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Version 2

Index Guide
as to
12X Short Index linked to Nikkei 225 Index V4
(ISIN CH0353661108)

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This Index Guide describes the composition and calculation of the *Factor Index* specified below. The *Index Calculation Agent* makes the Index Guide available on the *Information Page*. The Index Guide constitutes the basis for calculating and publishing the *Factor Index*.

Index Name:	12X Short Index linked to Nikkei 225 Index V4 (the " Factor Index ")
Reference Instrument:	Nikkei 225 Index
Index Calculation Agent:	Bank Vontobel AG, Gotthardstrasse 43, 8002 Zurich, Switzerland
Information Page:	https://indices.vontobel.com
ISIN:	CH0353661108
Valor:	35366110
WKN:	A2BNRV

This Index is part of the family of Vontobel Leveraged Long and Short indices ("**Factor Indices**").

The Factor Indices are not recognized financial indices but are customized indices conceived by Bank Vontobel AG in its capacity as Index Calculation Agent, their sole function being to act as underlying for a certain type of security (so-called Factor Certificates).

The Index Calculation Agent will perform the calculation and composition of the Factor Index with the utmost care. However, the Index Calculation Agent does not guarantee that the calculation of the indices or of any other parameters required for the composition and calculation, as in accordance with this Index Guide, will be free from error.

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A) Index description

The *Factor Index* reflects price movements in the *Reference Instrument* with a leverage factor of 12. A decrease in the price of the *Reference Instrument* since the most recent calculation of an *Index Closing Value* results in a positive change in the *Factor Index* as compared to the previous price of the *Factor Index* and vice versa. The *Factor Index* therefore replicates a "short" strategy.

The *Factor Index* consists of a leverage component and a financing component.

Leverage component

The leverage component inversely tracks an investment in the *Reference Instrument* (or its constituents and in accordance with its rules and regulations), whereby movements in the price of the *Reference Instrument* are multiplied by the *Leverage* (Factor). This leverage effect occurs with either positive or negative movements in the price of the *Reference Instrument*, having a disproportionate effect on the value of the *Factor Index*.

For example (leaving aside the financing component):

- An increase in the price of the *Reference Instrument* (as compared to the most recent *Valuation Price of the Reference Instrument*) by 2% results in an decrease in the *Factor Index* by $12 \times 2\%$;
- A decrease in the price of the *Reference Instrument* (as compared to the most recent *Valuation Price of the Reference Instrument*) by 2% results in an increase in the *Factor Index* by $12 \times 2\%$.

Financing component

The financing component reflects the expenses and earnings that would arise from acquiring the *Reference Instrument* (or its constituents), selling it and investing the proceeds at the risk-free rate. Additionally, a fee charged by the *Index Calculation Agent* for the calculation and administration of the *Factor Index* is added (*Index Fee* which reduces the value of the index).

If the acquisition costs and the *Index Fee* exceed the interest income based on the relevant *Interest Rate* on a particular day, the value of the *Factor Index* is reduced on such day.

B) Index definitions

The definitions below shall apply for the purposes of this index description.

"Adjustment Date" means the first *Index Calculation Day* of each calendar month.

"Extraordinary Adjustment Event" means any of the following events as they relate to the *Reference Instrument*:

- (a) Change, adjustment or other measure affecting the relevant concept and the calculation of the *Reference Instrument*, resulting, in the opinion of the *Index Calculation Agent*, in the relevant concept or the relevant calculation of the *Reference Instrument* no longer being comparable to those applicable on the *Index Start Date*. These factors are no longer comparable if, in particular, a change, adjustment or other measure results in a material change in the *Reference Instrument* despite the fact that the prices of the individual securities included in the *Reference Instrument* and their weightings remain the same.
- (b) Cancellation of the *Reference Instrument* and/or replacement by a different index concept; or

- (c) any other event which in the reasonable discretion of the *Index Calculation Agent* would have a comparable or similar impact on the calculation of the *Factor Index* in the event that no adjustment were to be made.

"Valuation Price" of the *Reference Instrument* for an *Index Calculation Day* means – subject to an *Extraordinary Adjustment* of the index calculation pursuant to section D) – the closing price of the *Reference Instrument*, as determined and published for that day by the *Reference Exchange*. If an *Index Calculation Day* falls on a day which is not a *Trading Day*, the *Valuation Price* of the immediately preceding *Index Calculation Day* shall continue to apply. If no *Valuation Price* for the *Reference Instrument* is determined or published on a *Trading Day*, the *Index Calculation Agent* shall determine the *Valuation Price* of the *Reference Instrument* for that day on the basis of the most recent prices set for the *Reference Instrument* in its due discretion.

"Dividend Method" is either *individual* or *smoothed* (as described below).

In case of the **"individual"** *Dividend Method* the distributions of the constituents of the *Reference Instrument* are included in the index calculation individually. The relevant **"Dividend"** for the index calculation pursuant to section C) corresponds to the dividend of the company, exclusive of which a constituent of the *Reference Instrument* is traded on the *Ex-Dividend Date* on the *Trading Facility* which is – according to the *Reference Exchange's* concept – relevant for the calculation of the *Reference Instrument* (**"Trading Facility"**). For this purpose, the *Index Calculation Agent* takes into account the weighting of the respective constituent in the *Reference Instrument*. **"Ex-Dividend Date"** means the *Index Calculation Day* on which the respective constituent of the *Reference Instrument* trades "ex-dividend" on the *Trading Facility* for the first time.

In case of a **"flattened"** *Dividend Method* the distributions of the constituents of the *Reference Instrument* are not included in the index calculation individually. Instead, they are considered by means of a flattened amount which is taken into account for the index calculation on a continuous basis. Accordingly, the relevant **"Dividend"** for the index calculation pursuant to section C) in the case of this *Dividend Method* corresponds to an amount which is determined by the *Index Calculation Agent* in its reasonable discretion in order to reflect the expected distributions of the constituents of the *Reference Instrument* in the calculation of the index on each *Index Calculation Day* on a pro rata basis. For this purpose, the *Index Calculation Agent* particularly considers its dividend expectations (in relation to the constituents of the *Reference Instrument*) for up to the next three months following the respective *Index Calculation Day*. The *Index Calculation Agent* may adjust such *Dividend* in its reasonable discretion on any *Index Calculation Day*, particularly in the event of alternating dividend expectations.

On the *Index Start Date* the *individual Dividend Method* is applicable. The *Index Calculation Agent* is entitled to change the *Dividend Method* on each *Adjustment Date*. The revised *Dividend Method* shall take effect immediately as from the relevant *Adjustment Date*. A change in the *Dividend Method* shall be published by the *Index Calculation Agent* in accordance with section E).

"Dividend Tax Factor" is 1.0 on the *Index Start Date*. The *Index Calculation Agent* may change the *Dividend Tax Factor* in its reasonable discretion on any *Index Calculation Day* with prospective effect, if the tax laws applicable to the *Index Calculation Agent* change, resulting in a change in the amount of the – after tax – *Dividend* virtually accruing to it.

"Financing Spread" reflects the current annual cost on an *Index Calculation Day* of acquiring the *Reference Instrument* (or its constituents) via a securities lending and repurchase ("repo") transaction.

The *Financing Spread* on the *Index Start Date* corresponds to the *Initial Financing Spread*. The *Index Calculation Agent* then adjusts the **"Current Financing Spread"** in its due discretion on each *Adjustment Date* to reflect current market conditions and publishes it in accordance with section E) of this index description. The adjusted *Financing Spread* shall apply immediately as from the relevant *Adjustment Date*.

"**Initial Financing Spread**" is 0.4% per annum.

"**Trading Day**" means every day on which the *Reference Instrument* is calculated by the *Reference Exchange*.

"**Leverage**" is -12. It describes the impact that a change in the price of the *Reference Instrument* has on the relevant *Factor Index*. The negative sign for the *Leverage* indicates that the *Short Factor Index* participates inversely in, i.e. in the opposite of, the performance of the *Reference Instrument*.

"**Index Calculation Agent**" means Bank Vontobel AG, Gotthardstrasse 43, 8002 Zurich, Switzerland.

"**Index Calculation Day**" means every day from Monday to Friday.

"**Index Fee**" means 1.0% per annum. The *Index Fee* is charged each calendar day, beginning as of the *Index Start Date*. It is calculated on the basis of a 360-day year and the most recently calculated *Index Closing Value*.

"**Index Closing Value**" is calculated for each *Index Calculation Day* by the *Index Calculation Agent* in accordance with section C) 1) of this index description on the basis of the *Valuation Price* of the *Reference Instrument* for this *Index Calculation Day* and published in accordance with section E) of this index description.

"**Index Start Date**" means 20.01.2017.

"**Index Start Value**" is 100'000 index points and represents the Index Closing Value on Index Calculation Day T=0 for the purposes of calculating the index in accordance with C).

"**Index Currency**" means JPY.

"**Information Page**" means <https://indices.vontobel.com>.

"**Reference Instrument Price**" corresponds at any time during the calculation period of the *Reference Instrument* to the price of the *Reference Instrument*, as calculated by the *Reference Exchange* and determined by the *Index Calculation Agent*.

"**Reference Exchange**" means Nikkei Inc..

"**Reference Instrument**" means Nikkei 225 Index.

Index type:	Price index
Currency:	JPY
ISIN:	JP9010C00002
Bloomberg symbol:	NKY Index

The Nikkei 225 Index is designed to reflect Japan's overall market. It is the country's most widely watched index of stock market activity and its 225 components are among the most actively traded issues on the first section of the Tokyo Stock Exchange (TSE). The Nikkei 225 (Index) is an intellectual property and a service mark of Nikkei Inc. (the Index Sponsor). The Index Sponsor reserves all the rights, including copyright, to the Index. The products are not in any way sponsored, endorsed or promoted by the Index Sponsor. The Index Sponsor does not make any warranty or representation whatsoever, express or implied, either as to the results to be obtained as to the use of the Index or the figure as which the Index stands at any particular day or otherwise. The Index is compiled and calculated solely by the Index Sponsor. However, the Index Sponsor shall not be liable to any person for any error in the Index and the Index Sponsor shall not be under any obligation to advise any person, including a purchase or vendor of the Products, of any error therein. In addition, the Index Sponsor gives no assurance regarding any modification or change in any methodology used in calculating the Index and is under no obligation to continue the calculation, publication and dissemination of the Index.

"**Barrier**" is 7%. It indicates the maximum permitted positive change in price of the *Reference Instrument* compared to its most recent *Valuation Price* before an *Intraday Index Adjustment* takes place.

"**Derivatives Exchange**" means Osaka Securities Exchange.

"**Interest Rate**" means JPY LIBOR O/N (overnight).

LIBOR stands for London InterBank Offered Rate. LIBOR is an average interest rate based on information submitted by the contributing banks. The panel banks indicate the interest rates at which they are able to refinance their own interbank activities in the relevant currency for the relevant term on an unsecured basis. To calculate the reference interest rate, the highest and lowest quartiles of these interest rates are eliminated, and the remaining interest rates are averaged. LIBOR is calculated for 7 different terms and 5 different currencies. The LIBOR interest rates (ICE Libor) are administered by ICE Benchmark Administration Limited (IBA) and determined each business day at 11 a.m. (London time). LIBOR O/N (overnight) stands for terms of 1 day.

If the *Interest Rate* is not set or published on an *Index Calculation Day*, the *Interest Rate* applied on the immediately preceding *Index Calculation Day* is used to calculate the index in accordance with section C).

If the *Interest Rate* has neither been set nor published for ten consecutive *Index Calculation Days*, the *Index Calculation Agent* has the right and obligation to stipulate in its reasonable discretion an alternative relevant *Interest Rate* which has functions comparable to the previous *Interest Rate*.

C) Index calculation

The *Factor Index* shall be calculated for the first time on the *Index Start Date*. The initial level of the index on the *Index Start Date* corresponds to the *Index Start Value*. The respective current index level is calculated by the *Index Calculation Agent* on a continuous basis during the trading period of the *Reference Instrument* on the *Reference Exchange* on each *Index Calculation Day*, rounded to two decimal places and published in accordance with section E).

One index point corresponds to one unit of the *Index Currency*.

C) 1) Index formula

The *Factor Index* is calculated for each time t during an *Index Calculation Day* T in accordance with the following formula:

$$IDX_t = IDX_{T-1} \times \left\{ \underbrace{1 + L \times \left(\frac{R_t + \text{divf} \times \text{div}}{R_{T-1}} - 1 \right)}_{\text{leverage component}} + \underbrace{[(1 - L) \times IR_{T-1} + L \times FS_T - IG] \times \frac{d}{360}}_{\text{financing component}} \right\}$$

where:

- T = current Index Calculation Day
- IDX_t = Index Value at time t on Index Calculation Day T
- IDX_{T-1} = Index Closing Value on Index Calculation Day T-1 which immediately precedes the current Index Calculation Day T
- L = Leverage (Factor): -12
- R_t = Reference Instrument Price at time t
- R_{T-1} = Valuation Price on Index Calculation Day T-1
- divf = Dividend Tax Factor
- div = Dividend on Index Calculation Day T. If the individual Dividend Method is used this amount is 0, except on the Ex-Dividend Date.

IR_{T-1}	=	Interest Rate on Index Calculation Day T-1
FS_T	=	Financing Spread on Index Calculation Day T
IG	=	Index Fee
d	=	Number of calendar days between Index Calculation Days T-1 and T

C) 2) Intraday Index Adjustment

If at time s on *Index Calculation Day T* the *Reference Instrument Price* (plus any *Dividend* multiplied by the *Dividend Tax Factor*: $R_s + \text{divf} \times \text{div}$) exceeds the most recent *Valuation Price* of the *Reference Instrument* by more than 7% (*Barrier*), an "**Intraday Index Adjustment**" takes place, simulating a new day:

$$\begin{aligned} s &= T, \text{ i.e. } \text{IDX}_{T-1}(\text{new}) = \text{IDX}_s \\ R_{T-1}(\text{new}) &= R_{T-1}(\text{old}) \times 1.07 - \text{divf} \times \text{div} \\ d &= 0 \end{aligned}$$

A new *Valuation Price* valid after time s ($R_{T-1}(\text{new})$) is calculated by multiplying the previous *Valuation Price* ($R_{T-1}(\text{old})$) by 1.07.

In addition, the net dividend is deducted (in the case of the *individual Dividend Method*, only if *Index Calculation Day T* is an *Ex-Dividend Date*). The *Dividend* and *Dividend Tax Factor* are no longer taken into account for the purposes of the index calculation in accordance with section C) 1) on the new, simulated *Index Calculation Day*.

The *financing component* remains unchanged. No additional costs are incurred for the newly simulated day.

D) Extraordinary adjustment of the index calculation

In the event of an *Extraordinary Adjustment Event* occurring in relation to the *Reference Instrument*, the *Index Calculation Agent* will adjust the index calculation on the *Reference Date* (as defined below). The *Index Calculation Agent* will – to the extent possible – endeavor to calculate the *leverage component* as if no *Extraordinary Adjustment Event* had occurred.

The *Index Calculation Agent* will generally adjust the index calculation by correcting in its due discretion the relevant *Valuation Price* for the *Reference Instrument* on *Index Calculation Day T-1* on the *Reference Date*, in order to factor into the index calculation the adjustments made on the *Derivatives Exchange* for futures and options linked to the *Reference Instrument* traded there.

The *Index Calculation Agent* may adjust the index calculation in some other manner if it deems such adjustment necessary in its due discretion in order to reflect differences between this Index and the futures and options traded on the *Derivatives Exchange*. Such adjustments may in particular relate to the stipulation of a different *Reference Exchange*, *Derivatives Exchange* or *Reference Instrument Price*.

The list of *Extraordinary Adjustment Events* listed in section B) is not exhaustive. The deciding factor is whether the *Derivatives Exchange* deems an adjustments of the contract size, an underlying or the involvement of relevant *Reference Exchange* determining the price of the *Reference Instrument* to be necessary. If neither futures nor options linked to the *Reference Instrument* are traded on the *Derivatives Exchange*, the adjustment shall be made in a manner in which the *Derivatives Exchange* would do so if corresponding futures or options were traded there. In cases of doubt about the application of the modification rules of the *Derivatives Exchange*, the *Index Calculation Agent* shall decide such questions in its reasonable discretion. The rules and regulations of the *Derivatives Exchange* shall apply in addition to the provisions set out above.

If the *Reference Instrument* (Index) is cancelled or replaced by a different index concept, or if the license agreement between the *Reference Exchange* and the *Index Calculation Agent* cannot be renewed, the *Index Calculation Agent* determines – where appropriate by applying an adjusted *Reference Instrument Price* for the *Reference Instrument* at time t (R_t) – whether and which different index concept will be used in the future as a basis for calculating the *Factor Index*.

If the *Reference Instrument* is no longer calculated and determined and/or published by the *Reference Exchange* but by another person, company or institution that the *Index Calculation Agent* in its reasonable discretion considers to be suitable ("**Substitute Reference Exchange**"), then the *Factor Index* shall be calculated where applicable on the basis of the *Reference Instrument* calculated and published by the *Substitute Reference Exchange*. All references to the *Reference Exchange* contained in this index description shall be deemed to refer analogously to the *Substitute Reference Exchange*.

If in the opinion of the *Index Calculation Agent* it is not possible, for whatever reason, to stipulate a different relevant index concept, the leverage component shall remain unchanged and the index level shall be determined solely on the basis of the remaining components of the index formula.

"**Reference Date**" within the meaning of this index description is the first *Index Calculation Day*, on which the relevant futures or options are traded on the *Derivatives Exchange* after taking the adjustment into account, or would be so traded if corresponding futures or options were traded on the *Derivatives Exchange*.

Adjustments to the *Factor Index* and all further measures set forth in this section will be announced by the *Index Calculation Agent* in accordance with section E).

E) Notices

All notices pertaining to the *Factor Index* will be published on the *Information Page*. Such notices shall be deemed to have been given on the date on which they are first published.

Notices are made for informational purposes only and do not represent a precondition for legal effectiveness.