e u r e x *b o n d s circular 70/08*

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Recipients: All Members of Eurex Bonds
Authorized by: Johannes Weßling

Action required

New Instruments: Information No. 63

Contact: Market Supervision, tel. +49-69-211-1 38 90

Content may be most important for:	**Attachment:**
Ü Front Office / Trading	1. Break-even product specification
Ü IT/System Administration	2. List of new break-even instruments

New break-even instruments with French underlyings are available for trading. For more detailed instrument description and setup parameters please see attached product specification (attachment 1).

Please note the attached instrument setup information for the Eurex Bonds trading platform (attachment 2).

With the introduction of Xetra Release 9.0, Market-Making licences no longer have to be assigned to the trader groups. New instruments are automatically assigned to the respective instrument group and released for quotation.

New instruments will usually be available for administration one day in advance of the first trading day from about 14:00 CET.

The updated instrument list is available on the Eurex Bonds website under the link:

www.eurex-bonds.com > Trading > Instruments

Eurex Bonds announces that for reporting purposes the spreads can be doubled for all segments compared to the current definition (see market-making brochure).

Please do not hesitate to call the Market Supervision Helpdesk on tel. +49-69-211-1 38 90 for any questions you may have.

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Break-Even Trading on Eurex Bonds

Product specification

General Information

- Break-Even is the gap in yields between nominal and inflation linked bonds of similar maturity and credit quality
- The Eurex Bonds Break-Even instrument represents two bonds, a nominal bond (a regular government bond) and a real bond (inflation linked bond), wherein you buy/sell or sell/buy both bonds in one trade
- Trades in these instruments result in settlement of the two underlying bonds in relation to a calculated hedge ratio
- The Eurex Bonds Break-Even instruments are available for pre-arranged trading as well as for continuous trading in the order-book
- Inflation-linked bonds are also available for ‘out-right’ cash trading
- The Break-Even instruments are available for German bonds and will be set up for French and Italian inflation linked bonds soon
- Introduction of Eurex fixed income futures (Bund and Bobl) to be traded on a Break-Even basis as a yield spread against inflation linked bonds is currently being analyzed

Instrument Details

- The allocation of an inflation linked bond to a nominal bond is fixed for every Break-Even instrument
- The Break-Even instrument will be traded in the Eurex Bonds system, but only the underlying legs will be settled
- The hedge ratio is calculated automatically and is used to determine the two settlement amounts of the underlying legs
- A Break-Even instrument can easily be distinguished by the instrument group = "**ILBE**" and the 'Xetra instrument type' = "**BAS**"
- Trade confirmations
  - Separate trade confirmations for each single leg:
    - price, size, market value
    - Break-Even order-size/-price
  - One trade confirmation for the Break-Even instrument without CCP handling
- For testing purposes selected Break-Even instruments are available in the simulation environment

Break-Even Instrument Definition

- Calculation of Break-Even is calculated by the following formula:
  Break-Even = yield (nominal bond) – yield (real bond)

- Buy a Break-Even instrument = buy a real bond and sell a nominal bond
  Sell a Break-Even instrument = sell a real bond and buy a nominal bond

- Bid < Ask, therefore
  bid-quotes are in descending order and
  ask-quotes are in ascending order within the order book

Break-Even Instruments in Eurex Bonds – Simulation

The following Break-Even instruments are currently listed in Eurex Bonds Simulation:

Instrument ISIN	Name	Underlying inflation linked bond	Name	Underlying nominal bond	Name
DE000A0V8L79	Break-Even BUND i/l APR 13	DE0001030518	Bundlink 15.04.2013 2,25%	DE0001135218	Bundesanleihe 04.01.2013 4,5%
DE000A0V8L61	Break-Even BUND i/l APR 16	DE0001030500	Bundlink 15.04.2016 1,5%	DE0001135291	Bundesanleihe 04.01.2016 3,5%
DE000A0XW2F5	Break Even FRTR I/L 3% JUL/09	FR0000571424	FRTR I/L 25.07.2009 3%	FR0000571432	FRTR 25.04.2009 4%
DE000A0XW2M1	Break Even FRTR I/L 1,6% JUL/15	FR0010135525	FRTR I/L 25.07.2015 1,6%	FR0010163543	FRTR 25.04.2015 3,5%
DE000A0XW3U2	Break Even BTPS I/L 2,15% Sept/14	IT0003625909	BTPS I/L 15.09.2014 2,15%	IT0003618383	BTPS 01.08.2014 4,25%
DE000A0XW3Q0	Break Even BTPS I/L 0,95% Sept/10	IT0003805998	BTPS I/L 15.09.2010 0,95%	IT0001448619	BTPS5 01.11.2010 5.5%

In Eurex Bonds Simulation, the Break-Even instruments are listed in the instrument group = “ILBE” and instrument type = “BAS”

Break-Even Instruments in Eurex Bonds – Production

All Break-Even Instruments have the following production set up parameters:

Min Quote Quantity	Minimum Tradable Unit	Quote Unit	Max Quote Spread	Instrument Group	Instrument type	Trade Time
€ 5 mn	€ 5 mn	Yield spread	0,5	ILBE	BAS	08:30 – 17:30

- German Underlying

Instrument ISIN	Name	Underlying inflation linked bond	Name	Underlying nominal bond	Name
DE000A0V8L79	Break-Even BUND i/l APR 13	DE0001030518	Bundlink 15.04.2013 2,25%	DE0001135218	Bundesanleihe 04.01.2013 4,5%
DE000A0V8L61	Break-Even BUND i/l APR 16	DE0001030500	Bundlink 15.04.2016 1,5%	DE0001135291	Bundesanleihe 04.01.2016 3,5%

Break-Even Instruments in Eurex Bonds – Production

- French Underlying (1/2)

Instrument ISIN	Name	Underlying inflation linked bond	Name	Underlying nominal bond	Name
DE000A0XW2F5	BREAK EVEN FRTR JUL/09	FR0000571424	FRTR I/L 25.07.2009 3%	FR0000571432	FRTR 25.04.2009 4%
DE000A0XW2G3	BREAK EVEN FRTR JUL/10	FR0108664055	FRTR I/L 25.07.2010 1,25%	FR0107674006	BTNS 12.07.2010 2,5%
DE000A0XW2H1	BREAK EVEN FRTR JUL/11	FR0010094375	FRTR I/L 25.07.2011 1,6%	FR0000570731	FRTR 25.04.2011 6,5%
DE000A0XW2J7	BREAK EVEN FRTR JUL/12	FR0000188013	FRTR I/L 25.07.2012 3%	FR0000188328	FRTR 25.04.2012 5%
DE000A0XW2K5	BREAK EVEN FRTR JUL/13	FR0000188955	FRTR I/L 25.07.2013 2,5%	FR0000188989	FRTR 25.04.2013 4%
DE000A0XW2M1	BREAK EVEN FRTR JUL/15	FR0010135525	FRTR I/L 25.07.2015 1,6%	FR0010163543	FRTR 25.04.2015 3,5%

Break-Even Instruments in Eurex Bonds – Production

- French Underlying (2/2)

Instrument ISIN	Name	Underlying inflation linked bond	Name	Underlying nominal bond	Name
DE000A0XW2L3	BREAK EVEN FRTR JUL/17	FR0010235176	FRTR I/L 25.07.2017 1%	FR0010415331	FRTR 25.04.2017 3,75%
DE000A0XW2N9	BREAK EVEN FRTR JUL/20	FR0010050559	FRTR I/L 25.07.2020 2,25%	FR0010192997	FRTR 25.04.2021 3,75%
DE000A0XW2P4	BREAK EVEN FRTR JUL/23	FR0010585901	FRTR I/L 25.07.2023 2,1%	FR0000571085	FRTR 25.04.2023 8,5%
DE000A0XW2Q2	BREAK EVEN FRTR JUL/29	FR0000186413	FRTR I/L 25.07.2029 3,4%	FR0000571218	FRTR 25.04.2029 5,5%
DE000A0XW2R0	BREAK EVEN FRTR JUL/32	FR0000188799	FRTR I/L 25.07.2032 3,15%	FR0000187635	FRTR 25.10.2032 5,75%
DE000A0XW2S8	BREAK EVEN FRTR JUL/40	FR0010447367	FRTR I/L 25.07.2040 1,8%	FR0010371401	FRTR 25.10.2038 4%

Hedge Ratio Calculation Path

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§ **Given Input within a quote/trade (example):**

Break-Even	2.279%
Linker Volume traded	100 mn.
Index ratio per settlement day	1,03328
Clean-Price_{nom}	102,38

§ **Calculation (Yield- and Price Calculation with ICMA-Method)**

1. Clean-Price_{nom} **à** YIELD_{nom}	YIELD_{nom}	3,9308%
2. Clean-Price_{nom} + AccrInt_{nom} = Dirty-Price_{nom}	Dirty-Price_{nom}	103,744
3. Dirty-Price_{nom} **à** Duration_{nom} **à** ModDuration_{nom}	ModDuration_{nom}	4,128
4. Dirty-Price_{nom} /10000 x ModDuration_{nom} = PVO1_{nom}	PVO1_{nom}	0,04282
5. YIELD_{nom} - BE = YIELD_{linker}	YIELD_{linker}	1,6518%
6. YIELD linker **à** $\text{Clean-Price}_{linker}$	$\text{Clean-Price}_{linker}$	102,83
7. ($\text{Clean-Price}_{linker}$ + AccrInt) x Index ratio = $\text{Dirty-Price}_{linker}$	$\text{Dirty-Price}_{linker}$	106,31
8. $\text{Dirty-Price}_{linker}$ **à** Duration_{linker} **à** $\text{ModDuration}_{linker}$	$\text{ModDuration}_{linker}$	4,6862
9. $\text{Dirty-Price}_{linker}$ /10000 x $\text{ModDuration}_{linker}$ = PVO1_{linker}	PVO1_{linker}	0,04982
10. Hedge-Ratio= PVO1_{linker} / PVO1_{nom}	Hedge-Ratio	1,16337
11. Volume_{nom}=Volume_{linker} x Hedge-Ratio	Volume_{nom}	116,337 mn *

* This will be rounded to 1 million => 116 million.

Pricing Priority

The following price priority is implemented to ensure the calculation of the Break-Even underlying legs

Rank	Price	Price Source
1	Quote Nominal Bond	Eurex Bonds
2	Quote Real Bond	Eurex Bonds
3	Today's Price Nominal Bond	Eurex Bonds
4	Today's Price Real Bond	Eurex Bonds
5	Corresponding Future price*	Eurex

* Calculation see next slide

Calculation of Nominal Bond Price via Eurex Futures (see Price Priority 5, Slide 10)

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- In case of an unavailability of quotes and prices for the nominal and the real bond, the price of the nominal bond is calculated via the corresponding Eurex Future Price:

  $\text{Clean-Price}_{nom} = \text{Price}_{Basis} + \text{Price}_{Future} \times \text{Conversion Factor}$

- If there is no Basis-Price or Basis-Quote available, the Clean-Price of the Nominal Bond is calculated without the Basis-Price

  $\text{Clean-Price}_{nom} = \text{Price}_{Future} \times \text{Conversion Factor}$

- The Conversion Factor is calculated identical to the Eurex with following method:

$$\frac{1}{(1+not/100)^f}\times\left[\frac{c}{100}\times\frac{\delta_l}{act2}+\frac{c}{not}\times\left((1+not/100)-\frac{1}{(1+not/100)^n}\right)+\frac{1}{(1+not/100)^n}\right]-\frac{c}{100}\times\left(\frac{\delta_l}{act2}-\frac{\delta_s}{act1}\right)$$

Definition:

DD	Delivery date	act1	NCD-NCD1y, where $\delta_s < 0$
NCD	Next coupon date after delivery date		NCD1y-NCD2y, where $\delta_s \geq 0$
NCD1y	1 year before the NCD	δ_l	NCD1y-LCD
NCD2y	2 years before the NCD	act2	NCD-NCD1y, where $\delta_l < 0$
LCD	Last coupon date before the delivery date. Start interest period if last coupon date not available		NCD1y-NCD2y, where $\delta_l \geq 0$
δ_s	NCD1y-DD	f	$1+\delta_s / act1$
n	Integer years from the NCD until the maturity date of the bond	c	Coupon
not	Notional coupon of futures contract		

Additional Information

- Nominal Value for settlement is rounded to the nearest million
- Each Break-Even trade has its own trade-ID in the system. The trade-ID of the two underlying bonds are different. The original Break-Even trade-ID is copied as a reference number into the “Text” field of the trade confirmation with “BE”, e.g. “BE0001234”.
- The hedge ratio (HR) is calculated in real time (see page 9). If desired, the calculated HR can also be published in the trade confirmation “Text” field.
- The ISIN for the Break-Even instruments is different for any real/nominal combination.
- The underlying bonds are mentioned in the following fields:
  - nominal bond: ISIN in field “Underlying”
  - real bond: mentioned in the “Name” field of the Break-Even instrument

Attachment 2 to Eurex Bonds circular 70/08

List of New Instruments Break-even

First Trade Date	Instrument Group	ISIN Break Even	Short Name	Name	Underlying Nominal Bond	Underlying Inflation Linked Bond	Min Quote Quantity in mio €	Max Price Spread	Tick Size
01. Okt 08	ILBE	DE000A0XW2F5	BEA1	BREAK EVEN FRTR JUL/09	FR0000571432	FR0000571424	10.00	0.15	0.001
01. Okt 08	ILBE	DE000A0XW2G3	BEA2	BREAK EVEN FRTR JUL/10	FR0107674006	FR0108664055	10.00	0.15	0.001
01. Okt 08	ILBE	DE000A0XW2H1	BEA3	BREAK EVEN FRTR JUL/11	FR0000570731	FR0010094375	10.00	0.15	0.001
01. Okt 08	ILBE	DE000A0XW2J7	BEA4	BREAK EVEN FRTR JUL/12	FR0000188328	FR0000188013	10.00	0.15	0.001
01. Okt 08	ILBE	DE000A0XW2K5	BEA5	BREAK EVEN FRTR JUL/13	FR0000188989	FR0000188955	10.00	0.20	0.001
01. Okt 08	ILBE	DE000A0XW2M1	BEA7	BREAK EVEN FRTR JUL/15	FR0010163543	FR0010135525	5.00	0.20	0.001
01. Okt 08	ILBE	DE000A0XW2L3	BEA6	BREAK EVEN FRTR JUL/17	FR0010415331	FR0010235176	5.00	0.20	0.001
01. Okt 08	ILBE	DE000A0XW2N9	BEA8	BREAK EVEN FRTR JUL/20	FR0010192997	FR0010050559	5.00	0.20	0.001
01. Okt 08	ILBE	DE000A0XW2P4	BEA9	BREAK EVEN FRTR JUL/23	FR0000571085	FR0010585901	5.00	0.4	0.001
01. Okt 08	ILBE	DE000A0XW2Q2	BN8A	BREAK EVEN FRTR JUL/29	FR0000571218	FR0000186413	5.00	0.4	0.001
01. Okt 08	ILBE	DE000A0XW2R0	BN8B	BREAK EVEN FRTR JUL/32	FR0000187635	FR0000188799	5.00	0.4	0.001
01. Okt 08	ILBE	DE000A0XW2S8	BN8C	BREAK EVEN FRTR JUL/40	FR0010371401	FR0010447367	5.00	0.4	0.001