

DEUTSCHE BANK AKTIENGESELLSCHAFT  
Form 424B2  
September 22, 2017

**Pricing Supplement**

*To product supplement B dated July 31, 2015, Pricing Supplement No. 2917B*  
*prospectus supplement dated July 31, 2015 and Registration Statement No. 333-206013*  
*prospectus dated April 27, 2016 Rule 424(b)(2)*

**The information in this preliminary pricing supplement is not complete and may be changed. This preliminary pricing supplement and the accompanying product supplement, prospectus supplement and prospectus do not constitute an offer to sell nor do they seek an offer to buy the notes in any jurisdiction where the offer or sale is not permitted.**

Subject to Completion. Dated September 22, 2017

Deutsche Bank

**Structured Deutsche Bank AG**  
**Investments \$ Annual Review Notes Linked to the Least Performing of the CAC 40<sup>®</sup> Index, the FTSE MIB Index and the IBEX 35<sup>®</sup> Index due September 24, 2020**

**General**

The notes are linked to the least performing of the CAC 40<sup>®</sup> Index, the FTSE MIB Index and the IBEX 35<sup>®</sup> Index (each, an “**Underlying**”). The notes will be automatically called if, on any of the annual Review Dates, the closing levels of **all** the Underlyings are greater than or equal to their respective Initial Levels. If the notes are automatically called, investors will receive on the applicable Call Settlement Date a return on the notes equal to the applicable call premium based on a rate of 10.32% per annum. The notes will cease to be outstanding following an automatic call and no further payments will be made following the Call Settlement Date.

If the notes are not automatically called and the Final Level of the least performing Underlying, which we refer to as the “**Laggard Underlying**,” is greater than or equal to its Trigger Level (equal to 70.00% of its Initial Level), for each \$1,000 Face Amount of notes, investors will receive at maturity a positive return on the notes equal to the Digital Return of 30.96%. However, if the notes are not automatically called and the Final Level of the Laggard Underlying is less than its Trigger Level, for each \$1,000 Face Amount of notes, investors will lose 1.00% of the Face Amount for every 1.00% by which the Final Level of the Laggard Underlying is less than its Initial Level. The notes do not pay any coupons or dividends and investors should be willing to lose a significant portion or all of their investment if the notes are not automatically called and the Final Level of the Laggard Underlying is less than its Trigger Level.

Any payment on the notes is subject to the credit of the Issuer.

The first Review Date, and therefore the earliest date on which an Automatic Call may be initiated, is October 5, 2018.

Senior unsecured obligations of Deutsche Bank AG due September 24, 2020

Minimum purchase of \$1,000. Minimum denominations of \$1,000 (the “**Face Amount**”) and integral multiples thereof.

The notes are expected to price on or about September 22, 2017 (the “**Trade Date**”) and are expected to settle on or about September 27, 2017 (the “**Settlement Date**”).

### Key Terms

Issuer: Deutsche Bank AG, London Branch

Issue Price: 100% of the Face Amount

	<u>Underlying</u>	<u>Ticker Symbol</u>	<u>Initial Level*</u>	<u>Trigger Level*</u>
Underlyings:	CAC 40 <sup>®</sup> Index	CAC		
	FTSE MIB Index	FTSEMIB		
	IBEX 35 <sup>®</sup> Index	IBEX		

\* The Initial Level and Trigger Level for each Underlying will be determined on the Trade Date.

*(Key Terms continued on next page)*

**Investing in the notes involves a number of risks. See “Risk Factors” beginning on page 7 of the accompanying product supplement, page PS-5 of the accompanying prospectus supplement and page 13 of the accompanying prospectus and “Selected Risk Considerations” beginning on page 9 of this pricing supplement.**

**The Issuer’s estimated value of the notes on the Trade Date is approximately \$937.40 to \$957.40 per \$1,000 Face Amount of notes, which is less than the Issue Price. Please see “Issuer’s Estimated Value of the Notes” on page 3 of this pricing supplement for additional information.**

**By acquiring the notes, you will be bound by and deemed irrevocably to consent to the imposition of any Resolution Measure (as defined below) by the competent resolution authority, which may include the write down of all, or a portion, of any payment on the notes or the conversion of the notes into ordinary shares or other instruments of ownership. If any Resolution Measure becomes applicable to us, you may lose some or all of your investment in the notes. Please see “Resolution Measures and Deemed Agreement” on page 4 of this pricing supplement for more information.**

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

	<b>Price to Public<sup>(1)</sup></b>	<b>Fees<sup>(1)(2)</sup></b>	<b>Proceeds to Issuer</b>
<b>Per Note</b>	\$1,000.00	\$17.50	\$982.50
<b>Total</b>	\$	\$	\$

JPMorgan Chase Bank, N.A. and J.P. Morgan Securities LLC, which we refer to as JPMS LLC, or one of its affiliates will act as placement agents for the notes. The placement agents will forgo fees for sales to fiduciary <sup>(1)</sup>accounts. The total fees represent the amount that the placement agents receive from sales to accounts other than such fiduciary accounts. The placement agents will receive a fee from the Issuer that will not exceed \$17.50 per \$1,000 Face Amount of notes.

<sup>(2)</sup>Please see “Supplemental Plan of Distribution” in this pricing supplement for more information about fees.

*The notes 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.*

**JPMorgan**

**Placement Agent**

September , 2017

(Key Terms continued from previous page)

Automatic Call: The notes will be automatically called by the Issuer if, on any of the annual Review Dates, the closing levels of **all** the Underlyings are greater than or equal to their respective Initial Levels.

Payment upon an Automatic Call: If the notes are automatically called, you will receive a cash payment per \$1,000 Face Amount of notes on the related Call Settlement Date equal to the Face Amount *plus* the *product* of the Face Amount and the applicable call premium. The notes will cease to be outstanding following an Automatic Call and no further payments will be made following the Call Settlement Date. The Review Dates, Call Settlement Dates, call premiums and the payment due upon an Automatic Call applicable to each Review Date are set forth in the table below.

Review Date	Call Settlement Date	Call Premium	Payment upon an Automatic Call (per \$1,000 Face Amount of notes)
October 5, 2018	October 11, 2018	10.32%	\$1,103.20
September 23, 2019	September 26, 2019	20.64%	\$1,206.40

Review Dates<sup>1, 2</sup>: Annually, on the dates set forth in the table under “Payment upon an Automatic Call” above

Call Settlement Date<sup>1, 2</sup>: As set forth in the table under “Payment upon an Automatic Call” above

Payment at Maturity: If the notes are not automatically called, you will receive a cash payment at maturity that will depend *solely* on the performance of the Laggard Underlying on the Averaging Dates:

· **If the Final Level of the Laggard Underlying is greater than or equal to its Trigger Level,** you will receive a cash payment at maturity per \$1,000 Face Amount of notes calculated as follows:

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

· **If the Final Level of the Laggard Underlying is less than its Trigger Level,** you will receive a cash payment at maturity per \$1,000 Face Amount of notes calculated as follows:

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

*If the notes are not automatically called and the Final Level of the Laggard Underlying is less than its Trigger Level, you will be fully exposed to the negative Underlying Return of the Laggard Underlying and, for each \$1,000 Face Amount of notes, you will lose 1.00% of the Face Amount for every 1.00% by which the Final Level of the Laggard Underlying is less than its Initial Level. In this circumstance, you will lose a significant portion or all of your investment at maturity. Any payment at maturity is subject to the credit of the Issuer.*

**Laggard Underlying:** The Underlying with the lowest Underlying Return. If the calculation agent determines that any two or all three of the Underlyings have equal lowest Underlying Returns, then the calculation agent will, in its sole discretion, designate one of such Underlyings as the Laggard Underlying.

**Trigger Level:** For each Underlying, 70.00% of its Initial Level, as set forth in the table under “Underlyings” above  
**Digital Return:** 30.96%, which represents the maximum return on the notes. Accordingly, the maximum Payment at Maturity will be \$1,309.60 per \$1,000 Face Amount of notes.

**Underlying Return:** For each Underlying, the performance of such Underlying from its Initial Level to its Final Level, calculated as follows:

Final Level – Initial Level

Initial Level

*The Underlying Return for each Underlying may be positive, zero or negative.*

**Initial Level:** For each Underlying, the closing level of such Underlying on the Trade Date, as set forth in the table under “Underlyings” above

**Final Level:** For each Underlying, the arithmetic average of the closing levels of such Underlying on each of the five Averaging Dates

**Trade Date<sup>2</sup>:** September 22, 2017

**Settlement Date<sup>2</sup>:** September 27, 2017

**Averaging Dates<sup>1, 2</sup>:** September 15, 2020, September 16, 2020, September 17, 2020, September 18, 2020 and September 21, 2020

**Maturity Date<sup>1, 2</sup>:** September 24, 2020

**Listing:** The notes will not be listed on any securities exchange.

**CUSIP / ISIN:** 25155MDX6 / US25155MDX65

Subject to adjustment as described under “Description of Securities — Adjustments to Valuation Dates and Payment Dates” in the accompanying product supplement. If a Review Date is postponed, the related Call Settlement Date will be postponed accordingly as described under “Description of Securities — Adjustments to Valuation Dates and Payment

Dates” in the accompanying product supplement.

In the event that we make any changes to the expected Trade Date or Settlement Date, the Review Dates, Call  
2Settlement Dates, Averaging Dates and Maturity Date may be changed so that the stated term of the notes remains  
the same.

### **Issuer's Estimated Value of the Notes**

The Issuer's estimated value of the notes is equal to the sum of our valuations of the following two components of the notes: (i) a bond and (ii) an embedded derivative(s). The value of the bond component of the notes is calculated based on the present value of the stream of cash payments associated with a conventional bond with a principal amount equal to the Face Amount of notes, discounted at an internal funding rate, which is determined primarily based on our market-based yield curve, adjusted to account for our funding needs and objectives for the period matching the term of the notes. The internal funding rate is typically lower than the rate we would pay when we issue conventional debt securities on equivalent terms. This difference in funding rate, as well as the agent's commissions, if any, and the estimated cost of hedging our obligations under the notes, reduces the economic terms of the notes to you and is expected to adversely affect the price at which you may be able to sell the notes in any secondary market. The value of the embedded derivative(s) is calculated based on our internal pricing models using relevant parameter inputs such as expected interest and dividend rates and mid-market levels of price and volatility of the assets underlying the notes or any futures, options or swaps related to such underlying assets. Our internal pricing models are proprietary and rely in part on certain assumptions about future events, which may prove to be incorrect.

The Issuer's estimated value of the notes on the Trade Date (as disclosed on the cover of this pricing supplement) is less than the Issue Price of the notes. The difference between the Issue Price and the Issuer's estimated value of the notes on the Trade Date is due to the inclusion in the Issue Price of the agent's commissions, if any, and the cost of hedging our obligations under the notes through one or more of our affiliates. Such hedging cost includes our or our affiliates' expected cost of providing such hedge, as well as the profit we or our affiliates expect to realize in consideration for assuming the risks inherent in providing such hedge.

The Issuer's estimated value of the notes on the Trade Date does not represent the price at which we or any of our affiliates would be willing to purchase your notes in the secondary market at any time. Assuming no changes in market conditions or our creditworthiness and other relevant factors, the price, if any, at which we or our affiliates would be willing to purchase the notes from you in secondary market transactions, if at all, would generally be lower than both the Issue Price and the Issuer's estimated value of the notes on the Trade Date. Our purchase price, if any, in secondary market transactions will be based on the estimated value of the notes determined by reference to (i) the then-prevailing internal funding rate (adjusted by a spread) or another appropriate measure of our cost of funds and (ii) our pricing models at that time, less a bid spread determined after taking into account the size of the repurchase, the nature of the assets underlying the notes and then-prevailing market conditions. The price we report to financial reporting services and to distributors of our notes for use on customer account statements would generally be determined on the same basis. However, during the period of approximately six months beginning from the Trade Date, we or our affiliates may, in our sole discretion, increase the purchase price determined as described above by an amount equal to the declining differential between the Issue Price and the Issuer's estimated value of the notes on the Trade Date, prorated over such period on a straight-line basis, for transactions that are individually and in the aggregate of the expected size for ordinary secondary market repurchases.

## Resolution Measures and Deemed Agreement

On May 15, 2014, the European Parliament and the Council of the European Union adopted a directive establishing a framework for the recovery and resolution of credit institutions and investment firms (commonly referred to as the “**Bank Recovery and Resolution Directive**”). The Bank Recovery and Resolution Directive required each member state of the European Union to adopt and publish by December 31, 2014 the laws, regulations and administrative provisions necessary to comply with the Bank Recovery and Resolution Directive. Germany adopted the Recovery and Resolution Act (*Sanierungs- und Abwicklungsgesetz*, or the “**Resolution Act**”), which became effective on January 1, 2015. The Bank Recovery and Resolution Directive and the Resolution Act provided national resolution authorities with a set of resolution powers to intervene in the event that a bank is failing or likely to fail and certain other conditions are met. From January 1, 2016, the power to initiate resolution measures applicable to significant banking groups (such as Deutsche Bank Group) in the European Banking Union has been transferred to the European Single Resolution Board which, based on the European Union regulation establishing uniform rules and a uniform procedure for the resolution of credit institutions and certain investment firms in the framework of a Single Resolution Mechanism and a Single Resolution Fund (the “**SRM Regulation**”), works in close cooperation with the European Central Bank, the European Commission and the national resolution authorities. Pursuant to the SRM Regulation, the Resolution Act and other applicable rules and regulations, the notes may be subject to any Resolution Measure by the competent resolution authority if we become, or are deemed by the competent supervisory authority to have become, “non-viable” (as defined under the then applicable law) and are unable to continue our regulated banking activities without a Resolution Measure becoming applicable to us. By acquiring the notes, you will be bound by and deemed irrevocably to consent to the provisions set forth in the accompanying prospectus, which we have summarized below.

By acquiring the notes, you will be bound by and deemed irrevocably to consent to the imposition of any Resolution Measure by the competent resolution authority. Under the relevant resolution laws and regulations as applicable to us from time to time, the notes may be subject to the powers exercised by the competent resolution authority to: (i) write down, including to zero, any payment (or delivery obligations) on the notes; (ii) convert the notes into ordinary shares of (a) the Issuer, (b) any group entity or (c) any bridge bank or other instruments of ownership of such entities qualifying as common equity tier 1 capital; and/or (iii) apply any other resolution measure including, but not limited to, any transfer of the notes to another entity, the amendment, modification or variation of the terms and conditions of the notes or the cancellation of the notes. We refer to each of these measures as a “**Resolution Measure**.” A “group entity” refers to an entity that is included in the corporate group subject to a Resolution Measure. A “bridge bank” refers to a newly chartered German bank that would receive some or all of our assets, liabilities and material contracts, including those attributable to our branches and subsidiaries, in a resolution proceeding.

Furthermore, by acquiring the notes, you:

are deemed irrevocably to have agreed, and you will agree: (i) to be bound by, to acknowledge and to accept any Resolution Measure and any amendment, modification or variation of the terms and conditions of the notes to give effect to any Resolution Measure; (ii) that you will have no claim or other right against us arising out of any Resolution Measure; and (iii) that the imposition of any Resolution Measure will not constitute a default or an event of default under the notes, under the senior indenture dated November 22, 2006 among us, Law Debenture Trust



Company of New York, as trustee, and Deutsche Bank Trust Company Americas, as issuing agent, paying agent, authenticating agent and registrar, as amended and supplemented from time to time (the “**Indenture**”), or for the purposes of, but only to the fullest extent permitted by, the Trust Indenture Act of 1939, as amended (the “**Trust Indenture Act**”);

waive, to the fullest extent permitted by the Trust Indenture Act and applicable law, any and all claims against the trustee and the paying agent, the issuing agent and the registrar (each, an “**indenture agent**”) for, agree not to initiate a suit against the trustee or the indenture agents in respect of, and agree that the trustee and the indenture agents will not be liable for, any action that the trustee or the indenture agents take, or abstain from taking, in either case in accordance with the imposition of a Resolution Measure by the competent resolution authority with respect to the notes; and

will be deemed irrevocably to have: (i) consented to the imposition of any Resolution Measure as it may be imposed without any prior notice by the competent resolution authority of its decision to exercise such power with respect to the notes; (ii) authorized, directed and requested The Depository Trust Company (“**DTC**”) and any direct participant in DTC or other intermediary through which you hold such notes to take any and all necessary action, if required, to implement the imposition of any Resolution Measure with respect to the notes as it may be imposed, without any further action or direction on your part or on the part of the trustee or the indenture agents; and (iii) acknowledged and accepted that the Resolution Measure provisions described herein and in the “Resolution Measures” section of the accompanying prospectus are exhaustive on the matters described herein and therein to the exclusion of any other agreements, arrangements or understandings between you and the Issuer relating to the terms and conditions of the notes.

*This is only a summary, for more information please see the accompanying prospectus dated April 27, 2016, including the risk factors beginning on page 13 of such prospectus.*

### **Additional Terms Specific to the Notes**

You should read this pricing supplement together with product supplement B dated July 31, 2015, the prospectus supplement dated July 31, 2015 relating to our Series A global notes of which these notes are a part and the prospectus dated April 27, 2016. Delaware Trust Company, which acquired the corporate trust business of Law Debenture Trust Company of New York, is the successor trustee of the notes. When you read the accompanying product supplement and prospectus supplement, please note that all references in such supplements to the prospectus dated July 31, 2015, or to any sections therein, should refer instead to the accompanying prospectus dated April 27, 2016 or to the corresponding sections of such prospectus, as applicable, unless otherwise specified or the context otherwise requires. You may access these documents on the website of the Securities and Exchange Commission (the “SEC”) at [www.sec.gov](http://www.sec.gov) as follows (or if such address has changed, by reviewing our filings for the relevant date on the SEC website):

Product supplement B dated July 31, 2015:

[http://www.sec.gov/Archives/edgar/data/1159508/000095010315006059/crt\\_dp58181-424b2.pdf](http://www.sec.gov/Archives/edgar/data/1159508/000095010315006059/crt_dp58181-424b2.pdf)

Prospectus supplement dated July 31, 2015:

[http://www.sec.gov/Archives/edgar/data/1159508/000095010315006048/crt-dp58161\\_424b2.pdf](http://www.sec.gov/Archives/edgar/data/1159508/000095010315006048/crt-dp58161_424b2.pdf)

Prospectus dated April 27, 2016:

<https://www.sec.gov/Archives/edgar/data/1159508/000119312516559607/d181910d424b21.pdf>

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

This pricing supplement, together with the documents listed above, contains the terms of the notes and supersedes all other prior or contemporaneous oral statements as well as any other written materials including preliminary or indicative pricing terms, correspondence, trade ideas, structures for implementation, sample structures, brochures or other educational materials of ours. You should carefully consider, among other things, the matters set forth in this pricing supplement and in “Risk Factors” in the accompanying product supplement, prospectus supplement and prospectus, as the notes 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 notes.

**You may revoke your offer to purchase the notes at any time prior to the time at which we accept such offer by notifying the applicable agent. We reserve the right to change the terms of, or reject any offer to purchase, the notes prior to their issuance. We will notify you in the event of any changes to the terms of the notes and you will be asked to accept such changes in connection with your purchase of any notes. You may choose to reject such changes, in which case we may reject your offer to purchase the notes.**

## Hypothetical Examples

The following table illustrates the hypothetical payments on the notes upon an Automatic Call or at maturity. The table below is based on the following assumptions:

Trigger Level\*: For each Underlying, 70.00% of its Initial Level

Call premiums: 10.32% and 20.64% for the first and the second Review Dates, respectively

Digital Return: 30.96%

\* The actual Initial Level and Trigger Level for each Underlying will be determined on the Trade Date.

There will be only one payment on the notes, either at maturity or, due to an Automatic Call, on a Call Settlement Date. An entry of "N/A" in the table below indicates that the notes would not be called on the applicable Review Date and no payment would be made on the corresponding Call Settlement Date. The hypothetical returns set forth below are for illustrative purposes only. The actual return will be based on the closing levels of the Laggard Underlying on the Review Dates or the Averaging Dates, as applicable. The numbers appearing in the table and the hypothetical examples below may have been rounded for ease of analysis. You should consider carefully whether the notes are suitable to your investment goals. **We make no representation or warranty as to which of the Underlyings will be the Laggard Underlying for purposes of calculating the Payment at Maturity.**

<i>Hypothetical Appreciation / Depreciation of the Least Performing Underlying (%)</i>	<i>Hypothetical Return on First Review Date (%)**</i>	<i>Hypothetical Return on Second Review Date (%)**</i>	<i>Hypothetical Return on the Notes at Maturity (%)</i>	<i>Hypothetical Payment at Maturity (\$)</i>
100.00%	10.32%	20.64%	30.96%	\$1,309.60
90.00%	10.32%	20.64%	30.96%	\$1,309.60
80.00%	10.32%	20.64%	30.96%	\$1,309.60
70.00%	10.32%	20.64%	30.96%	\$1,309.60
60.00%	10.32%	20.64%	30.96%	\$1,309.60
50.00%	10.32%	20.64%	30.96%	\$1,309.60
40.00%	10.32%	20.64%	30.96%	\$1,309.60

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30.00%	10.32%	20.64%	30.96%	\$1,309.60
20.00%	10.32%	20.64%	30.96%	\$1,309.60
10.00%	10.32%	20.64%	30.96%	\$1,309.60
<b>0.00%</b>	<b>10.32%</b>	<b>20.64%</b>	<b>30.96%</b>	<b>\$1,309.60</b>
-10.00%	N/A	N/A	30.96%	\$1,309.60
-20.00%	N/A	N/A	30.96%	\$1,309.60
<b>-30.00%</b>	<b>N/A</b>	<b>N/A</b>	<b>30.96%</b>	<b>\$1,309.60</b>
-31.00%	N/A	N/A	-31.00%	\$690.00
-40.00%	N/A	N/A	-40.00%	\$600.00
-50.00%	N/A	N/A	-50.00%	\$500.00
-60.00%	N/A	N/A	-60.00%	\$400.00
-70.00%	N/A	N/A	-70.00%	\$300.00
-80.00%	N/A	N/A	-80.00%	\$200.00
-90.00%	N/A	N/A	-90.00%	\$100.00
-100.00%	N/A	N/A	-100.00%	\$0.00

\*\* If the notes are automatically called, payable on the corresponding Call Settlement Date.

### Hypothetical Examples of Amounts Payable on the Notes

The following hypothetical examples illustrate how the returns set forth in the table above are calculated.

**Example 1: The closing levels of all the Underlyings are greater than their respective Initial Levels on the first Review Date.** Because the closing levels of all the Underlyings on the first Review Date are greater than their respective Initial Levels, the notes are automatically called on the first Review Date. The investor will receive a single cash payment of \$1,103.20 per \$1,000 Face Amount of notes on the corresponding Call Settlement Date. There will be no further payments on the notes.

**Example 2: The closing level of at least one Underlying is less than its Initial Level on the first Review Date and the closing levels of all the Underlyings are greater than their respective Initial Levels on the second Review Date.** Because the closing level of at least one Underlying on the first Review Date is less than its Initial Level, the notes are not automatically called on the first Review Date. Because the closing levels of all the Underlyings are greater than their respective Initial Levels on the second Review Date, the notes are automatically called on the second Review Date. The investor will receive a single cash payment of \$1,206.40 per \$1,000 Face Amount of notes on the corresponding Call Settlement Date. There will be no further payments on the notes.

**Example 3: The closing level of at least one Underlying is less than its Initial Level on each Review Date. The Final Level of the Laggard Underlying is greater than its Trigger Level, resulting in an Underlying Return of the Laggard Underlying of 60.00%.** Because the closing level of at least one Underlying is less than its Initial Level on each Review Date, the notes are not automatically called. Because the Final Level of the Laggard Underlying is greater than its Trigger Level (equal to 70.00% of its Initial Level), despite the Underlying Return of the Laggard Underlying being greater than the Digital Return, the investor will receive a single cash payment of \$1,309.60 per \$1,000 Face Amount of notes on the Maturity Date, calculated as follows:

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

$$\$1,000 + (\$1,000 \times 30.96\%) = \$1,309.60$$

**Example 4: The closing level of at least one Underlying is less than its Initial Level on each Review Date. The Final Level of the Laggard Underlying is greater than its Trigger Level, resulting in an Underlying Return of the Laggard Underlying of -20.00%.** Because the closing level of at least one Underlying is less than its Initial Level on each Review Date, the notes are not automatically called. Because the Final Level of the Laggard Underlying is greater than its Trigger Level, the investor will receive a single cash payment of \$1,309.60 per \$1,000 Face Amount of notes on the Maturity Date, calculated as follows:

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

$$\$1,000 + (\$1,000 \times 30.96\%) = \$1,309.60$$

**Example 5: The closing level of at least one Underlying is less than its Initial Level on each Review Date. The Final Level of the Laggard Underlying is less than its Trigger Level (while the Final Levels of the other Underlyings are greater than their respective Initial Levels), resulting in an Underlying Return of the Laggard Underlying of -50.00%.** Because the closing level of at least one Underlying is less than its Initial Level on each Review Date, the notes are not automatically called. Because the Final Level of the Laggard Underlying is less than its Trigger Level, despite the Final Levels of the other Underlyings being greater than their respective Initial Levels, the investor will receive a single cash payment of \$500.00 per \$1,000 Face Amount of notes on the Maturity Date, calculated as follows:

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

$\$1,000 + (\$1,000 \times -50.00\%) = \$500.00$

**Example 6: The closing level of at least one Underlying is less than its Initial Level on each Review Date. The Final Levels of *all* the Underlyings are less than their respective Initial Levels, with the Final Level of the Laggard Underlying being less than its Trigger Level, resulting in an Underlying Return of the Laggard Underlying of -70.00%.** Because the closing level of at least one Underlying is less than its Initial Level on each Review Date, the notes are not automatically called. Because the Final Level of the Laggard Underlying is less than its Trigger Level, the investor will receive a single cash payment of \$300.00 per \$1,000 Face Amount of notes on the Maturity Date, calculated as follows:

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

$\$1,000 + (\$1,000 \times -70.00\%) = \$300.00$

### Selected Purchase Considerations

**STEP-UP APPRECIATION POTENTIAL** — If the closing levels of *all* the Underlyings on any annual Review Date are greater than or equal to their respective Initial Levels, the notes will be automatically called and you will receive a return on the notes equal to the call premium applicable to such Review Date. The call premiums applicable to the first and the second Review Dates are 10.32% and 20.64%, respectively. Even if the notes are not automatically called, if the Final Level of the Laggard Underlying is greater than or equal to its Trigger Level, you will receive on the Maturity Date a positive return on the notes equal to the Digital Return of 30.96%. In this circumstance, you would receive on the Maturity Date the maximum Payment at Maturity of \$1,309.60 per \$1,000 Face Amount of notes. **Any payment on the notes is subject to our ability to satisfy our obligations as they become due.**

**LIMITED PROTECTION AGAINST LOSS** — If the notes are not automatically called and the Final Level of the Laggard Underlying is greater than or equal to its Trigger Level, for each \$1,000 Face Amount of notes, you will receive at maturity a positive return on the notes equal to the Digital Return. However, if the notes are not automatically called and the Final Level of the Laggard Underlying is less than its Trigger Price, you will be fully exposed to the negative

Underlying Return of the Laggard Underlying and, for each \$1,000 Face Amount of notes, you will lose 1.00% of the Face Amount for every 1.00% by which the Final Level of the Laggard Underlying is less than its Initial Level. **In this circumstance, you will lose a significant portion or all of your investment in the notes.**

**POTENTIAL EARLY EXIT WITH APPRECIATION AS A RESULT OF THE AUTOMATIC CALL FEATURE** — While the original term of the notes is approximately three years, the notes will be automatically called before maturity if the closing levels of *all* the Underlyings on any annual Review Date are greater than or equal to their respective Initial Levels, and you will receive the applicable payment corresponding to that Review Date, as set forth on the cover of this pricing supplement. For the avoidance of doubt, the fees and commissions described on the cover of this pricing supplement will not be rebated or subject to amortization if the notes are automatically called.

**RETURN LINKED TO THE LEAST PERFORMING OF THE THREE UNDERLYINGS** — The return on the notes, which may be positive, zero or negative, is linked to the least performing of the CAC 40<sup>®</sup> Index, the FTSE MIB Index and the IBEX 35<sup>®</sup> Index as described herein. If the notes are not automatically called, the Payment at Maturity will be determined *solely* by reference to the performance of the Laggard Underlying.

#### **CAC 40<sup>®</sup> Index**

The CAC 40<sup>®</sup> Index is a free float market capitalization weighted index that represents the performance of the 40 largest and most actively traded shares listed on the Euronext Paris. The CAC 40<sup>®</sup> Index is calculated, maintained and published by Euronext N.V. The CAC 40<sup>®</sup> Index is calculated in euros and is reported by Bloomberg L.P. under the ticker symbol “CAC.” *This is only a summary of the CAC 40<sup>®</sup> Index. For more information on the CAC 40<sup>®</sup> Index, including information concerning its composition, calculation methodology and adjustment policy, please see “The CAC 40<sup>®</sup> Index” in this pricing supplement.*

#### **FTSE MIB Index**

The FTSE MIB Index is the primary benchmark index for the Italian equity markets. The FTSE MIB Index measures the performance of 40 most liquid and capitalized stocks listed on the *Borsa Italiana* (BIT) and seeks to replicate the broad sector weights of the Italian stock market. The FTSE MIB Index is calculated, published and disseminated by FTSE International Limited, a company owned by the London Stock Exchange. The FTSE MIB Index is calculated in euros and is reported by Bloomberg L.P. under the ticker symbol “FTSEMIB.” *This is only a summary of the FTSE MIB Index. For more information on the FTSE MIB Index, including information concerning its composition, calculation methodology and adjustment policy, please see “The FTSE MIB Index” in this pricing supplement.*

#### **IBEX 35<sup>®</sup> Index**



The IBEX 35<sup>®</sup> Index is composed of the 35 most liquid securities listed on the Spanish Stock Market Interconnection System of the four Spanish stock exchanges: the Barcelona Stock Exchange; the Bilbao Stock Exchange; the Madrid Stock Exchange; and the Valencia Stock Exchange. The IBEX 35<sup>®</sup> Index is calculated, maintained and published by Sociedad de Bolsas, S.A. The IBEX 35<sup>®</sup> Index is calculated in euros and is reported by Bloomberg L.P. under the ticker symbol “IBEX.” *This is only a summary of the IBEX 35<sup>®</sup> Index. For more information on the IBEX 35<sup>®</sup> Index, including information concerning its composition, calculation methodology and adjustment policy, please see “The IBEX 35<sup>®</sup> Index” in this pricing supplement.*

**TAX CONSEQUENCES** — In the opinion of our special tax counsel, Davis Polk & Wardwell LLP, which is based on prevailing market conditions, it is more likely than not that the notes will be treated for U.S. federal income tax purposes as prepaid financial contracts that are not debt. Generally, if this treatment is respected, (i) you should not recognize taxable income or loss prior to the maturity or other taxable disposition of your notes and (ii) the gain or loss on your notes should be capital gain or loss and should be long-term capital gain or loss if you have held the notes for more than one year. The Internal Revenue Service (the “**IRS**”) or a court might not agree with this treatment, however, in which case the timing and character of income or loss on your notes could be materially and adversely affected.

In 2007, the U.S. Treasury Department and the IRS released a notice requesting comments on various issues regarding the U.S. federal income tax treatment of “prepaid forward contracts” and similar instruments. The notice focuses in particular on whether beneficial owners of these instruments should be required to accrue income over the term of their investment. It also asks for comments on a number of related topics, including the character of income or loss with respect to these instruments; the relevance of factors such as the nature of the underlying property to which the instruments are linked; the degree, if any, to which income (including any mandated accruals) realized by non-U.S. persons should be subject to withholding tax; and whether these instruments are or should be subject to the “constructive ownership” regime, which very generally can operate to recharacterize certain long-term capital gain as ordinary income and impose a notional interest charge. While the notice requests comments on appropriate transition rules and effective dates, any Treasury regulations or other guidance promulgated after consideration of these issues

could materially and adversely affect the tax consequences of an investment in the notes, possibly with retroactive effect.

Withholding under legislation commonly referred to as “FATCA” might (if the notes were recharacterized as debt instruments) apply to amounts treated as interest paid with respect to the notes, as well as to payments of gross proceeds of a taxable disposition, including upon an automatic call or at maturity, of a note. However, under a recent IRS notice, this regime will not apply to payments of gross proceeds (other than any amount treated as interest) with respect to dispositions occurring before January 1, 2019. You should consult your tax adviser regarding the potential application of FATCA to the notes.

Section 871(m) of the Code and Treasury regulations promulgated thereunder (“**Section 871(m)**”) generally impose a 30% withholding tax (unless an income tax treaty applies) on dividend equivalents paid or deemed paid to non-U.S. holders with respect to certain financial instruments linked to U.S. equities or indices that include U.S. equities. Section 871(m) provides certain exceptions to this withholding regime, including for instruments linked to certain broad-based indices that meet requirements set forth in the applicable Treasury regulations (such as an index, a “**Qualified Index**”). Additionally, the applicable regulations exclude from the scope of Section 871(m) instruments issued in 2017 that do not have a delta of one with respect to underlying securities that could pay U.S.-source dividends for U.S. federal income tax purposes (each an “**Underlying Security**”). Based on certain determinations made by us, we expect that Section 871(m) will not apply to the notes with regard to non-U.S. holders. Our determination is not binding on the IRS, and the IRS may disagree with this determination. Section 871(m) is complex and its application may depend on your particular circumstances, including whether you enter into other transactions with respect to an Underlying Security. If necessary, further information regarding the potential application of Section 871(m) will be provided in the pricing supplement for the notes. You should consult your tax adviser regarding the potential application of Section 871(m) to the notes.

You should review carefully the section of the accompanying product supplement entitled “U.S. Federal Income Tax Consequences.” The preceding discussion, when read in combination with that section, constitutes the full opinion of our special tax counsel regarding the material U.S. federal income tax consequences of owning and disposing of the notes.

Under current law, the United Kingdom will not impose withholding tax on payments made with respect to the notes.

For a discussion of certain German tax considerations relating to the notes, you should refer to the section in the accompanying prospectus supplement entitled “Taxation by Germany of Non-Resident Holders.”

**You should consult your tax adviser regarding the U.S. federal tax consequences of an investment in the notes (including possible alternative treatments and the issues presented by the 2007 notice), as well as tax**

**consequences arising under the laws of any state, local or non-U.S. taxing jurisdiction.**

### **Selected Risk Considerations**

An investment in the notes involves significant risks. Investing in the notes is not equivalent to investing directly in the stocks composing the Underlyings. In addition to these selected risk considerations, you should review the “Risk Factors” sections of the accompanying product supplement, prospectus supplement and prospectus.

**YOUR INVESTMENT IN THE NOTES MAY RESULT IN A LOSS** — The notes do not guarantee any return of your investment. The return on the notes at maturity is linked to the performance of the Laggard Underlying and will depend on whether the notes are automatically called and whether the Final Level of the Laggard Underlying is less than its Trigger Level, as applicable. If the notes are not automatically called and the Final Level of the Laggard Underlying is less than its Trigger Level, you will be fully exposed to the negative Underlying Return of the Laggard Underlying and, for each \$1,000 Face Amount of notes, you will lose 1.00% of the Face Amount for every 1.00% by which the Final Level of the Laggard Underlying is less than its Initial Level. In this circumstance, you will lose a significant portion or all of your investment at maturity. **Any payment on the notes is subject to our ability to satisfy our obligations as they become due.**

**THE RETURN ON THE NOTES IS LIMITED** — If the closing level of the Laggard Underlying on any annual Review Date is greater than or equal to the Initial Price, the notes will be automatically called and you will receive on the applicable Call Settlement Date a payment per \$1,000 Face Amount of notes equal to the Face Amount *plus* the *product* of the Face Amount and the applicable call premium, regardless of the increase in the levels of the Underlyings, which may be significant. The call premiums applicable to the first and the second Review Dates are 10.32% and 20.64%, respectively. If the notes are not automatically called and the Final Level of the Laggard Underlying is greater than or equal to its Trigger Level, you will receive a positive return on the notes equal to the Digital Return of 30.96%.

Therefore, the return on the notes is limited regardless of whether the notes are automatically called or not. The level of each Underlying at various times during the term of the notes could be higher than the closing levels of such Underlying on the annual Review Dates and/or the Averaging Dates. Because the call premiums and Digital Return are fixed amounts, you may receive a lower payment upon an Automatic Call or at maturity than you would have if you had invested directly in the stocks composing the Underlyings.

**REINVESTMENT RISK** — If the notes are automatically called, the term of the notes may be reduced to as short as approximately one year. There is no guarantee that you would be able to reinvest the proceeds from an investment in the notes at a comparable return for a similar level of risk in the event the notes are automatically called prior to the Maturity Date.

**IF THE NOTES ARE NOT AUTOMATICALLY CALLED, YOUR PAYMENT AT MATURITY WILL BE DETERMINED SOLELY BY THE FINAL LEVEL OF THE LAGGARD UNDERLYING** — If the notes are not automatically called, the Payment at Maturity will be determined *solely* by reference to the Final Level of the Laggard Underlying, without taking into consideration the Final Levels of the other Underlyings.

**HIGHER DIGITAL RETURN/CALL PREMIUMS OR A LOWER TRIGGER LEVEL FOR EACH UNDERLYING MAY REFLECT A GREATER EXPECTED VOLATILITY OF ONE OR MORE UNDERLYINGS, WHICH IS GENERALLY ASSOCIATED WITH A GREATER RISK OF LOSS** — Volatility is a measure of the degree of variation in the trading prices of an asset over a period of time. The greater the expected volatility at the time the terms of the notes are set on the Trade Date, the greater the expectation is at that time that the Final Level of least one of the Underlyings may be less than its Trigger Level (resulting in a loss of a significant portion or all of your initial investment). In addition, the economic terms of the notes, including the Trigger Levels and the Digital Return/call premiums, are based, in part, on the expected volatility of the Underlyings at the time the terms of the notes are set on the Trade Date, where higher expected volatility will generally lead to higher Digital Return/call premiums or a lower Trigger Level for each Underlying. Accordingly, higher Digital Return/call premiums as compared with the expected return on our conventional fixed income notes with a similar maturity or the expected return on our other similarly structured notes will generally indicate a greater risk of loss, while a lower Trigger Level for each Underlying as compared with otherwise comparable securities does not necessarily indicate that the notes have a greater likelihood of returning your investment at maturity. You should be willing to accept the downside market risk of each Underlying and the potential loss of a significant portion or all of your initial investment at maturity.

**THE NOTES DO NOT PAY ANY COUPONS** — Unlike ordinary debt securities, the notes do not pay any coupons and do not guarantee any return of your investment at maturity.

**THE NOTES ARE SUBJECT TO THE CREDIT OF DEUTSCHE BANK AG** — The notes are senior unsecured obligations of Deutsche Bank AG and are not, either directly or indirectly, an obligation of any third party. Any payment(s) to be made on the notes depends on the ability of Deutsche Bank AG to satisfy its obligations as they become due. An actual or anticipated downgrade in Deutsche Bank AG's credit rating or increase in the credit spreads charged by the market for taking Deutsche Bank AG's credit risk will likely have an adverse effect on the value of the notes. As a result, the actual and perceived creditworthiness of Deutsche Bank AG will affect the value of the notes and, in the event Deutsche Bank AG were to default on its obligations or become subject to a Resolution Measure,

you might not receive any amount(s) owed to you under the terms of the notes and you could lose your entire investment.

**THE NOTES MAY BE WRITTEN DOWN, BE CONVERTED INTO ORDINARY SHARES OR OTHER INSTRUMENTS OF OWNERSHIP OR BECOME SUBJECT TO OTHER RESOLUTION MEASURES. YOU MAY LOSE SOME OR ALL OF YOUR INVESTMENT IF ANY SUCH MEASURE BECOMES APPLICABLE TO US** — Pursuant to the SRM Regulation, the Resolution Act and other applicable rules and regulations described above under “Resolution Measures and Deemed Agreement,” the notes are subject to the powers exercised by the competent resolution authority to impose Resolution Measures on us, which may include: writing down, including to zero, any claim for payment on the notes; converting the notes into ordinary shares of (i) the Issuer, (ii) any group entity or (iii) any bridge bank or other instruments of ownership of such entities qualifying as common equity tier 1 capital; or applying any other resolution measure including, but not limited to, transferring the notes to another entity, amending, modifying or varying the terms and conditions of the notes or cancelling the notes. The competent resolution authority may apply Resolution Measures individually or in any combination.

The German law on the mechanism for the resolution of banks of November 2, 2015 (*Abwicklungsmechanismusgesetz*, or the “**Resolution Mechanism Act**”) provides that, in a German insolvency proceeding of the Issuer, certain specifically defined senior unsecured debt instruments would rank junior to, without constituting subordinated debt, all other outstanding unsecured unsubordinated obligations of the Issuer and be satisfied only if all such other senior unsecured obligations of the Issuer have been paid in full. This prioritization would also be given effect if Resolution Measures are imposed on the Issuer, so that obligations under debt instruments that rank junior in insolvency as

described above would be written down or converted into common equity tier 1 instruments *before* any other senior unsecured obligations of the Issuer are written down or converted. A large portion of our liabilities consist of senior unsecured obligations that either fall outside the statutory definition of debt instruments that rank junior to other senior unsecured obligations according to the Resolution Mechanism Act or are expressly exempted from such definition.

Among those unsecured unsubordinated obligations that are expressly exempted are money market instruments and senior unsecured debt instruments whose terms provide that (i) the repayment or the amount of the repayment depends on the occurrence or non-occurrence of an event which is uncertain at the point in time when the senior unsecured debt instruments are issued or is settled in a way other than by monetary payment, or (ii) the payment of interest or the amount of the interest payments depends on the occurrence or non-occurrence of an event which is uncertain at the point in time when the senior unsecured debt instruments are issued unless the payment of interest or the amount of the interest payments solely depends on a fixed or floating reference interest rate and is settled by monetary payment. This order of priority introduced by the Resolution Mechanism Act would apply in German insolvency proceedings instituted, or when Resolution Measures are imposed, on or after January 1, 2017 with effect for debt instruments of the Issuer outstanding at that time. In a German insolvency proceeding or in the event of the imposition of Resolution Measures with respect to the Issuer, the competent regulatory authority or court would determine which of our senior debt securities issued under the prospectus have the terms described in clauses (i) or (ii) above, referred to herein as the “**Structured Debt Securities**,” and which do not, referred to herein as the “**Non-Structured Debt Securities**.” We expect the notes offered herein to be classified as Structured Debt Securities, but the competent regulatory authority or court may classify the notes differently. In a German insolvency proceeding or in the event of the imposition of Resolution Measures with respect to the Issuer, the Structured Debt Securities are expected to be among the unsecured unsubordinated obligations that would bear losses after the Non-Structured Debt Securities as described above. **Nevertheless, you may lose some or all of your investment in the notes if a Resolution Measure becomes applicable to us.** Imposition of a Resolution Measure would likely occur if we become, or are deemed by the competent supervisory authority to have become, “non-viable” (as defined under the then applicable law) and are unable to continue our regulated banking activities without a Resolution Measure becoming applicable to us. The Bank Recovery and Resolution Directive and the Resolution Act are intended to eliminate the need for public support of troubled banks, and you should be aware that public support, if any, would only potentially be used by the competent supervisory authority as a last resort after having assessed and exploited, to the maximum extent practicable, the resolution tools, including the bail-in tool.

By acquiring the notes, you would have no claim or other right against us arising out of any Resolution Measure and we would have no obligation to make payments under the notes following the imposition of a Resolution Measure. In particular, the imposition of any Resolution Measure will not constitute a default or an event of default under the notes, under the Indenture or for the purposes of, but only to the fullest extent permitted by, the Trust Indenture Act. Furthermore, because the notes are subject to any Resolution Measure, secondary market trading in the notes may not follow the trading behavior associated with similar types of securities issued by other financial institutions which may be or have been subject to a Resolution Measure.

In addition, by your acquisition of the notes, you waive, to the fullest extent permitted by the Trust Indenture Act and applicable law, any and all claims against the trustee and the indenture agents for, agree not to initiate a suit against the trustee or the indenture agents in respect of, and agree that the trustee and the indenture agents will not be liable for, any action that the trustee or the indenture agents take, or abstain from taking, in either case in accordance with

the imposition of a Resolution Measure by the competent resolution authority with respect to the notes. **Accordingly, you may have limited or circumscribed rights to challenge any decision of the competent resolution authority to impose any Resolution Measure.**

**THE ISSUER'S ESTIMATED VALUE OF THE NOTES ON THE TRADE DATE WILL BE LESS THAN THE ISSUE PRICE OF THE NOTES** — The Issuer's estimated value of the notes on the Trade Date (as disclosed on the cover of this pricing supplement) is less than the Issue Price of the notes. The difference between the Issue Price and the Issuer's estimated value of the notes on the Trade Date is due to the inclusion in the Issue Price of the agent's commissions, if any, and the cost of hedging our obligations under the notes through one or more of our affiliates. Such hedging cost includes our or our affiliates' expected cost of providing such hedge, as well as the profit we or our affiliates expect to realize in consideration for assuming the risks inherent in providing such hedge. The Issuer's estimated value of the notes is determined by reference to an internal funding rate and our pricing models. The internal funding rate is typically lower than the rate we would pay when we issue conventional debt securities on equivalent terms. This difference in funding rate, as well as the agent's commissions, if any, and the estimated cost of hedging our obligations under the notes, reduces the economic terms of the notes to you and is expected to adversely affect the price at which you may be able to sell the notes in any secondary market. In addition, our internal pricing models are proprietary and rely in part on certain assumptions about future events, which may prove to be incorrect. If at any time

a third party dealer were to quote a price to purchase your notes or otherwise value your notes, that price or value may differ materially from the estimated value of the notes determined by reference to our internal funding rate and pricing models. This difference is due to, among other things, any difference in funding rates, pricing models or assumptions used by any dealer who may purchase the notes in the secondary market.

**INVESTING IN THE NOTES IS NOT THE SAME AS INVESTING IN THE STOCKS COMPOSING THE UNDERLYINGS** — The return on the notes may not reflect the return you would have realized if you had directly invested in the stocks composing the Underlyings. For instance, your return on the notes will be limited to the call premiums and the Digital Return regardless of any increase in the levels of the Underlyings, which could be significant.

**IF THE LEVELS OF THE UNDERLYINGS CHANGE, THE VALUE OF YOUR NOTES MAY NOT CHANGE IN THE SAME MANNER** — Your notes may trade quite differently from the levels of the Underlyings. Changes in the levels of the Underlyings may not result in comparable changes in the value of your notes.

**NO DIVIDEND PAYMENTS OR VOTING RIGHTS** — As a holder of the notes, you will not have any voting rights or rights to receive cash dividends or other distributions or other rights that holders of the stocks composing the Underlyings would have.

**YOUR INVESTMENT IS EXPOSED TO A DECLINE IN THE LEVEL OF EACH UNDERLYING** — Your return on the notes is not linked to a basket consisting of the Underlyings. Rather, any payment on the notes will be determined *solely* by reference to the performance of the least performing of three Underlyings. Unlike an instrument with a return linked to a basket, in which risk is mitigated and diversified among all of the basket components, you will be exposed equally to the risks related to each of the Underlyings and your return will be based on the least performing of the Underlyings, as measured on each Review Date and the Averaging Dates. A negative performance by any of the Underlyings over the term of the notes may adversely affect your return on the notes and will not be offset or mitigated by a positive performance by the other Underlyings.

**BECAUSE THE NOTES ARE LINKED TO THE LEAST PERFORMING OF THE THREE UNDERLYINGS, YOU ARE EXPOSED TO A GREATER RISK OF LOSING A SIGNIFICANT PORTION OR ALL OF YOUR INVESTMENT THAN IF THE NOTES WERE LINKED TO JUST ONE UNDERLYING** — The risk that you will lose a significant portion or all of your initial investment in the notes is greater than in substantially similar securities that are linked to the performance of just one of the Underlyings. With three Underlyings, it is more likely that the Final Level of the Laggard Underlying will be less than its Trigger Level than if the notes were linked to only one of the Underlyings, and therefore, it is more likely that you will receive a Payment at Maturity that is significantly less than your initial investment. In addition, the performance of the Underlyings may not be correlated. If the performance of the Underlyings is not correlated, or is negatively correlated, the potential for the Final Level of the Laggard Underlying to be less than its Trigger Level is even greater. Although the correlation of the Underlyings' performance may change over the term of the notes, the Trigger Level is determined, in part, based on the correlation of the Underlyings' performance at the time when the terms of the notes are finalized. A lower Trigger Level is generally associated with a lower correlation of the Underlyings, which reflects a greater potential for loss on your investment at maturity.



**THE UNDERLYINGS REFLECT THE PRICE RETURN OF THEIR RESPECTIVE COMPONENT STOCKS, NOT THEIR TOTAL RETURN INCLUDING ALL DIVIDENDS AND OTHER DISTRIBUTIONS**

— The return on the notes is based on the performance of each Underlying, which reflects the changes in the market prices of their respective component stocks. None of the Underlyings is, however, a “total return” index, which, in addition to reflecting the price returns of the stocks composing such Underlying, would also reflect the reinvestment of all dividends and other distributions paid on such component stocks.

**THE SPONSOR OF AN UNDERLYING MAY ADJUST THE RELEVANT UNDERLYING IN WAYS THAT AFFECT THE LEVEL OF SUCH UNDERLYING AND HAS NO OBLIGATION TO CONSIDER YOUR INTERESTS**

— The sponsor of an Underlying (each, an “**Underlying Sponsor**”) is responsible for calculating and maintaining the relevant Underlying. The Underlying Sponsor can add, delete or substitute the components of the relevant Underlying or make other methodological changes that could change the level of such Underlying. You should realize that the changing of such Underlying components may affect such Underlying, as a newly added component may perform significantly better or worse than the component it replaces. Additionally, the Underlying Sponsor may alter, discontinue or suspend calculation or dissemination of the relevant Underlying. Any of these actions could adversely affect the level of such Underlying and, thus, the value of, and your return on, the notes. The Underlying Sponsors have no obligation to consider your interests in calculating or revising the relevant Underlyings.

**THERE ARE RISKS ASSOCIATED WITH INVESTMENTS IN SECURITIES LINKED TO THE VALUES OF EQUITY SECURITIES ISSUED BY NON-U.S. COMPANIES**

— Each of the Underlyings includes component stocks that are issued by companies incorporated outside of the U.S. Because the component stocks also trade outside the U.S., the notes are subject to

the risks associated with non-U.S. securities markets. Generally, non-U.S. securities markets may be less liquid and more volatile than U.S. securities markets and market developments may affect non-U.S. securities markets differently than U.S. securities markets, which may adversely affect the levels of the Underlyings and the value of your notes. Furthermore, there are risks associated with investments in securities linked to the values of equity securities issued by non-U.S. companies. There is generally less publicly available information about non-U.S. companies than about those U.S. companies that are subject to the reporting requirements of the SEC, and non-U.S. companies are subject to accounting, auditing and financial reporting standards and requirements that differ from those applicable to U.S. reporting companies. In addition, the prices of equity securities issued by non-U.S. companies may be adversely affected by political, economic, financial and social factors that may be unique to the particular countries in which the non-U.S. companies are incorporated and/or primarily conduct their business. These factors include the possibility of recent or future changes in a non-U.S. government's economic and fiscal policies (including any direct or indirect intervention to stabilize the economy and/or securities market of the country of such non-U.S. government), the presence, and extent, of cross shareholdings in non-U.S. companies, the possible imposition of, or changes in, currency exchange laws or other non-U.S. laws or restrictions applicable to non-U.S. companies or investments in non-U.S. securities and the possibility of fluctuations in the rate of exchange between currencies. Moreover, certain aspects of a particular non-U.S. economy may differ favorably or unfavorably from the U.S. economy in important respects, such as growth of gross national product, rate of inflation, capital reinvestment, resources and self-sufficiency. Specifically, the stocks composing the Underlyings are issued by companies located in countries within the Eurozone, some of which are and have been experiencing economic stress.

**THE UNDERLYING RETURN WILL NOT BE ADJUSTED FOR CHANGES IN THE EURO RELATIVE TO THE U.S. DOLLAR** — Each Underlying is composed of stocks denominated in euro. Because the level of each Underlying is also calculated in euro (and not in U.S. dollars), the performance of each Underlying will not be adjusted for exchange rate fluctuations between the U.S. dollar and the euro. Therefore, if the euro strengthens or weakens relative to the U.S. dollar over the term of the notes, you will not receive any additional payment or incur any reduction in your return on the notes.

**PAST PERFORMANCE OF THE UNDERLYINGS IS NO GUIDE TO FUTURE PERFORMANCE** — The actual performance of the Underlyings over the term of the notes may bear little relation to the historical closing levels of the Underlyings and/or the hypothetical examples set forth elsewhere in this pricing supplement. We cannot predict the future performance of the Underlyings or whether the performance of the Underlyings will result in the return of any of your investment.

**ASSUMING NO CHANGES IN MARKET CONDITIONS AND OTHER RELEVANT FACTORS, THE PRICE YOU MAY RECEIVE FOR YOUR NOTES IN SECONDARY MARKET TRANSACTIONS WOULD GENERALLY BE LOWER THAN BOTH THE ISSUE PRICE AND THE ISSUER'S ESTIMATED VALUE OF THE NOTES ON THE TRADE DATE** — While the payment(s) on the notes described in this pricing supplement is based on the full Face Amount of notes, the Issuer's estimated value of the notes on the Trade Date (as disclosed on the cover of this pricing supplement) is less than the Issue Price of the notes. The Issuer's estimated value of the notes on the Trade Date does not represent the price at which we or any of our affiliates would be willing to purchase your notes in the secondary market at any time. Assuming no changes in market conditions or our creditworthiness and other relevant factors, the price, if any, at which we or our affiliates would be willing to purchase the notes from you in secondary market transactions, if at all, would generally be lower than both the Issue Price and the Issuer's estimated value of the notes on the Trade Date. Our purchase price, if any, in secondary market transactions would be based on the estimated value of the notes determined by reference to (i) the then-prevailing

internal funding rate (adjusted by a spread) or another appropriate measure of our cost of funds and (ii) our pricing models at that time, less a bid spread determined after taking into account the size of the repurchase, the nature of the assets underlying the notes and then-prevailing market conditions. The price we report to financial reporting services and to distributors of our notes for use on customer account statements would generally be determined on the same basis. However, during the period of approximately six months beginning from the Trade Date, we or our affiliates may, in our sole discretion, increase the purchase price determined as described above by an amount equal to the declining differential between the Issue Price and the Issuer's estimated value of the notes on the Trade Date, prorated over such period on a straight-line basis, for transactions that are individually and in the aggregate of the expected size for ordinary secondary market repurchases.

In addition to the factors discussed above, the value of the notes and our purchase price in secondary market transactions after the Trade Date, if any, will vary based on many economic and market factors, including our creditworthiness, and cannot be predicted with accuracy. These changes may adversely affect the value of your notes, including the price you may receive in any secondary market transactions. Any sale prior to the Maturity Date could result in a substantial loss to you. The notes are not designed to be short-term trading instruments. Accordingly, you should be able and willing to hold your notes to maturity.

**THE NOTES WILL NOT BE LISTED AND THERE WILL LIKELY BE LIMITED LIQUIDITY** — The notes will not be listed on any securities exchange. There may be little or no secondary market for the notes. We or our affiliates intend to act as

market makers for the notes but are not required to do so and may cease such market making activities at any time. Even if there is a secondary market, it may not provide enough liquidity to allow you to sell the notes when you wish to do so or at a price advantageous to you. Because we do not expect other dealers to make a secondary market for the notes, the price at which you may be able to sell your notes is likely to depend on the price, if any, at which we or our affiliates are willing to buy the notes. If, at any time, we or our affiliates do not act as market makers, it is likely that there would be little or no secondary market in the notes. If you have to sell your notes prior to maturity, you may not be able to do so or you may have to sell them at a substantial loss, even in cases where the levels of the Underlyings have increased since the Trade Date.

**MANY ECONOMIC AND MARKET FACTORS WILL AFFECT THE VALUE OF THE NOTES** — While we expect that, generally, the levels of the Underlyings will affect the value of the notes more than any other single factor, the value of the notes prior to maturity will also be affected by a number of other factors that may either offset or magnify each other, including:

- o the expected volatility of the Underlyings;
- o the time remaining to the maturity of the notes;
- o the dividend rates of the stocks composing the Underlyings;
- o the composition of the Underlyings;
- o interest rates and yields in the markets generally;

o geopolitical conditions and economic, financial, political, regulatory or judicial events that affect any Underlying or the markets generally;

- o supply and demand for the notes; and
- o our creditworthiness, including actual or anticipated downgrades in our credit ratings.

During the term of the notes, it is possible that their value may decline significantly due to the factors described above even if the levels of the Underlyings remain unchanged from their respective Initial Levels, and any sale prior to the Maturity Date could result in a substantial loss to you. You must hold the notes to maturity to receive the stated payout from the Issuer.

**TRADING AND OTHER TRANSACTIONS BY US, JPMORGAN CHASE & CO. OR OUR OR ITS AFFILIATES IN THE EQUITY AND EQUITY DERIVATIVE MARKETS MAY IMPAIR THE VALUE OF THE NOTES**

— We or our affiliates expect to hedge our exposure from the notes by entering into equity and equity derivative transactions, such as over-the-counter options, futures or exchange-traded instruments. We, JPMorgan Chase & Co. or our or its affiliates may also engage in trading in instruments linked or related to the Underlyings on a regular basis as part of our or their general broker-dealer and other businesses, for proprietary accounts, for other accounts under management or to facilitate transactions for customers, including block transactions. Such trading and hedging activities may adversely affect the levels of one or more Underlyings and, therefore, make it less likely that you will receive a positive return on your investment in the notes. It is possible that we, JPMorgan Chase & Co. or our or its affiliates could receive substantial returns from these hedging and trading activities while the value of the notes declines. We, JPMorgan Chase & Co. or our or its affiliates may also issue or underwrite other securities or financial or derivative instruments with returns linked or related to the Underlyings. To the extent that we, JPMorgan Chase & Co. or our or its affiliates serve as issuer, agent or underwriter for such securities or financial or derivative instruments, our, JPMorgan Chase & Co.'s or our or its affiliates' interests with respect to such products may be adverse to those of the holders of the notes. Introducing competing products into the marketplace in this manner could adversely affect the levels of one or more Underlyings and the value of the notes. Any of the foregoing activities described in this paragraph may reflect trading strategies that differ from, or are in direct opposition to, investors' trading and investment strategies related to the notes.

**WE, JPMORGAN CHASE & CO. OR OUR OR ITS AFFILIATES MAY PUBLISH RESEARCH, EXPRESS OPINIONS OR PROVIDE RECOMMENDATIONS THAT ARE INCONSISTENT WITH INVESTING IN OR HOLDING THE NOTES. ANY SUCH RESEARCH, OPINIONS OR RECOMMENDATIONS COULD ADVERSELY AFFECT THE LEVELS OF THE UNDERLYINGS AND THE VALUE OF THE NOTES**

— We, JPMorgan Chase & Co. or our or its affiliates may publish research from time to time on financial markets and other matters that could adversely affect the levels of the Underlyings and the value of the notes, or express opinions or provide recommendations that are inconsistent with purchasing or holding the notes. Any research, opinions or recommendations expressed by us, JPMorgan Chase & Co. or our or its 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 investing in the notes and the Underlyings.

**POTENTIAL CONFLICTS OF INTEREST** — We and our affiliates play a variety of roles in connection with the issuance of the notes, including acting as calculation agent, hedging our obligations under the notes and determining the Issuer’s estimated value of the notes on the Trade Date and the price, if any, at which we or our affiliates would be willing to purchase the notes from you in secondary market transactions. In performing these roles, our economic interests and those of our affiliates are potentially adverse to your interests as an investor in the notes. The calculation agent will determine, among other things, all values, prices and levels required to be determined for the purposes of the notes on any relevant date or time. The calculation agent will also be responsible for determining whether a market disruption event has occurred as well as, in some circumstances, the prices or levels related to the Underlyings that affect whether the notes are automatically called. Any determination by the calculation agent could adversely affect the return on the notes.

**THE U.S. FEDERAL INCOME TAX CONSEQUENCES OF AN INVESTMENT IN THE NOTES ARE UNCERTAIN** — There is no direct legal authority regarding the proper U.S. federal income tax treatment of the notes, and we do not plan to request a ruling from the IRS. Consequently, significant aspects of the tax treatment of the notes are uncertain, and the IRS or a court might not agree with the treatment of the notes as prepaid financial contracts that are not debt. If the IRS were successful in asserting an alternative treatment for the notes, the tax consequences of ownership and disposition of the notes could be materially and adversely affected. In addition, as described above under “Tax Consequences,” in 2007 the U.S. Treasury Department and the IRS released a notice requesting comments on various issues regarding the U.S. federal income tax treatment of “prepaid forward contracts” and similar instruments. Any Treasury regulations or other guidance promulgated after consideration of these issues could materially and adversely affect the tax consequences of an investment in the notes, possibly with retroactive effect. You should review carefully the section of the accompanying product supplement entitled “U.S. Federal Income Tax Consequences,” and consult your tax adviser regarding the U.S. federal tax consequences of an investment in the notes (including possible alternative treatments and the issues presented by the 2007 notice), as well as tax consequences arising under the laws of any state, local or non-U.S. taxing jurisdiction.

### **Use of Proceeds and Hedging**

Part of the net proceeds we receive from the sale of the notes will be used in connection with hedging our obligations under the notes through one or more of our affiliates. The hedging or trading activities of our affiliates on or prior to the Trade Date, a Review Date or an Averaging Date could adversely affect the price of one or more of the Underlyings and, as a result, could decrease the possibility of your notes being automatically called or the amount you may receive on the notes at maturity.

## Historical Information

The following graphs set forth the historical performances of the CAC 40<sup>®</sup> Index, the FTSE MIB Index and the IBEX 35<sup>®</sup> Index based on their respective daily closing levels from September 21, 2012 through September 21, 2017. The closing level of the CAC 40<sup>®</sup> Index on September 21, 2017 was 5,241.66. The closing level of the FTSE MIB Index on September 21, 2017 was 22,355.58. The closing level of the IBEX 35<sup>®</sup> Index on September 21, 2017 was 10,292.10. The graphs also indicate by a broken line a hypothetical Trigger Level equal to 70.00% of, (i) with respect to the CAC 40<sup>®</sup> Index, 5,241.66, which was the closing level of the CAC 40<sup>®</sup> Index on September 21, 2017, (ii) with respect to the FTSE MIB Index, 22,355.58, which was the closing level of the FTSE MIB Index on September 21, 2017, and (iii) with respect to the IBEX 35<sup>®</sup> Index, 10,292.10, which was the closing level of the IBEX 35<sup>®</sup> Index on September 21, 2017. The actual Initial Level and Trigger Level for each Underlying will be determined on the Trade Date. We obtained the historical closing levels of the Underlyings below from Bloomberg L.P. and we have not participated in the preparation of, or verified, such information. **The historical closing levels of the Underlyings should not be taken as an indication of future performance and no assurance can be given as to the closing levels of the Underlyings on any Review Date or Averaging Date. We cannot give you assurance that the performance of the Underlyings will result in the return of any of your initial investment.**





## Correlation of the Underlyings

The following graph sets forth the historical performances of the CAC 40<sup>®</sup> Index, the FTSE MIB Index and the IBEX 35<sup>®</sup> Index from September 21, 2012 through September 21, 2017, based on the daily closing levels of the Underlyings. For comparison purposes, each Underlying has been normalized to have a closing level of 100.00 on September 21, 2012 by (1) *dividing* the closing level of that Underlying on each day by the closing level of that Underlying on September 21, 2012 and (2) *multiplying* by 100.00.

We obtained the closing levels used to determine the normalized closing levels set forth below from Bloomberg, without verification. Historical performance of the Underlyings should not be taken as an indication of future performance. Future performance of the Underlyings may differ significantly from historical performance and no assurance can be given as to the closing levels of the Underlyings during the term of the notes, including on any Review Date or Averaging Date. We cannot give you assurance that the performances of the Underlyings will result in the return of any of your initial investment.

The closer the relationship of the daily returns of a pair of Underlyings over a given period, the more positively correlated those Underlyings are. The graph above illustrates the historical performance of each Underlying relative to the other Underlyings over the time period shown and provides an indication of how close the relative performance of the daily returns of one Underlying has historically been to another. For additional information, please see “Key Risks — Because The Notes Are Linked To The Least Performing Of The Three Underlyings, You Are Exposed To A Greater Risk Of Losing A Significant Portion Or All Of Your Investment Than If The Notes Were Linked To Just One Underlying” in this pricing supplement.

The lower (or more negative) the correlation between two Underlyings, the less likely it is that those Underlyings will move in the same direction and, therefore, the greater the potential that the Final Level of at least one of the Underlyings may be less than its Trigger Level. This is because the less positively correlated a pair of Underlyings are, the greater the likelihood that the level of at least one of the Underlyings will decrease. This results in a greater potential for a loss of a significant portion or all of your initial investment at maturity. However, even if two Underlyings have a higher positive correlation, the Final Level of one or both of those Underlyings may be less than its Trigger Level as the levels of both of those Underlyings may decrease together.

In addition, for each additional Underlying to which the notes are linked, there is a greater potential for one pair of Underlyings to have low or negative correlation. Therefore, the greater the number of Underlyings, the greater the potential for a loss of a significant portion or all of your initial investment at maturity. Deutsche Bank AG determined the Digital Return and call



premiums for the notes based, in part, on the correlation among the Underlyings, calculated using internal models at the time the terms of the notes were set. As discussed above, increased risk resulting from lower correlation or from a greater number of underlyings is reflected in a higher Digital Return/call premiums than would be payable on notes linked to fewer underlyings that have a higher degree of correlation.

### **Supplemental Plan of Distribution**

JPMorgan Chase Bank, N.A. and JPMS LLC or one of its affiliates will act as placement agents for the notes. The placement agents will receive a fee from the Issuer that will not exceed \$17.50 per \$1,000 Face Amount of notes, but will forgo any fees for sales to certain fiduciary accounts. See “Plan of Distribution (Conflicts of Interest)” in the accompanying product supplement.

### **Settlement**

We expect to deliver the notes against payment for the notes on the Settlement Date indicated above, which is expected to be a day that is greater than two business days following the Trade Date. Under Rule 15c6-1 of the Securities Exchange Act of 1934, as amended, trades in the secondary market generally are required to settle in two business days, unless the parties to a trade expressly agree otherwise. Accordingly, if the Settlement Date is more than two business days after the Trade Date, purchasers who wish to transact in the notes more than two business days prior to the Settlement Date will be required to specify alternative settlement arrangements to prevent a failed settlement.

## The CAC 40<sup>®</sup> Index

We have derived all information contained in this pricing supplement regarding the CAC 40<sup>®</sup> Index (the “**CAC Index**”), including, without limitation, information concerning 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 information. Such information reflects the policies of, and is subject to change by, Euronext N.V. (“**Euronext**”), the sponsor of the CAC Index. The CAC Index is calculated, maintained and published by the Euronext. Euronext has no obligation to continue to publish, and may discontinue or suspend the publication of, the CAC Index at any time.

The CAC Index is calculated in euros and is reported by Bloomberg L.P. under the ticker symbol “CAC.”

The CAC Index is a free float market capitalization weighted index that reflects the performance of the 40 largest and most actively traded shares listed on the Euronext Paris. Euronext is responsible for the day-to-day management of the CAC Index and is also responsible for decisions regarding the interpreting the rules governing the CAC Index. The Conseil Scientifique acts as an independent supervisor of the CAC Index and is responsible for monitoring the selection of constituents for the CAC Index and ensuring that the index offers a reliable and representative view of the market. The base date for the CAC Index is December 31, 1987 and the base value of the CAC Index was 1,000.

## Index Eligibility

The universe of eligible constituents for the CAC Index is defined as companies that have been admitted for listing on Euronext Paris’ regulated market. The CAC Index consists of companies with Euronext Paris as their market of reference, as well as companies with a market of reference other than Euronext Paris that may qualify for continued inclusion based on:

- 1) the significant presence (relative to the size of the group) of business assets and/or head-office activities in France, and/or employment of significant numbers of staff in France;
- 2) significant trading volumes on related derivative instruments in Paris; or
- 3) the company’s inclusion in the universe of eligible constituents for the CAC Index on January 1, 2014, in so far as criteria (1) and/or (2) above are still applicable.

If a company changes its market of reference to a market of reference other than Euronext Paris as a result of a merger or similar situation, such company will continue to be eligible for inclusion in the CAC Index. At each annual review, Conseil Scientifique retains the right to decide on the eligibility of the new entity based on criteria (1) and/or (2) above. If a company changes its market of reference for other reasons, such company may become ineligible for inclusion in the CAC Index at the next annual review, regardless of considerations based on criteria (1) and/or (2) above.

In addition, the shares of the following companies are *excluded* from the CAC Index:

- holding companies of companies admitted to listing on Euronext Paris;
- companies whose shares are allocated to the recovery box or penalty bench;
- shares quoted in currencies other than euro;
- shares not traded continuously;
- warrants, rights and other derivative securities.

The constituents of the CAC Index are not required to fulfil a minimum free float criterion.

## **Index Composition and Reviews**

The general aim of each quarterly and annual composition and review of the CAC Index is to ensure that the selection and weighting of the constituents of the CAC Index continues to reflect the underlying market or market segment it represents.

## **Ranking**

Eligible companies are selected for inclusion in the CAC Index based on a combination of two rankings:

the value of regulated turnover (the value of turnover traded via the Euronext electronic order book as well as the value of turnover from off-exchange transactions within the scope of Euronext's regulatory environment, such as

block trades and the like) observed over a 12-month period; and

· the free float adjusted market capitalization on the Review Cut-Off Date (as defined below).

As only one listing – the most active one – is permitted per company, the listing representing the company's ordinary shares is generally used.

### **Liquidity Screening**

At each annual review, the shares of a company must have a free float adjusted annual trading velocity of at least 20%. In other words, their regulated trading volume should represent at least 20% of the free float adjusted total number of shares issued by the company listed on Euronext Paris, calculated over the course of the full 12-month period relevant for the review. Velocity is calculated on a daily basis by *dividing* the number of shares traded by the number of shares listed. These daily figures are added up to calculate the annual velocity. At quarterly reviews, the minimum free float adjusted velocity is 30%, while for current constituents a minimum of 10% is required.

The free float percentage that is used in the velocity calculation is based on outstanding capital *less* shareholdings exceeding 5% (except where such interests are held by collective investment schemes, mutual funds, pension funds, certain insiders, government entities or the company itself) on the Review Cut-Off Date, rounded up to the nearest 5% multiple. However, the free float percentage used in the velocity calculation shall always be at least 25%.

In order to preserve a tradable constitution of the CAC Index, Euronext performs an extensive liquidity analysis. This analysis mainly consists of the trading volume relative to the available share capital observed over the preceding year as well as the last quarter. In case of a demerger, the velocity prior to such event is assumed to apply for all resulting entities. In case of a merger, Euronext will take into account the velocity of the merging entities prior to such event as well as the velocity of the merged entity in deciding whether the company meets the free float velocity threshold.

### **Quarterly and Annual Review**

The CAC Index is designed to reflect the general trends in the trading of shares listed on Euronext Paris. Changes in the constituents of the CAC Index are made on a quarterly basis and reflect the changes in size and turnover of the companies eligible for inclusion in the CAC Index. Euronext and Conseil Scientifique may exceptionally decide to deviate from the outcome of the rankings if this is in the interest of the users of the CAC Index. Guiding principles for such a decision are tradability of the CAC Index, minimizing index turnover and representativeness.

The cut-off date for each periodic review of the CAC Index is after the market close of the last Friday of August (for each annual review), February, May and November (for each quarterly review) (the “**Review Cut-Off Date**”). The date on which, after the market close, the changes relating to a periodical review are being effectuated in the CAC Index portfolio is after the market close of the third Friday of September (for each annual review), March, June and December (for each quarterly review) (the “**Review Effective Date**”).

At each periodic review, Euronext will propose to the Conseil Scientifique selections and changes to the CAC Index based on a combination of the rankings on free float adjusted market capitalization and turnover. The 35 highest ranking companies are selected for inclusion in the CAC Index. A buffer zone, where current constituents have priority over companies that currently do not form part of the CAC Index, consists of the companies ranked 36<sup>th</sup> through 45<sup>th</sup>.

At each annual review, the number of shares included in the CAC Index will be updated with the number of shares listed on the Review Cut-Off Date, taking into account adjustments due to corporate actions (as described below). All free float factors are updated at the annual review, with the free float rounded up to the next 5% bracket and determined on the basis of the information relevant at the Review Cut-Off Date.

A maximum weighting of 15% is applied to each constituent of the CAC Index at the annual review. The assessment and new capping coefficients are based on the date on which, after the close, the full details are announced regarding the composition of the CAC Index that will come into effect after the Review Effective Date. This includes the numbers of shares, free float factors and capping factors of all companies included in the new CAC Index portfolio (the “**Review Composition Announcement Date**”). Capping factors are not updated at quarterly reviews for companies that continue to be included in the CAC Index.

At each quarterly review, both the number of shares included in the CAC Index and the free float factor will be updated if (i) the free float factor on the Review Cut-Off date deviates by 10% or more from the free float factor currently applied in the CAC Index (2 or more bands) and/or (ii) the number of shares listed on the Review Cut-Off Date deviates by more than 20% from the current number of shares included in the CAC Index. In case of an



update, the new numbers of shares are based on the number of shares listed on the Review Cut-Off Date, taking into account adjustments due to corporate actions (as described below). The new free float factors are determined on the basis of the information relevant at the Review Cut-Off Date.

Euronext may decide not to update the number of shares at a quarterly review for companies after a merger or similar situation. In addition, in the case where the free float adjusted number of shares changes for companies with a capping factor less than 1, Euronext will recalculate the capping factor such that the capped free float adjusted number of shares remains unchanged at the quarterly review.

For companies, if any, to be added to the CAC Index at a quarterly review, the weightings in terms of number of shares in the CAC Index and free float are determined based on the Review Cut-Off Date, while the capping factor is determined based on the Review Composition Announcement Date. The weight of companies that are added is subject to a maximum of 15%.

In the event of a takeover or other exceptional circumstances, Euronext has the right to revise the selection from the time the announcement is published up to the Review Composition Announcement Date.

Euronext will not change the outcome of the review for events that happen after the Review Composition Announcement Date. Corporate actions happening before the Review Effective Date will lead to an update of the new composition that is in line with the treatment described below.

## **Index Calculation**

The CAC Index is calculated on a price return basis. The calculation is based on the current free float adjusted market capitalization (measured based on outstanding capital *less* shareholdings exceeding 5%, except where such interests are held by collective investment schemes, mutual funds, pension funds, certain insiders, government entities or the company itself) *divided by* the divisor. The free float percentages are rounded up to 5% bands. The divisor was determined on the initial capitalization base of the CAC Index and the base level. The divisor is adapted as a result of corporate actions and composition changes. The base currency of the CAC Index is euro (“**Base Currency**”).

Share prices that are quoted in other currencies than the Base Currency will be converted to the Base Currency using the last known exchange rate observed on Reuters. Closing prices will be converted based on the most recent WM/Reuters spot rates, which are published each business day around 17:00 CET.

The CAC Index is calculated according to the below formula:

where:

$t$  is the time of calculation.

$N$  is the number of constituent equities in the CAC Index.

$Q_{i,t}$  is the number of shares of equity  $i$  included in the CAC Index on day  $t$ .

$F_{i,t}$  is the free float factor of equity  $i$ .

$f_{i,t}$  is the capping factor of equity  $i$ .

$C_{i,t}$  is the price of equity  $i$  on day  $t$ .

$X_{i,t}$  is the current exchange rate on day  $t$ .

$d_t$  is the divisor of the CAC Index on day  $t$ .

In the event that part of the constituents of the CAC Index are reserved, suspended from trading or if technical problems prohibit normal trading, values of the CAC Index will continue to be calculated and published. For those constituent stocks that are not available for trading, the last known value will be used when determining values of the CAC Index.

Notwithstanding the previous paragraph, Euronext always retains the right to delay the publication of the opening level of the CAC Index. Furthermore, Euronext always retains the right to suspend the publication of the level of the CAC Index or to mark the level of the CAC Index indicative if it believes that circumstances prevent the proper calculation of the CAC Index. If prices are cancelled, the CAC Index will not be recalculated unless Euronext decides otherwise.

If, after the market opens, the CAC Index remains in pre-opening during the entire trading session, the reference closing level of the CAC Index will be calculated on the basis of the most recent traded prices, or the most recent reference price (possibly adjusted to account for corporate actions, as described below).

### **Corporate Actions**

The CAC Index may be adjusted in order to maintain continuity of the level and composition of the CAC Index. The underlying aim is that the CAC Index continues to reflect as closely as possible the value of the underlying portfolio.

Adjustments take place in reaction to events that occur with constituents in order to mitigate or eliminate the effect of that event on the CAC Index.

### **Removal of Constituents**

A constituent will be removed from the CAC Index if it has appeared that the liquid trading will be significantly affected due to a takeover, merger, bankruptcy or has ceased to be a viable constituent as defined by the rules. The constituent in question will either be removed or will be replaced by the acquiring company. If a company is removed from the CAC Index, the divisor will be adapted to maintain the level of the CAC Index.

In the event of a bid in cash, the target company will be removed from the CAC Index. In the event of a merger, acquisition or similar situation where the bid is made in the form of shares, the target company will be replaced by the company taking over; *provided* that this company complies with the requirements for inclusion in the CAC Index as described above. The removal or replacement will take place after the close of the first (full) business day after the offer is declared unconditional or successful. The replacement of the shares of the relevant constituent of the CAC Index by the shares of the company that continues to be traded will be executed on the basis of the bid ratio.

In case of a mixed bid of cash and shares, Euronext will treat the bid as a share bid if the share part amounts to at least 75% of the offer price, on the day of the publication of the terms of the offer. The replacement of the shares of the relevant constituent of the CAC Index by the shares of the company that continues to be traded will be executed on the basis of the bid ratio. The divisor will be adapted only for the cash part of the offer price.

Euronext reserves the right to apply a specific treatment in non-standard situations including, but not limited to:

· competing bids with differing closing dates or structures; and

· offers made without the intention to gain full control.

A separate announcement detailing the specific treatment will be issued timely to the market.

If a constituent of the CAC Index is suspended, Euronext will consider whether the constituent should be removed or not within five trading days. If it is decided to maintain the constituent, a further reassessment date will be set. Euronext reserves the right to take action before that date if new developments give reason to do so.

In case a constituent of the CAC Index is removed following suspension, it will be removed from the CAC Index as soon as possible and on a day announced by Euronext. The company will be removed from the CAC Index after the close of the markets, assuming a price of zero unless Euronext sets a different price, where possible supported by an objective source.

If it has been announced that a constituent of the CAC Index will be delisted from Euronext, it will be removed from the CAC Index as soon as possible and on a day announced by Euronext. The company will be removed from the CAC Index based on either the last known price established during regular daytime trading or on a price determined by Euronext, whereby the company may also be removed at a price of zero.

Removing assuming a price of zero implies no divisor change because of the removal. If another price is set, the divisor will change based on the removal of the value of that company from the CAC Index portfolio when applying that price.

In the event that the trading in shares is suspended, the last known price established during regular daytime trading will be used.

### **Split Up / Spin-Off**

In the event that a company included in the CAC Index is split up, the companies resulting from the split, including the original company where appropriate, will continue to be included in the CAC Index; *provided* they still qualify as an eligible company in their own right. The CAC Index may then temporarily consist of fewer, or more, than the standard number of



constituents until the next periodical review takes place.

For purposes of the CAC Index, a split up is taken to mean a legal demerger, a spin-off or another situation which Euronext deems to be similar.

In case the shareholder of the company which was originally included in the CAC Index does not automatically receive shares in a company which is created as a result of the split up, this company is considered to be a newly listed company. The removal of any non-qualifying company resulting from a split up will take place after the close of the first day of trading in the shares of that company. If all companies resulting from the split are to be removed, the removal will take place at the close of the last trading day before the split.

## **Dividends**

The CAC Index will be adjusted for dividends that are special. The following criteria will be applied to decide whether a dividend should be considered a special dividend:

the declaration by a company of a dividend additional to those dividends declared as part of the company's normal results and dividend reporting cycle (merely an adjustment to the timing of the declaration of a company's expected dividend would *not* be considered as a special dividend circumstance); or

the identification of an element of a dividend paid in line with a company's normal results and dividend reporting cycle as an element that is unambiguously additional to the company's normal payment.

For the purpose of clarification, no adjustment will be made for the following situations:

- payment of ordinary dividends, irrespective of how they are financed;
- issue of redeemable shares or any other entitlement in lieu of an ordinary dividend; or
- unexpected increase or decrease, resumption or cessation, or change in frequency to an ordinary dividend.

The adjustment of the CAC Index takes place by a reduction of the closing price of the share in question. Subsequently the divisor will be adapted in order to maintain the level of the CAC Index. The adjustments will be based on gross amounts.

### **Rights Issues and Other Rights**

In the event of a rights issue, the new shares will be included in the CAC Index on the ex-date of the rights issue and an adjusted closing price will be applied as calculated by Euronext. The adjustment will be made based on the shares currently in the CAC Index. The divisor will be adapted in such a way that the level of the CAC Index remains the same.

The new shares are only added if (i) less than 0.4 share is issued for every share that is currently held and (ii) the new shares are fungible with the existing line of shares (*e.g.*, no dividend disadvantage). Otherwise the CAC Index is adjusted based on the value of the rights only. The CAC Index will be adjusted only if the rights represent a positive value.

The CAC Index will also be adjusted if a value can be attributed to a subscription right for convertible bonds, bonds with warrants or warrants with preferential rights for shareholders or similar situations. If the value cannot be attributed straightforward, Euronext may also decide to include the detached instrument for one day and adjust the CAC Index at the close based on the closing price for that subscription right on that day.

### **Bonus Issues, Stock Splits and Reverse Stock Splits**

For bonus issues, stock splits and reverse stock splits, the number of shares included in the CAC Index will be adjusted in accordance with the ratio given in the corporate action. The divisor will not be changed because of this. Euronext may regard a bonus issue as the issue of an entitlement in lieu of an ordinary dividend and therefore treat this in accordance with the adjustment of special dividends.

### **Changes in Number of Shares or Free Float**

In between the reviews the number of shares included in the CAC Index and free float factors will remain unchanged.





### **Partial Tender Offers On Own Shares**

For partial tender offers, Euronext will adjust the divisor of the CAC Index if the premium represents more than 5% of the share price of the close on the penultimate day before the ex-date (the day prior to the last day before the ex-day). The premium is calculated as the difference between the offered price and the closing price, *multiplied by* the percentage of the share capital targeted in the offer. If the divisor is adjusted, the number of shares in the CAC Index will be adjusted as well.

### **License Agreement**

Euronext N.V. does not sponsor, endorse or have any other involvement in the issue and offering of the notes. Euronext N.V. disclaims any liability for any inaccuracy in the data on which the CAC Index is based, for any mistakes, errors, or omissions in the calculation and/or dissemination of the CAC Index, or for the manner in which it is applied in connection with the issue and offering thereof. “CAC®” and “CAC 40” are registered trademarks of Euronext N.V. or its subsidiaries.

## The FTSE MIB Index

We have derived all information contained in this pricing supplement regarding the FTSE MIB Index, including, without limitation, information concerning 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 information. Such information reflects the policies of, and is subject to change by, FTSE International Limited (“FTSE”), the sponsor of the FTSE MIB Index. The FTSE MIB Index is calculated, maintained and published by FTSE. FTSE has no obligation to continue to publish, and may discontinue or suspend the publication of, the FTSE MIB Index at any time.

The FTSE MIB Index is calculated in euros and is reported by Bloomberg L.P. under the ticker symbol “FTSEMIB.”

The FTSE MIB Index is the primary benchmark index for the Italian equity markets and represents the large cap components of the FTSE Italia All-Share Index. Capturing approximately 80% of the domestic market capitalization, the FTSE MIB Index measures the performance of 40 most liquid and capitalized stocks selected by the FTSE Italia Index Policy Committee that are listed on *Borsa Italiana*'s (BIt) MTA and MIV markets and seeks to replicate the broad sector weights of the Italian stock market.

The FTSE MIB Index is market capitalization-weighted after adjusting constituents for float. Individual constituent weights are capped at 15%. Index constituents are categorized in accordance with the Industry Classification Benchmark (ICB), the global standard for industry sector analysis.

The base value of the FTSE MIB Index was set at the level of the MIB 30 Index at the close of trading on October 31, 2003 (10,644). Historical values for the FTSE MIB Index have been back calculated to December 31, 1997 (24,402). The FTSE MIB Index is calculated on a real-time basis in EUR.

## Index Eligibility

The FTSE MIB Index constituent shares are selected after analysis of the Italian equity universe. All stocks traded on the BIt MTA and MIV markets, except for savings shares (*azioni di risparmio*) and preferred shares, are eligible for inclusion in the FTSE MIB Index. Savings or preferred shares, however, may be eligible if the ordinary shares of a company are not listed or have consistently less liquidity than the savings or preferred shares. Foreign listed companies can be included **only if** they have complied with BIt requirements in terms of dissemination of information. Companies whose business is that of holding equity and other investments (*e.g.*, investment trusts) which

are classified as belonging to the Equity Investment Instruments Subsector within the ICB, and non-equity investment vehicles which are classified as belonging to the Non-Equity Investment Instruments Subsector within the ICB are not eligible for inclusion.

Companies assigned a developed market nationality are required to have greater than 5% of the company's voting rights in the hands of unrestricted shareholders or they will be deemed ineligible for index inclusion. Existing constituents with a developed market nationality who do not currently meet the above requirement have a 5 year grandfathering period to comply. If subsequently they continue to fail the minimum voting rights requirement they will be removed from the FTSE MIB Index at the September 2022 review.

### **Index Qualification Criteria**

In order to identify a candidate pool for Index constituent selection, stocks are examined using the following general criteria:

#### **Market Capitalization**

The float-adjusted market capitalization is determined through an Investable Weight Factor (IWF):

$IWF = 100\% - \text{Sum of the \% of shareholdings held by restricted shareholders}$

#### **Investability Weighting**

The Investable Weight Factor is calculated removing the stakes belonging to the following categories of shareholdings, based on the nature of the ultimate shareholder:

Shares directly owned by state, regional, municipal and local governments (excluding shares held by independently managed pension schemes for governments).

Shares held by directors, senior executives and managers of the company, and by their family and direct relations, and by companies with which they are affiliated.

Shares held within employee share plans.

Shares held by public companies or by non-listed subsidiaries of public companies.

All shares where the holder is subject to a lock-in clause (for the duration of that clause).

Shares held by an investor, investment company or an investment fund that is actively participating in the management of a company or is holding shares in a company for strategic reasons as evidenced by specific statements to that effect in publicly available announcements, or has successfully placed a current member to the board of directors of a company.

Shares that are subject to on-going contractual agreements (such as swaps) where they would ordinarily be treated as restricted.

Shares held by sovereign wealth funds where the holding is 10% or greater. The shares will remain restricted until the holding falls below 10%.

Shares held by founders, promoters, former directors, founding venture capital and private equity firms, private companies and individuals (including employees) where the holding is 10% or greater. The shares will remain restricted until the holding falls below 10%.

Portfolio holdings (such as pension fund, insurance fund or investment companies) are generally not considered as restricted. However where a single portfolio holding is 30% or greater it will be regarded as strategic and therefore restricted. The shares will remain restricted until the holding falls below 30%.

Treasury shares are always excluded from the shares in issue, regardless of their size.

The analysis is based on the total stake held by the ultimate shareholder. In the case of stock lending contracts or nominee holdings, the analysis is based on the owner of shares and not on the person/entity having the voting rights. In the case of shares lent to banks, the analysis is based on the owner of the shares and not on the bank, and is independent of the allocation of voting rights.

Shares with a free float of 5% or below are not eligible for inclusion in the index.

### **Liquidity**

Liquidity is measured by the stock's 6-month value traded in euro, on BIt order book markets and number of days traded.

### **New Listings**

Newly-listed shares are eligible for inclusion in the selection procedure provided that they have traded for a minimum of 20 days. Newly-listed shares whose capitalization is greater than or equal to 3% of the current market capitalization of the FTSE Italia All-Share Index will enter the FTSE MIB Index from the start of trading.

### **Shares Outstanding**

The primary source of information for Italian shares is the BIt Official List.

### **Periodic Review of Constituents**

The quarterly review of constituents takes place in March, June, September and December of each year and changes will be applied after close of business on the third Friday in March, June, September and December. The underlying universe for the FTSE MIB Index is all stocks trading on the BIt MTA and MIV markets (except for preferred and saving shares). The FTSE MIB Index will consist of the 40 most liquid and capitalized stocks listed on the BIt MTA and MIV markets. Foreign listed companies are eligible for inclusion in the FTSE MIB Index only if they have complied with BIt requirements in terms of dissemination of information. The selection procedure is based on size (free float adjusted market capitalization) and liquidity (six months turnover). FTSE is responsible for the implementation of the algorithm and will decide whether special circumstances would warrant making an exceptional change to the index constituents.

The constituents of the FTSE MIB Index are capped at 15% at the time of the quarterly reviews. Capping procedures are run on the Monday following the second Friday of March, June, September and December, they are based on Friday closing prices and they are implemented after the closing of trading of the third Friday of March, June, September and December. Any constituents whose weights are greater than 15% are capped at 15%. The weights of all lower ranking constituents are increased correspondingly. The weights of lower ranking constituents are then checked and if they exceed 15%, they are capped at 15%. This process is repeated until no constituent weight exceeds 15%. The weight of each stock in the FTSE MIB Index is evaluated in terms of its adjusted market capitalization versus the FTSE MIB Index, and will be re-evaluated at each quarterly review.

### **Changes to Constituent Shares**

#### **New Issues**

An Index addition outside quarterly reviews generally is made **only if** a vacancy is created by an Index deletion. Index additions are made according to size and liquidity. A newly-listed company is added to the FTSE MIB Index only when an appropriate vacancy occurs and is subject to proven liquidity for at least three months. An exception may be made for extraordinary large global offerings where expected trading volume justifies inclusion.

#### **New listing**

Newly-listed shares whose capitalization is greater than or equal to 3% of the current market capitalization of the FTSE Italia All-Share Index are added to the FTSE MIB Index with an extraordinary revision, to be applied on the first day of listing. FTSE will announce the possible revision and will confirm that all the needed information (start of trading date, shares in issues, free float, IPO price) is available.

#### **Deletions**

Deletions outside quarterly reviews can occur due to acquisitions, mergers and spin-offs, or bankruptcies and suspensions, if the relevant Index constituent no longer meets the criteria for inclusion or is no longer representative of its industry group, in the following situations:

*Positive outcome of a tender offer*

For each tender offer, the FTSE Italia Index Series Technical Committee will agree internally beforehand what the level of acceptance should be to determine whether a tender offer is successful or partially successful, with consideration of the expected liquidity post-event. If the offer is partially successful and there is a change in the IWF, a notice period of two trading days will be provided. If acceptances exceed the threshold identified by the FTSE Italia Index Series Technical Committee, the constituent will be removed from the index with two trading days notice. A replacement constituent will be added from the reserve list, also with two trading days notice.

*Significant and ascertained or presumed reduction in liquidity or capitalization*

The constituent will be removed and replaced in a full rebalancing that uses closing prices of all constituents.

*Whenever the BIt, in accordance with BIt Rules, delists a constituent company (e.g., in cases of the involvement of the issuer in insolvency procedures or in cases of the liquidation of the issuer)*

The constituent is removed and replaced in a full rebalance that uses the closing prices of all constituents.

*Suspension of Dealing*

If a stock is suspended from trading, FTSE will determine whether it should remain in the FTSE MIB Index.

*Mergers / Takeovers between Constituents*

If the two merging companies, both the acquiring and the acquired, are Index constituents, the newly merged entity will be included in the FTSE MIB Index and a new constituent will be added to fill the gap created by the merger.

### *Mergers / Takeovers between a Constituent and a Non-Constituent*

If a non-constituent acquires a current constituent of the FTSE MIB Index, the latter will be removed from the FTSE MIB Index and be replaced with a new constituent. The non-constituent acquiring company would be eligible for consideration if it qualifies in all other respects.

Weights of the constituents are based on the closing price and the number of shares subsequent to the merger. When there is a merger, there will be a full rebalancing of the FTSE MIB Index.

### **Index Maintenance**

The maintenance of the FTSE MIB Index consists of corporate actions, periodic revisions to the FTSE MIB Index and changes due to a vacancy created by the deletion of a constituent of the FTSE MIB Index. The maintenance activity is carried out by FTSE with the objective of minimizing the turnover among Index constituents.

In the event of an Index change or corporate action resulting in a change to shares in issue or free float for Index constituents that affects the market capitalization of the FTSE MIB Index, the divisor is adjusted to ensure continuity of the FTSE MIB Index. The number of constituents in the FTSE MIB Index is analyzed at each quarterly review (March, September, June and December) to assess whether the FTSE MIB Index adequately represents the market.

All share and IWF changes are updated on a quarterly basis using the closing prices on the evening of the third Friday of March, June, September and December, to coincide with the expiry of derivatives of IDEM contracts. The FTSE MIB Index will be disseminated from the beginning of the next continuous trading session. The 15% capping adjustment factors are adjusted at each quarterly rebalancing.

Adjustments will also be made in the event of certain corporate actions such as rights offerings, special dividends, splits, reverse splits and spin-offs.

### **Changes to the Classification of Constituent Shares**



The FTSE MIB Index constituents are classified into Industries, Supersectors, Sectors and Subsectors, as defined by the ICB.

Changes to the classification of a company within the FTSE MIB Index are determined in accordance with the ICB rules. Where a significant change takes place in a company's structure as a result of a corporate event (such as a merger or demerger), its ICB classification may be reassessed. Any adjustment resulting from a change in a company's classification will be implemented at the same time that any relevant constituent changes are implemented in the FTSE MIB Index. Periodic changes to the industry classification will be effective on the Monday after the third Friday of March, June, September and December.

### Index Calculation

The FTSE MIB Index uses prices from actual trades on the MTA and MIV electronic share trading platform of the Bit during official market hours. The last Index value is calculated using closing auction prices or, if there is no closing auction price for a particular constituent, the last price traded as at the end of the continuous trading phase. Bit's closing price is used by Bit's Market Supervision division in the calculation of K factors to be applied to the FTSE MIB Index for corporate actions. Bit's reference price plays no part in the FTSE MIB Index calculation.

The FTSE MIB Index is calculated using a base-weighted aggregate methodology. This means the level of an index reflects the total float-adjusted market value of all of the constituent stocks relative to a particular base period. The total market value of a company is determined by *multiplying* the price of its stock by the number of shares in issue (net of treasury shares) after adjusting for float. An indexed number is used to represent the result of this calculation in order to make the value easier to work with and track over time.

The FTSE MIB Index value  $I^t$ , at time  $t$ , is calculated using the following formula:

$$I^t = M^t / D^t$$

Where

$M^t$  is the total free float adjusted market capitalization at time  $t$ , equal to:

$$M^t = \sum_i p^{it} \times q^{it} \times IWF^{it}$$



$p^{it}$  is the last traded price, at time  $t$ , of the  $i^{\text{th}}$ -share. Where the shares of one of the constituents are suspended, the FTSE MIB Index is calculated using the price of the latest trade concluded before the suspension.

$q^{it}$  is the number of shares in the FTSE MIB Index. The number of shares in issue for the security  $i^{\text{th}}$ , net of treasury shares.

$IWF^{it}$  is the Investable Weighting Factor (adjusted for capping) for the  $i^{\text{th}}$  share.

$D^t$  is the value of the FTSE MIB Index divisor at time  $t$ .

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## The IBEX 35<sup>®</sup> Index

We have derived all information contained in this pricing supplement regarding the IBEX 35<sup>®</sup> Index (the “**IBEX Index**”), including, without limitation, information concerning 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 information. Such information reflects the policies of, and is subject to change by, Sociedad de Bolsas, S.A. (“**Sociedad de Bolsas**”), the sponsor of the IBEX Index. The IBEX Index is calculated, maintained and published by Sociedad de Bolsas. Sociedad de Bolsas has no obligation to continue to publish, and may discontinue or suspend the publication of, the IBEX Index at any time.

The IBEX Index is calculated in euros and is reported by Bloomberg L.P. under the ticker symbol “IBEX.”

The IBEX 35<sup>®</sup> Index (the “**IBEX Index**”) is composed of the 35 most liquid securities listed on the Spanish Stock Market Interconnection System (the “**SIBE**”) of the four Spanish stock exchanges: the Barcelona Stock Exchange; the Bilbao Stock Exchange; the Madrid Stock Exchange; and the Valencia Stock Exchange. The IBEX Index had a base value of 3,000 at the close of trading on December 29, 1989.

## Index Composition

The IBEX Index is composed of the 35 securities listed on the SIBE that were most liquid during the applicable control period. The control period for the securities included in the IBEX Index is, for ordinary and follow-up reviews, the six-month interval prior to the date of such review. With respect to extraordinary reviews, the control period is that decided by the IBEX Committee (as described below) at that time.

The IBEX Committee will take into account the following liquidity factors:

the trading volume in European Union euros in the order-driven market (the SIBE market segment of the Joint Stock Exchange System known as the Main Trading Market);

the quality of that trading volume, considering:

a)

trading volume during the control period that is the result of transactions involving a change in the stable shareholding structure of the company, was traded by the same market member in a small number of transactions, or traded during a time period regarded by the Indexes Management Secretariat within the Sociedad de Bolsas (the “**Manager**”) as not representative or suffers such a decline as to cause the Manager to consider that the stock’s liquidity has been seriously affected;

- b) the characteristics and amount of the transactions made in the market;
  - c) the statistics for the trading volume and characteristics of the trading; and
  - d) the quality of bid-ask spreads, turnover and other liquidity measures applied at the discretion of the IBEX Committee; and
- suspension of quotation or trading during a time period considered significant by the IBEX Committee.

The IBEX Committee will also take into account whether the security is sufficiently stable, bearing in mind the use of the IBEX Index as the underlying index for derivatives trading, as well as an efficient replication of the same.

In addition, for a stock to be included in the IBEX Index, its average capitalization in the IBEX Index must be greater than 0.30% of the average index capitalization during the control period. For this reason, the average capitalization of the stock computable in the IBEX Index will be understood to be the arithmetic mean, adjusted by the corresponding free float factor according to the free float band, resulting from *multiplying* the number of shares of the securities admitted for listing in each one of the trading sessions of the control period by the closing price of the security in each one of these sessions.

At ordinary reviews, the IBEX Committee may decide to remove a constituent stock from the IBEX Index when its average capitalization computable in the IBEX Index is lower than 0.30% of the average index capitalization during the control period.

When a security is first listed on the SIBE and the IBEX Committee determines that it should be included in the IBEX Index, it may decide to include that security in the IBEX Index without having to wait for the necessary requirements to be met during the control period, with the attendant exclusion of another security for reasons of liquidity. Under these circumstances, a minimum requirement of a certain number of completed trading days will be established, which will be at least one-third of those included in the control period, except if the stock has an index computable capitalization among the top twenty in the IBEX Index.

The IBEX Committee will in all instances make the IBEX Index inclusion or exclusion decisions it deems appropriate with respect to any security, with consideration for special circumstances not described above.

### Index Calculation

The level of the IBEX Index is calculated in accordance with the following formula:

where:

$t$  is the time when the IBEX Index is calculated.

$i$  is the company included in the IBEX Index.

$S_i$  is the number of computable shares of company  $i$  for calculating the level of the IBEX Index.

$P_i$  is the price of the shares of company  $i$  included in the IBEX Index at time ( $t$ );

$Cap_i$  is the capitalization of company  $i$  included in the IBEX Index, which is calculated as  $S_i$  times  $P_i$ ;

is the aggregate capitalization of all companies included in the IBEX Index; and

$J$  is the amount used to adjust the value of the IBEX Index due to capital increases, etc. (the “**(J) adjustment**”).

The (J) adjustment represents the capitalization adjustment required to assure continuity of the IBEX Index and is introduced in connection with certain corporate events (defined under “— Adjustments for Transactions Affecting Constituents of the IBEX Index” below), as well as in ordinary, follow up and extraordinary rebalancings of the IBEX Index. The function of the (J) adjustment is to assure that the IBEX Index value is not altered by such corporate events. The value of the (J) adjustment reflects the capitalization difference of the IBEX Index before and after the adjustment.

## Price

As a general reference, the price is that at which the last transaction was completed on the SIBE. Nonetheless:

- the closing price of the securities will be the price established in the regulations for trading on the SIBE; and

where a security is suspended from trading for whatever reason (*e.g.*, a takeover bid), the valid price to be used for the calculation of the IBEX Index will be the price at which the last transaction was made prior to the suspension of the security in question. Following the close of the market, the closing price will be calculated in accordance with the preceding bullet.

In addition, the Manager may, in exceptional circumstances, propose to the IBEX Committee a solution different from those indicated above, bearing in mind the relevant circumstances of each case.

## Number of Shares

In general, the number of each company's shares used for calculation of the IBEX Index value will depend on its free float. This number will vary whenever corporate events take place involving constituents in the IBEX Index, assuming compliance with “— Adjustments for Transactions Affecting Constituents of the IBEX Index” below. These adjustments to the IBEX Index will be made on the basis of the number of shares the Manager objectively deems appropriate at the time. This number will be made public and included in the IBEX Index announcements.

The free float will be deemed complementary to block ownership capital. For purposes of calculating block ownership capital, and pursuant to the data which appear in the *Registry of the Comisión Nacional del Mercado de Valores* (the “CNMV”), the following will be taken into account:

- direct shareholdings *greater than or equal to 3%* of the share capital; and
- direct shareholdings held by members of the board of directors, regardless of the size of the shareholding.

The IBEX Committee will take these data into account even when the owner appearing in the Registry is a nominee, unless the latter informs the CNMV in the appropriate manner that these shareholdings, taken individually, amount to less than 3% of capital.

The IBEX Committee will also take into account:

the relevant facts that have been officially notified to the CNMV before the end of the control period of every ordinary review, follow-up review or extraordinary review, as the case may be, and that affect the calculation of the free float on dates close to the application of the decisions of the IBEX Committee; and

any other circumstance in the composition of the shareholding registered at the CNMV that has any influence over the efficient replication of the IBEX Index, taking into account, as the case might be, the indirect shareholdings declared.

The number of each company’s shares used for calculation of the IBEX Index will be adjusted by a free float factor as shown in the following table:

**Free Float Factor to be applied (according to the Free Float Band)**

<b>Free Float Band</b>	<b>Free Float Factor</b>
<i>Less than or equal to 10%</i>	10%
<i>Greater than 10% but less than or equal to 20%</i>	20%
<i>Greater than 20% but less than or equal to 30%</i>	40%
<i>Greater than 30% but less than or equal to 40%</i>	60%
<i>Greater than 40% but less than or equal to 50%</i>	80%
<i>Greater than 50%</i>	100%



Changes to each company's free float will be updated as follows:

at the ordinary reviews of the IBEX Committee; and

at the follow-up meetings, **only if** the new free float corresponding to the stock has changed in at least two tranches above or below the current factor at the time of the review, according to the table above.

As a result of exceptional circumstances, in order to achieve an efficient replication of the IBEX Index, the IBEX Committee may, at any time, change the free float factor of a stock, with prior notification.

Additionally, in order to achieve an efficient replication of the IBEX Index, the IBEX Committee may use a number less than the number of the issued shares to calculate the value of the IBEX Index, bearing in mind criteria such as a significant dispersion of trading on more than one market, liquidity or any other criterion it deems appropriate, which will be published sufficiently in advance. The IBEX Committee will also take into account the disclosure of a company's dividend policy to the shareholders, including relevant dates for the determination of the ex-dividend date, as well as whether a company provides timely and accurate information about any modification to that policy.

There is a maximum weighting of 20% allowed for each component at each IBEX Index reviews. In the case that any constituent's weight rises significantly between reviews and exceeds the 20% limit, the Manager may propose that the IBEX Committee perform an adjustment to the IBEX Index to reestablish a maximum weight of 20%. These adjustments to the individual weights shall be effective the same day on which the ordinary reviews are effective.

#### **Adjustments for Transactions Effecting Constituents of the IBEX Index**

The aim of the adjustments to the IBEX Index is to ensure, to the extent possible, that the IBEX Index reflects the performance of a portfolio composed of the shares that make up the IBEX Index.

The adjustments to the IBEX Index, carried out by the Manager, are:

- calculated on their corresponding date depending on their nature,
- introduced once the market is closed and at the closing price of each security,
- effective as of the start of trading the next trading day,

so as to ensure that the value of the IBEX Index is not altered in any way.

Should a transaction take place with one or more constituents of the IBEX Index that requires an adjustment not contemplated within the technical regulations for the composition and calculation of the IBEX Index, or should the adjustment described below not be consistent with the purpose of the IBEX Index, the Manager may propose to the IBEX Committee that a new adjustment be made or any other action that is consistent with the purpose of the IBEX Index.

### **Ordinary Dividends and Similar Shareholder Remunerations**

Ordinary dividends and other types of shareholder remuneration similar to ordinary dividend payments will not be adjusted in the IBEX Index. These are deemed to be: (a) the beginning of a periodic and recurring payment; (b) the change of a periodic and recurring dividend payment for another item of the same nature; and (c) the periodic and recurring charging of shareholder remuneration against equity accounts.

### **Capital Increases**

The IBEX Index will be adjusted whenever one of the companies included in the IBEX Index carries out a capital increase with preferential subscription rights. These adjustments will be effective from the day on which the shares begin to trade ex-subscription right on the SIBE. On that date, and for purposes of the IBEX Index calculation, the number of shares in that company will be increased on the assumption that the increase is going to be totally subscribed and, simultaneously, the (J) adjustment (described in “— Index Calculation” above) will be introduced.

Increases in company capital where, as a result of the kind of transaction involved, the general shareholders' meeting decides to eliminate preferential subscription rights will be included in the IBEX Index at the time they are admitted to the SIBE, and the (J) adjustment will be made for the amount of the capital increase.

If, as a result of capital increases made without preferential subscription rights, the new shares admitted account for less than 1% of the total number of company shares used to calculate the value of the IBEX Index, the adjustment will be made every six months at the same time as the ordinary review of the IBEX Index composition.

Additionally, every six months, and at the same time as the ordinary review of the IBEX Index composition, an adjustment will be made for the differences between the number of shares included in the IBEX Index of companies which carried out capital increases during the control period and the number of shares actually subscribed in those capital increases.

### **Reductions of Capital and Other Equity Accounts**

The IBEX Index will be adjusted whenever any company included in the IBEX Index reduces its capital by cancelling shares. These adjustments will be effective on the day the shares are excluded from the SIBE. On that date, for purposes of the calculation of the IBEX Index, the number of shares of the company will be reduced and, simultaneously, the (J) adjustment will be introduced for the amount of the reduction.

The IBEX Index will be adjusted whenever any company included in the IBEX Index reduces its share premium reserve or other equivalent equity accounts, with a distribution of the amount of the reduction to the shareholders, and that transaction is not equivalent to the payment of an ordinary dividend. These adjustments will be effective on the day the amount distributed to the shareholders is reflected in the SIBE. On that date, for purposes of the calculation of the IBEX Index, the amount will be discounted and, simultaneously, the (J) adjustment will be introduced for the amount of the reduction.

### **Issue of Convertible or Exchangeable Financial Instruments**

The IBEX Index is not adjusted as a consequence of the issue of financial instruments that are convertible or exchangeable on the issue date. Nonetheless, every six months, coinciding with the ordinary review of the IBEX Index, those shares converted or exchanged by the holders of those instruments during the previous six months will be included.

If, as a result of an issue of convertible or exchangeable instruments or of a conversion into shares of an issue of convertible or exchangeable instruments, a substantial alteration in the listed price or number of issued shares should occur, the Manager may propose the corresponding adjustment in the price or number of shares to the IBEX Committee before the following ordinary review of the IBEX Index takes place.

### **Variation in the Par Value**

The IBEX Index will be adjusted whenever a company included in the IBEX Index reduces the par value of its shares and distributes the resulting amount to the shareholders, and that transaction is not equivalent to the payment of an ordinary dividend. These adjustments will be effective on the day the amount distributed to the shareholders is reflected in the SIBE. On that date, for purposes of the calculation of the IBEX Index, the amount of the reduction will be discounted and, simultaneously, the (J) adjustment will be introduced for the amount of the reduction.

The IBEX Index will be adjusted whenever a company included in the IBEX Index carries out a share split or a regrouping of shares by altering the par value of its shares. These adjustments will be effective on the day the transaction is reflected in the SIBE, applying, where appropriate, the relevant (J) adjustment.

### **Mergers and Acquisitions**

In the event of mergers and acquisitions in which the acquiring company is included in the IBEX Index and the acquired company is not, the IBEX Index will be adjusted considering the transaction, where applicable, as a capital increase (according to “— Capital increases” above).

Where the acquiring company is not included in the IBEX Index and the acquired company is, unless otherwise decided by the IBEX Committee, the IBEX Index will be adjusted on the date of the acquisition by modifying the aggregate capitalization of all companies included in the IBEX Index (described under “— Index Composition” above) to *exclude* the capitalization of the acquired company and *include* the capitalization of the next most liquid security in the opinion of the IBEX Committee. Where both companies (the acquiring and the acquired) are included in the IBEX Index, the IBEX Index will be adjusted on the date of the acquisition (as described under “— Index Composition” above) to *exclude* the capitalization of the acquired company and *include* the next most liquid security in the opinion of the IBEX Committee.

In those cases where the acquiring company trades significantly on more than one market, including the SIBE, the capitalization of the merged company for purposes of its weighting in the IBEX Index will be calculated initially by the relative value of the public offer over the total capitalization of the resulting company and, after a period of

control, the IBEX Committee may establish another criterion that guarantees sufficient efficiency in the replication of the IBEX Index.

Without prejudice to the foregoing, if as a result of a merger or acquisition involving companies of which one is part of the IBEX Index, the resulting company is quoted on the SIBE and meets all requirements necessary for inclusion in the IBEX Index, the Manager may propose the company's inclusion in the IBEX Index to the IBEX Committee.

### **Segregation of Equity or Spin-Off of Companies with Shareholder Remuneration**

The IBEX Index will be adjusted whenever a company included in the IBEX Index carries out a segregation of equity or spins off a company with shareholder remuneration. These adjustments will be effective from the day on which the operation is reflected in the SIBE. On that date, for purposes of calculating the IBEX Index, the amount of this operation will be discounted and, simultaneously, the (J) adjustment will be introduced for the amount of the reduction.

If, as a result of a segregation of equity or company spin-off, it is not possible to establish the impact on the share price in order to make the corresponding (J) adjustment, the IBEX Index will be adjusted on the date of the operation. This adjustment will consist of the temporary exclusion of that company from the IBEX Index. Once the first day of trading after a segregation of equity or company spin-off has concluded, the IBEX Committee may, as appropriate, once again include the company at its closing price.

Without prejudice to the foregoing, if as a result of an equity segregation or company spin-off, the company no longer meets the necessary requirements for inclusion in the IBEX Index, the Manager may propose the company's exclusion to the IBEX Committee.

### **Extraordinary Dividends and Other Shareholder Remunerations Not Equivalent to Ordinary Dividends**

Extraordinary dividends and other types of shareholder remuneration not equivalent to ordinary dividend payments will be adjusted by the amount of the dividend or remuneration considered exceptional and non-periodic. These adjustments will be effective from the day on which the transaction is reflected in the SIBE. On that date, for purposes of calculating the IBEX

Index, the amount of this transaction will be discounted and, simultaneously, the (J) adjustment will be entered for the amount of the reduction.

### **The IBEX Committee**

Sociedad de Bolsas has appointed the members of the Technical Advisory Committee (the “**IBEX Committee**”), which is in charge of the IBEX Index. The functions of the IBEX Committee are:

- to supervise the calculation of the IBEX Index and help ensure that it is carried out by the Manager (as defined below) in accordance with the technical regulations for the composition and calculation of the IBEX Index;
- to ensure the proper operation of the IBEX Index for use as an underlying index for trading in financial derivatives;
- to study and approve the rebalancing of the IBEX Index when it deems appropriate and at least every three months; and
- to report any modification of the technical regulations for the composition and calculation of the IBEX Index.

The IBEX Committee holds ordinary meetings twice a year, in the first and second calendar half-year periods, in order to rebalance the IBEX Index for the following period. Follow-up meetings are also held twice a year, in the quarterly periods not coinciding with the calendar half-year periods. At follow-up meetings, the components of the IBEX Index will be modified only if any of the stocks showed a significant change in its liquidity such that rebalancing the IBEX Index for the following period is advisable. All other meetings will be held on an extraordinary basis.

IBEX Committee decisions made at ordinary and follow-up meetings are published no later than 48 hours after the meeting and come into effect the following trade day after the third Friday of the month. Decisions taken at an extraordinary meeting are published and come into effect in accordance with the specific decisions taken at the meeting.

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