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Index Guide
as to
4X Short Index linked to Sanofi-Aventis SA
(ISIN CH0246139411)

Bank Vontobel AG
Gotthardstrasse 43
8002 Zurich
Switzerland

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: 4X Short Index linked to Sanofi-Aventis SA (the "**Factor Index**")
Reference Instrument: Sanofi-Aventis SA, Bearer share
Index Calculation Agent: Bank Vontobel AG, Gotthardstrasse 43, 8002 Zurich, Switzerland
Information Page: <https://indices.vontobel.com>
ISIN: CH0246139411
Valor: 24613941

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The original version of the Index Guide is in German; foreign-language versions constitute non-binding translations.

A) Index description

The *Factor Index* reflects price movements of the *Reference Instrument* to a factor of 4. A decrease in the price of the *Reference Instrument* since the most recent calculation of an *Index Closing Value* results in a positive change of the *Factor Index* as compared to the previous price of the *Factor Index* and vice-versa. The *Factor Index* therefore reflects 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*, 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 adjustment) by 2% results in an decrease in the *Factor Index* by $4 \times 2\%$;
- a decrease in the price of the *Reference Instrument* (as compared to the most recent adjustment) by 2% results in a increase in the *Factor Index* by $4 \times 2\%$.

Financing component

The financing component emulates the expenses and earnings that would arise in acquiring and selling the *Reference Instrument*, and the risk-free investments of the proceeds. 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 one day, the value of the *Factor Index* is reduced on such a day.

B) Index definitions

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

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

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

- (a) capital increase by way of the issue of new shares in return for contributions in cash or in kind with the grant of a subscription right, capital increase from retained earnings, issue of securities with option or conversion rights into shares, distribution of special dividends, share split, subdivision, consolidation or reclassification of the shares;
- (b) spin-off of a division of the company in such a manner that a new independent company is created or the division is absorbed by a third company;
- (c) probable or definitive cessation of stock exchange trading in the shares as a result of a merger by absorption or new company formation or takeover of the company of the underlying by another company;

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

"Valuation Price" of the *Reference Instrument* for an *Index Calculation Day* is – subject to an *Extraordinary Adjustment* to the calculation of the index in accordance with 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* at its due discretion.

"Dividend" shall mean the dividend of the company, exclusive of which the *Reference Instrument* is traded on the *Reference Exchange* on the *Ex-dividend Day*.

"Dividend Tax Factor" shall be 1.0 on the *Index Start Day*. The *Index Calculation Agent* may change the *Dividend Tax Factor* at its due discretion on any *Index Calculation Day* with prospective effect if the relevant tax law applicable to the *Index Calculation Agent* changes, resulting in a change in the amount of the – after tax – *Dividend* virtually accruing to it.

"Ex-dividend Day" is the *Trading Day* on which the *Reference Instrument* trades "ex-dividend" on the *Reference Exchange*.

"Financing Spread" reflects the current annual costs for acquiring the *Reference Instrument* as at the *Index Calculation Day* via a securities lending ("repo") transaction.

The *Financing Spread* on the *Index Start Day* corresponds to the *Initial Financing Spread*. The *Index Calculation Agent* then adjusts the **"Current Financing Spread"** at its due discretion on each *Adjustment Day* to reflect current market conditions and publishes it in accordance with section E) of this index description. The adjusted *Financing Spread* becomes applicable beginning immediately on each *Adjustment Day*.

"Initial Financing Spread" is 0.1% per annum.

"Trading Day" is any day on which the *Reference Instrument* is traded on the *Reference Exchange*.

"Factor" is -4. 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 *Factor* indicates that the *Short Factor Index* participates inversely in the performance of the *Reference Instrument*.

"Index Calculation Agent" is Bank Vontobel AG, Gotthardstrasse 43, 8002 Zurich, Switzerland

"Index Calculation Day" is every day from Monday to Friday.

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

"Index Closing Value" is calculated 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 Day" is 11 June 2014.

"Index Start Value" is 100 points and represents the *Index Closing Value* on the *Index Calculation Day* T=0 for purposes of index calculation in accordance with C).

"Index Currency" is EUR.

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

"Reference Instrument Price" corresponds at any time during the trading period on the *Reference Exchange* the price of the *Reference Instrument* on the *Reference Exchange*, as determined by the *Index Calculation Agent*.

"Reference Exchange" is Euronext Paris.

"Reference Instrument" is Sanofi-Aventis SA.

Type:	Bearer share
Currency:	EUR
Company:	Sanofi-Aventis SA, 174, Avenue de France, F-75013 Paris
ISIN:	FR0000120578
Bloomberg symbol:	SAN FP Equity

"Barrier" amounts to 21%. It represents the maximum allowable positive change in the price of the *Reference Instrument* as compared to its most recent *Valuation Price*, before an *Intraday Index Adjustment* is made.

"Futures Exchange" is Eurex.

"Interest Rate" is EONIA.

The EONIA (Euro Over Night Index Average) interest rate is a weighted average interest rate for overnight interbank money calculated act/360 by the European Central Bank since 4 January 1999 on the basis of effective turnover.

If the *Interest Rate* is neither set nor published on an *Index Calculation Day*, the *Interest Rate* used on the immediately preceding *Index Calculation Day* to calculate the Index in accordance with section C) is used.

If the *Interest Rate* is not set or published for ten consecutive *Index Calculation Days*, the *Index Calculation Agent* has the right and obligation to stipulate at its due discretion a different relevant *Interest Rate* which functions similarly to the previous *Interest Rate*.

C) Index calculation

The *Factor Index* will be calculated for the first time on the *Index Start Day*. The initial Index value on the *Index Start Day* corresponds to the *Index Start Value*. For the period during which the *Reference Instrument* is traded on the *Reference Exchange*, the relevant current index level is calculated on a continuing basis on each *Index Calculation Day* by the *Index Calculation Agent*; it is rounded to two decimal points 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:

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

leverage component

financing component

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
- L = Factor: -4
- 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. This amount is 0, except on the Ex-dividend Day
- 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* (on an Ex-dividend Day plus *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 21% (*Barrier*), an "**Intraday Index Adjustment**" takes place, simulating a new day:

$$\begin{aligned} s &= T, \text{ i.e. } IDX_{T-1} (\text{new}) = IDX_s \\ R_{T-1} (\text{new}) &= R_{T-1} (\text{old}) \times 1.21 \\ d &= 0 \end{aligned}$$

A new *Valuation Price* valid after time s ($R_{T-1} (\text{new})$) is calculated, whereby the previous *Valuation Price* ($R_{T-1} (\text{old})$) is multiplied by 1.21. If the *Index Calculation Day* is an *Ex-dividend Day* the net dividend will be deducted.

If the *Index Calculation Day* T is an *Ex-dividend Day* the newly simulated *Index Calculation Day* will not be treated as *Ex-dividend Day* any more, i.e. *Dividend* and *Dividend Tax Factor* will not be considered in the index calculation in section C) 1) on the newly simulated *Index Calculation Day*.

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

D) Extraordinary Adjustment to 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 *In-*

dex 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 modify the index calculation by correcting at 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 *Futures Exchange* for futures and options linked to the *Reference Instrument* traded there.

The *Index Calculation Agent* may adapt the Index Calculation in some other manner if it deems this necessary in its due discretion in order to account for differences between this *Factor Index* and the futures and options traded on the *Derivatives Exchange*. Such adjustments may in particular relate to the *Reference Instrument* being replaced by a basket of shares, securities representing shares or other dividend-bearing securities or in the event of a merger by an appropriate number of shares, securities representing shares or other dividend-bearing securities issued by the absorbing or newly formed company and where necessary stipulating a different Reference Exchange, Derivatives Exchange and Reference Instrument Price.

The list of *Extraordinary Adjustment Events* listed in section B) is not exhaustive. A deciding factor is whether the *Derivatives Exchange* considers it expedient to adjust the contract size, an underlying or involving the relevant *Reference Exchange* which determines the price of the *Reference Instrument*. If neither futures nor options linked to the *Reference Instrument* are traded on the *Derivatives Exchange*, the adjustment shall be made in such a manner in which the *Derivatives Exchange* would do so if corresponding futures or options were traded there. If doubts arise in this event relating to 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.

In the event the company issuing the *Reference Instrument* underlying the *Factor Index* is liquidated or insolvency, winding-up or similar proceedings are instituted against the assets of the company or of the possibility that such proceedings will be opened becomes known, the price of the *Reference Instrument* will continue to be factored into the Index Calculation for as long as the price of the *Reference Instrument* continues to be determined on the Reference Exchange. However, if pricing in such a case is temporarily or permanently suspended, the leverage component remains unchanged and the Index Level will be determined solely on the basis of the other 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 or would be traded on the *Derivatives Exchange* by taking into account the adjustment, if corresponding futures or options would be traded on the *Derivatives Exchange*.

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

E) Announcements

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

Announcements are made purely for informational purposes and do not represent a precondition for legal effectiveness.