two-thirds and one-third shares, respectively. For each commodity designated for potential inclusion in the BCOM Index, liquidity is measured by the commodity liquidity percentage (the “**CLP**”) and production by the commodity production percentage (the “**CPP**”). The CLP for each commodity is determined by taking a five-year average of the product of the trading volume and the historic U.S. dollar value of the designated contract for that commodity, and dividing the result by the sum of the products for all commodities which were designated for potential inclusion in the BCOM Index. The CPP is determined for each commodity by taking a five-year average of annual world production figures, adjusted by the historic U.S. dollar value of the designated contract, and dividing the result by the sum of the production figures for all the commodities which were designated for potential inclusion in the BCOM Index. The CLP and CPP are then combined (using a ratio of 2:1) to establish the Commodity Index Percentage (the “**CIP**”) for each commodity. The CIP is then adjusted in accordance with the diversification rules

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described below in order to determine the commodities which will be included in the BCOM Index and their respective percentage weights.

To ensure that no single commodity or commodity sector dominates the BCOM Index, the following diversification rules are applied to the annual reweighting and rebalancing of the BCOM Index as of January of the applicable year:

No related group of commodities (e.g., energy, precious metals, livestock or grains) may constitute more than 33% of the BCOM Index;

- No single commodity may constitute more than 15% of the BCOM Index;

No single commodity, together with its derivatives (e.g., WTI Crude Oil and Brent Crude Oil, together with ULS diesel and unleaded gasoline), may constitute more than 25% of the BCOM Index; and

- No single commodity may constitute less than 2% of the BCOM Index.

Following the annual reweighting and rebalancing of the BCOM Index in January, the percentage of any single commodity or group of commodities at any time prior to the next reweighting or rebalancing will fluctuate and may exceed or be less than the percentages set forth above.

Following application of the diversification rules discussed above, the CIPs are incorporated into the BCOM Index by calculating the new unit weights for each Index Commodity. Near the beginning of each new calendar year, the CIPs, along with the settlement prices on that date for the BCOM Index components, are used to determine the commodity index multiplier (the “**CIM**”) for each Index Commodity. The CIM is used to achieve the percentage weightings of the Index Commodities, in dollar terms, indicated by their respective CIPs. After the CIMs are calculated, they remain fixed throughout the year. As a result, the observed price percentage of each Index Commodity will float throughout the year, until the CIMs are reset the following year based on new CIPs.

#### Computation of the Bloomberg Commodity Index<sup>SM</sup>

The BCOM Index is calculated by Bloomberg Finance L.P. by applying the impact of the changes to the prices of the BCOM Index components (based on their relative weightings). Once the CIMs are determined as discussed above, the calculation of the BCOM Index is a mathematical process whereby the CIMs for the BCOM Index components are multiplied by the prices for the BCOM Index components. These products are then summed. The percentage change in this sum is then applied to the prior level of the BCOM Index to calculate the current level of the BCOM Index

level. The BCOM Index is calculated on an excess return and on a total return basis.

#### Index Calculation Disruption Events

From time to time, BCOM Market Disruption Events can occur in trading futures contracts on various commodity exchanges. “**BCOM Market Disruption Event**” means:

- (a) the termination or suspension of, or material limitation or disruption in the trading of any futures contract used in the calculation of the BCOM Index on that day;
- (b) the settlement price of any futures contract used in the calculation of the BCOM Index reflects the maximum permitted price change from the previous day’s settlement price;
- (c) the failure of an exchange to publish official settlement prices for any futures contract used in the calculation of the BCOM Index; or
- (d) with respect to any futures contract used in the calculation of the BCOM Index that trades on the LME, a BCOM Business Day on which the LME is not open for trading.

If a BCOM Market Disruption Event occurs during the “**Hedge Roll Period**” (defined herein as the fifth through the ninth BCOM Business Day of each month) in any month other than January affecting any Index Commodity, then the daily roll of the relevant designated contract for such Index Commodity will be postponed until the next available BCOM Business Day on which a BCOM Market Disruption Event does not occur, and the calculation of the BCOM Index will be adjusted to reflect this.

If a BCOM Market Disruption Event occurs during the Hedge Roll Period scheduled for January of each year affecting any Index Commodity, then the rolling or rebalancing of the relevant designated contract for such Index Commodity will occur in all cases over five BCOM Business Days on which no BCOM Market Disruption Event exists at a rate of 20% per day for every BCOM Business Day following a BCOM Market Disruption Event until the extended Hedge Roll Period is complete.

If a BCOM Market Disruption Event occurs on a determination date of the CIM in respect of any futures contract for an Index Commodity used in calculation of the CIMs, then the settlement prices used to calculate the CIMs for such year will be from the first prior BCOM Business Day on which a BCOM Market Disruption Event had not occurred in any such futures contracts.

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## The CBOE S&P 500 BuyWrite Index<sup>SM</sup>

We have derived all information contained in this underlying supplement regarding the CBOE S&P 500 BuyWrite Index<sup>SM</sup> (the “**BXM Index**”), including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information. We have not participated in the preparation of, or verified, such publicly available information. Such information reflects the policies of, and is subject to change by, the Chicago Board Options Exchange, Incorporated (the “**CBOE**”). The BXM Index was developed, and is calculated, maintained and published, by the CBOE. The CBOE has no obligation to continue to publish, and may discontinue publication of, the BXM Index.

The BXM Index is reported by Bloomberg L.P. under the ticker symbol “BXM.”

## General

The BXM Index is a benchmark index designed to track the performance of a hypothetical buy-write strategy on the S&P 500<sup>®</sup> Index. Announced by the CBOE in April 2002, the BXM Index was developed by the CBOE in cooperation with Standard & Poor’s (“**S&P**”). The BXM Index is a passive total return index based on (1) buying an S&P 500 stock index portfolio, and (2) “writing” (or selling) the near-term S&P 500 Index “covered” call option, generally on the third Friday of each month.

## Design of the BXM Index

The BXM Index measures the total rate of return of a hypothetical “covered call” strategy applied to the S&P 500 Index.” This strategy, which the CBOE refers to as the “BXM covered call strategy,” consists of a hypothetical portfolio consisting of a “long” position indexed to the S&P 500 Index on which are deemed sold a succession of one-month, at-the-money call options on the S&P 500<sup>®</sup> Index listed on the CBOE. The CBOE refers to this hypothetical portfolio as the “covered S&P 500 Index portfolio.” The BXM Index provides a benchmark measure of the total return performance of this hypothetical portfolio. Dividends paid on the component stocks underlying the S&P 500<sup>®</sup> Index and the dollar value of option premium deemed received from the sold call options are functionally “re-invested” in the covered S&P 500<sup>®</sup> Index portfolio. The BXM Index is based on the cumulative gross rate of return of the covered S&P 500<sup>®</sup> Index portfolio since the inception of the BXM Index on June 30, 1986, when it was set to an initial value of 92.21.

The BXM covered call strategy requires that each S&P 500<sup>®</sup> Index call option in the hypothetical portfolio be held to maturity, which is generally the third Friday of each month. The call option is settled against the Special Opening

Quotation (or “**SOQ**,” ticker “**SET**”) of the S&P 500<sup>®</sup> Index used as the final settlement price of S&P 500<sup>®</sup> Index call options. The SOQ is a special calculation of the S&P 500<sup>®</sup> Index that is compiled from the opening prices of component stocks underlying the S&P 500<sup>®</sup> Index. The SOQ calculation is performed when all 500 stocks underlying the S&P 500<sup>®</sup> Index have opened for trading, and is usually determined before 11:00 a.m. EST. The final settlement price of the call option at maturity is the greater of zero and the difference between the SOQ minus the strike price of the expiring call option.

Subsequent to the settlement of the expiring call option, a new at-the-money call option expiring in the next month is then deemed written, or sold, a transaction commonly referred to as a “roll.” The strike price of the new call option is the strike price of the S&P 500<sup>®</sup> Index call option listed on the CBOE with the closest strike price above the last value of the S&P 500<sup>®</sup> Index reported before 11:00 a.m. EST. For example, if the last S&P 500<sup>®</sup> Index value reported before 11:00 a.m. EST is 1,301.10 and the closest listed S&P 500<sup>®</sup> Index call option strike price above 1,301.10 is 1,305, then the 1,305 strike S&P 500<sup>®</sup> Index call option is selected as the new call option to be incorporated into the BXM Index. The long S&P 500<sup>®</sup> Index component and the short call option component are held in equal notional amounts, i.e., the short position in the call option is “covered” by the long S&P 500<sup>®</sup> Index component.

Once the strike price of the new call option has been identified, the new call option is deemed sold at a price equal to the volume-weighted average of the traded prices (“**VWAP**”) of the new call option during the two-hour period beginning at 11:30 a.m. EST. The CBOE calculates the VWAP in a two-step process: first, the CBOE excludes trades in the new call option between 11:30 a.m. and 1:30 p.m. EST that are identified as having been executed as part of a “spread,” and then the CBOE calculates the weighted average of all remaining transaction prices of the new call option between 11:30 a.m. and 1:30 p.m. EST, with weights equal to the fraction of total non-spread volume transacted at each price during this period. The source of the transaction prices used in the calculation of the VWAP is CBOE’s Market Data Retrieval (“**MDR**”) System. If no transactions occur in the new call option between 11:30 a.m. and 1:30 p.m. EST, then the new call option is deemed sold at the last bid price reported before 1:30 p.m. EST. The value of option premium deemed received from the new call option is functionally “re-invested” in the portfolio.

## Calculation of the BXM Index

The BXM Index is calculated by the CBOE once per day at the close of trading for the respective components of the covered S&P 500<sup>®</sup> Index portfolio. The BXM Index is a chained index, i.e., its value is equal to 100 times the cumulative product of gross daily rates of return of the covered S&P 500<sup>®</sup> Index portfolio since the inception date of the BXM Index. On any given day, the BXM Index is calculated as follows:

$$BXM_t = BXM_{t-1}(1+R_t)$$

where  $R_t$  is the daily rate of return of the covered S&P 500<sup>®</sup> Index portfolio. This rate includes ordinary cash dividends paid on the stocks underlying the S&P 500<sup>®</sup> Index that trade “ex-dividend” on that date.

On each trading day excluding roll dates, the daily gross rate of return of the BXM<sup>SM</sup> equals the change in the value of the components of the covered S&P 500<sup>®</sup> Index portfolio, including the value of ordinary cash dividends payable on component stocks underlying the S&P 500<sup>®</sup> Index that trade “ex-dividend” on that date, as measured from the close in trading on the preceding trading day. The gross daily rate of return is equal to:

$$1+R_t = (S_t + Div_t - C)/(S_{t-1} - C_{t-1}),$$

where,  $S_t$  is the closing value of the S&P 500<sup>®</sup> Index at date  $t$ ,  $Div_t$  represents the ordinary cash dividends payable on the component stocks underlying the S&P 500<sup>®</sup> Index that trade “ex-dividend” at date  $t$  expressed in S&P 500 Index points and  $C_t$  is the arithmetic average of the last bid and ask prices of the call option reported before 4:00 p.m. EST at date  $t$ .  $S_{t-1}$  is the closing value of the S&P 500<sup>®</sup> Index on the preceding trading day and  $C_{t-1}$  is the average of the last bid and ask prices of the call option reported before 4:00 p.m. EST on the preceding trading day.

On roll dates, the gross daily rate of return is compounded from three gross rates of return, the gross rate of return from the previous close to the time the SOQ is determined and the expiring call is settled; the gross rate of return from the SOQ to the initiation of the new call position and the gross rate of return from the time the new call option is deemed sold to the close of trading on the roll date, expressed as follows:

$$1+R_t = (1+R_a) \times (1+R_b) \times (1+R_c),$$

where:

$$1+R_a = (S^{SOQ} + Div_t - C_{settle}) / (S_{t-1} - C_{t-1});$$

$$1+R_b = S^{VWAV} / S^{SOQ}; \text{ and}$$

$$1+R_c = (S_t - C) / (S^{VWAV} - C_{WAP}).$$

In this equation,  $R_a$  is the rate of return of the covered S&P 500<sup>®</sup> Index portfolio from the previous close of trading through the settlement of the expiring call option.  $S^{SOQ}$  is the Special Opening Quotation used in determining the settlement price of the expiring call option. As previously defined,  $Div_t$  represents dividends on S&P 500<sup>®</sup> Index component stocks determined in the same manner as on non-roll dates and  $C_{settle}$  is the final settlement price of the expiring call option.  $S_{t-1}$  and  $C_{t-1}$  are determined in the same manner as on non-roll dates.

$R_b$  is the rate of return of the un-covered S&P 500<sup>®</sup> Index portfolio from the settlement of the expiring option to the time the new call option is deemed sold.  $S^{VWAV}$  is the volume-weighted average value of the S&P 500<sup>®</sup> Index based on the same time and weights used to calculate the VWAP in the new call option.

$R_c$  is the rate of return of the covered S&P 500<sup>®</sup> Index portfolio from the time the new call option is deemed sold to the close of trading on the roll date. As defined above,  $S^{VWAV}$  is the volume-weighted average value of the S&P 500<sup>®</sup> Index