

Market Pulse DKK: Introducing the new 0.1% 2030 inflation linked bond

Maria Holm Rasmussen
Assistant Analyst
+45 5547 1783
Maria.holm.rasmussen@nordea.com

Jan Størup Nielsen
Chief Analyst
+45 5547 1540
Jan.storup.nielsen@nordea.com



Introducing DGBi 2030

Overview

General:

- ISIN: DK0009923724
- Coupon: 0.1%
- Maturity: 15 November 2030
- The first auction will be on 7 February 2018 at 10:15 AM with a target sale of DKK 3-5bn nominal value
- The nominal comparable bond with the closest maturity is DGB 2027, which have a coupon of 0.5%
- Danish inflation forecast: 1.2% in 2018 and 1.5% in 2019 vs 1.4% by 2019 in the Euro area
- When the bond reach an outstanding amount of DKK 5bn it will be included in the BB World Government Inflation-Linked Bond Index

Pricing:

- We have adjusted the real yield for the seasonality effect in the consumer prices
- We see an indicative BEI of 1.29% and a yield of -0.47% for DGBi2030, which is not adjusted for the seasonality effect. This corresponds to an indicative yield spread of 22bps to DBRi 2030
- We expect that there will be an issuance premium at the first auction on 7 February

Key figures for DGBi and DBRi - not seasonality adjusted

Bond	Maturity	Yield	BEI - bond comp	BEI - match maturity curve point	Real yield spread	Nominal yield spread	Bond comparable
DGBi 2023	15/11/2023	-1.06%	1.14%	1.15%	0.18%	0.13%	DK 1.5 15Nov23
DGBi 2030	15/11/2030	-0.47%*	1.04%*	1.29%*	0.22%*	-0.06%*	DK 0.5 nov-27
DBRi 2023	15/04/2023	-1.24%	1.18%	1.19%			DE 1.5 15May23
DBRi 2030	15/04/2030	-0.69%	1.32%	1.45%			DE 6.25 04Jan30

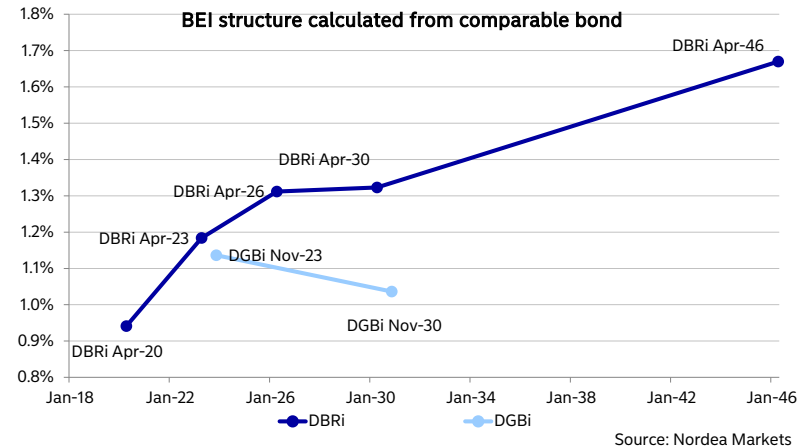
*Indicative pricing

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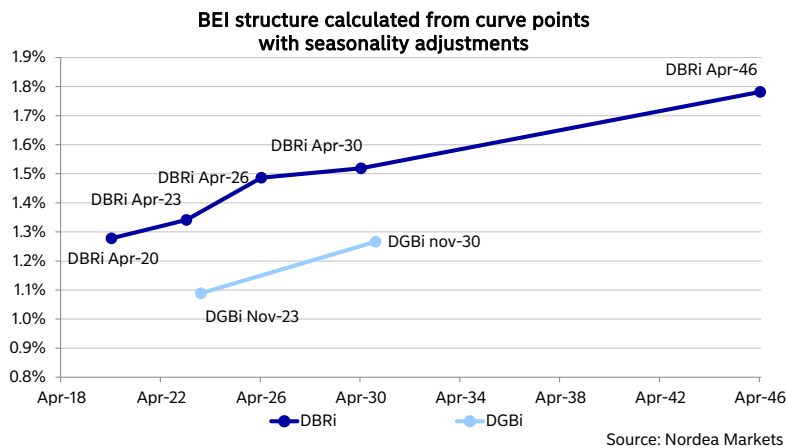
Break even structure for DGBi and DBRi

- The amount of comparable nominal bonds maturing in 2030 for Denmark and Germany is limited, with DBR 2030 having a coupon of 6.25% and DGB 2027 having a maturity, which is 3 years shorter. The resulting BEI structure can be seen in graph 1
- We have therefore used the match maturity curve points for the Danish and German government curves to find the nominal yield for DGBi 2030
- Our calculation is based on seasonality adjusted real yields, where the resulting BEI structure can be seen in graph 2
- By adjusting for the seasonality we arrive at the BEI structure in graph 3
- On the following slides we go through our calculations in details together with general information of the new bond and our inflation forecast

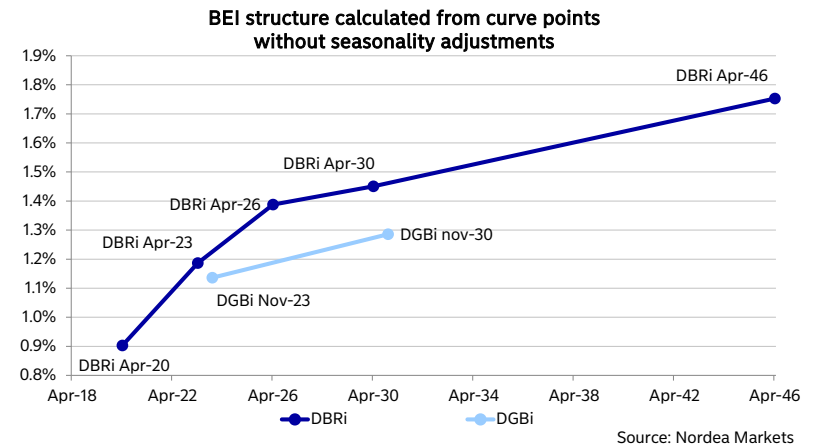
1. BEI from comparable bonds



2. BEI from match maturity curve points with seasonality adjustments



3. BEI from match maturity curve points without seasonality adjustment



Appendix

- **General information**
- **Inflation forecast**
- **Pricing**



Introducing DGBi 2030

General information

- ISIN: DK0009923724
- The new bond will replace DGBi2023 as the key on-the-run issue
- The aim is to build up the outstanding amount to a minimum of DKK 20bn through auctions, tap sale and switch auctions
- The maturity is 15 November 2030. The redemption amount will be calculated as follows:

$$\text{Redemption amount} = \text{Nominal Principal Amount} \times \text{Indexation Coefficient}_{15 \text{ November } 2030}$$

- The bond has a coupon of 0.1%. The first coupon fall due on 15 November 2018 and the interest will be paid annual at 15 November. The annual interest amount will be calculated as follows:

$$\text{Interest amount} = 0.1 \text{ per cent} \times \text{Nominal Principal Amount} \times \text{Indexation Coefficient}_{\text{Interest payment date}}$$

- The Indexation Coefficient is calculated as follows, where both the numerator and denominator are rounded to the nearest fifth decimal:

$$\text{Indexation Coefficient}_{\text{Interest payment date}} = \frac{\text{Reference Index}_{\text{Date}}}{\text{Base Index}}$$

- Here the Base Index equals 101.74667, where the base year is 2015. If the base year change over the lifetime of the bond then the new index base should be used together with an index rebasing key
- The Reference Index for a specific date is calculated as follow

$$\text{Reference Index}_{\text{Date}} = \text{CPI}_{M-3} + \left(\frac{T-1}{D} \right) \times (\text{CPI}_{M-2} - \text{CPI}_{M-3})$$

- Where M is the month of calculations, D is the actual number of days in the calendar month M and T is the calendar day of the given date

Introducing DGBi 2030

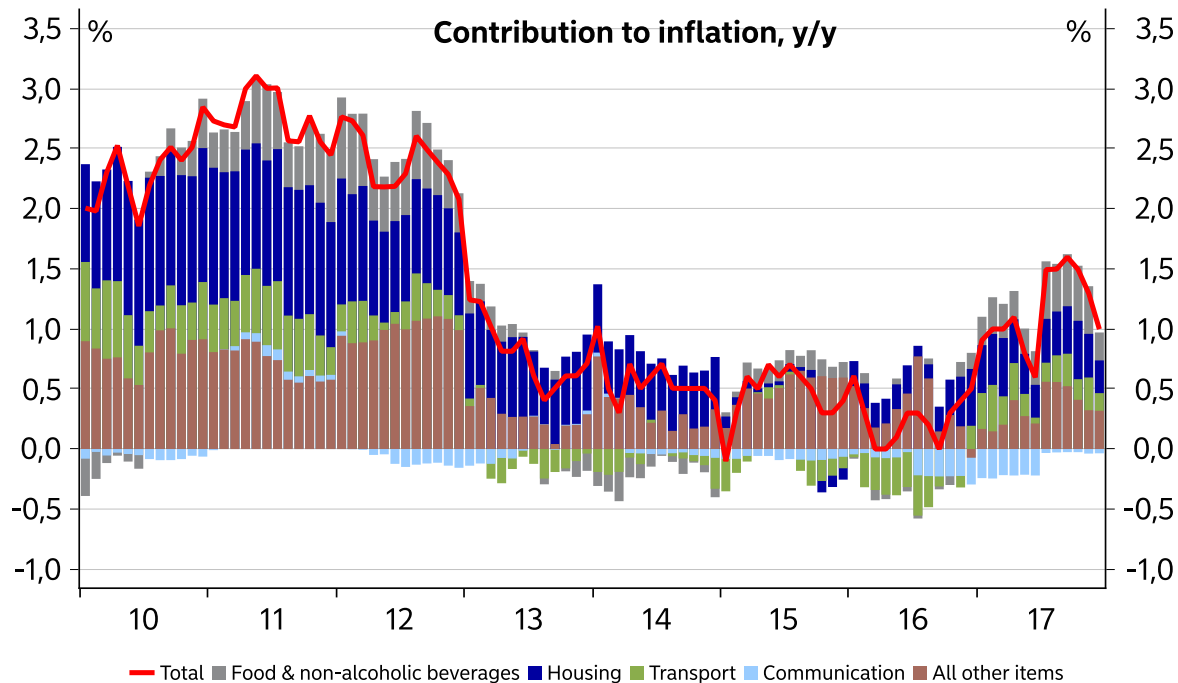
Timing and auction details

- The first auction will take place Wednesday [7 February 2018](#)
- ISINs: [DK0009923724](#)
- At the auction, the target for the total sale is [DKK 3-5 billion](#) at nominal value
- The Danish central bank has published that they will focus their issuing in DGBi2030 and the 2Y and 10Y benchmark bonds in 2018
- As from 8:00 a.m. (CET) on the opening day, bids can be submitted until 10:15 a.m. Subsequently, a cut-off price will be fixed as quickly as possible and within 10 minutes at the latest. Bids at the cut-off price or above will be accommodated at the cut-off price. A pro-rata allocation of bids at the cut-off price may be applied.
- The sale will commence via MTS Denmark's auction system with primary dealers as counterparts. The opening is contingent on stable market conditions.

Introducing DGBi 2030

Large fluctuations in Danish inflation – but the trend has been up

- Danish consumer prices fluctuated much in 2017. In July last year the inflation print year-over-year suddenly rose by 0.9% point. In the subsequent months the new level around 1.5% was maintained, but towards the end of the year inflation edged lower again, hitting 1.0% in December
- Despite the fairly large fluctuations over the year, the trend has been upwards since the end of 2016. On average Danish inflation rose by 1.1% in 2017 – the highest level since 2012
- The increase has mainly been driven by higher prices on Food, Housing and Transport. At the same time Communication do no longer act as a drag on Danish inflation

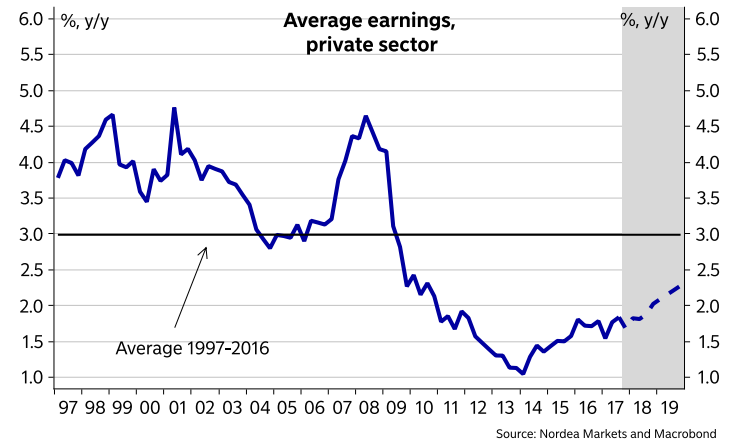
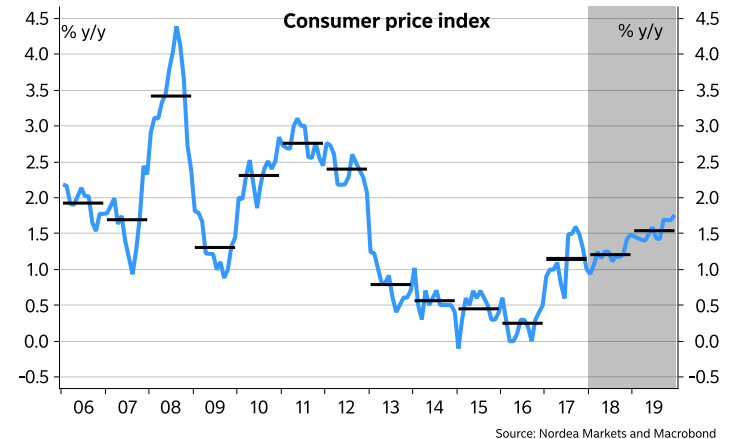


Kilde: Nordea Markets og Macrobond

Introducing DGBi 2030

The upward trend in inflation will continue in 2018

- We expect Danish inflation to continue the upward trend that began in 2017 and to reach 1.2% in 2018. In 2019 inflation should continue to move higher, with an average year-over-year rate of inflation of 1.5%
- This rise will be driven partly by a higher contribution from rents which have a weighting of more than 21% in the overall CPI. Over the past year, we expect rents to have risen relatively sharply given the substantial price increases in the market for owner-occupied flats. We expect an increase in rents in 2018 of approximately 2.25%. If we are right, from February 2018 it will lift the year-over-year CPI changes by 0.47% point versus 0.33% point currently.
- During the period from early 2013 to mid-2017 Danish inflation was at a historically low level. The very low inflation during that period was mainly due to a sharp fall in services prices prompted among other things by lower wage growth and overall weak demand in the Danish economy. Subsequently, the rate of wage increases has picked up. We expect the rising labour costs and increased pricing power to boost prices especially in the services sector.
- To see more on our inflation forecast please see here: <https://e-markets.nordea.com/#!/article/42436/danish-inflation-outlook>

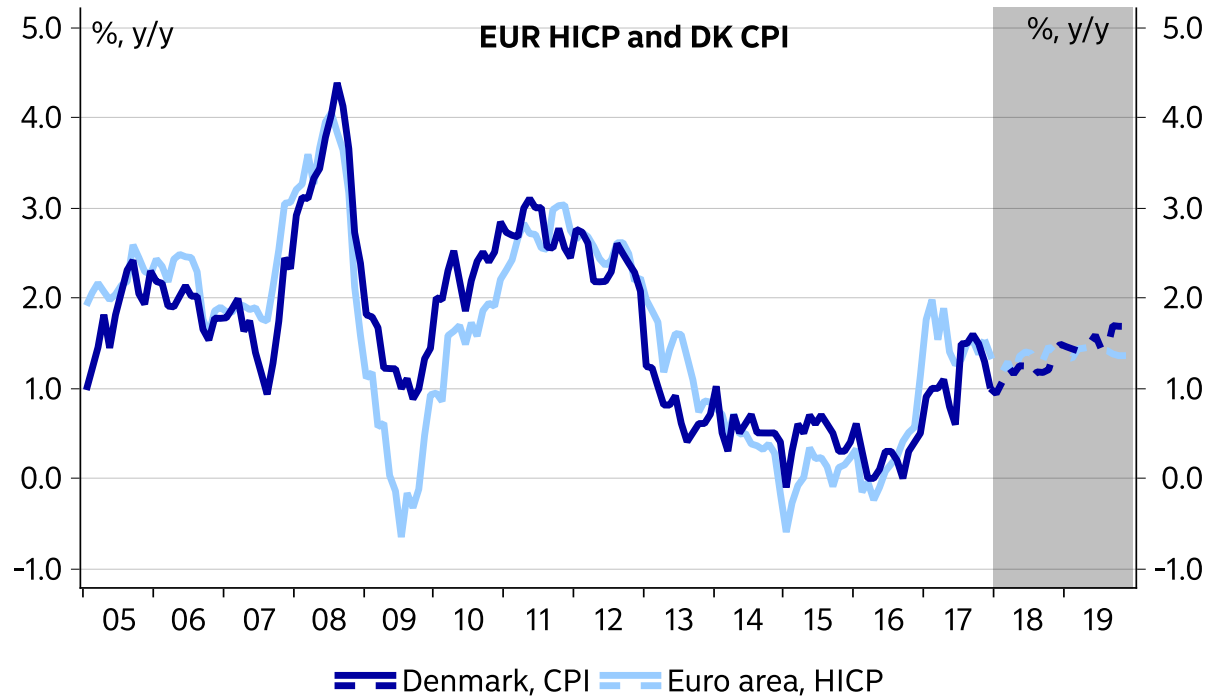


Introducing DGBi 2030

Danish inflation will slightly outpace Euro-area inflation

Towards end-2019 we expect Danish inflation to slightly outpace Euro area inflation. This forecast is mainly based on two factors:

- The Danish economy is running closer to full capacity compared to the Euro area. This has already triggered higher wage increases which eventually will spill over to higher service inflation in Denmark.
- A stronger positive contribution from higher housing rents – both because of higher prices and because of a much larger weight in the Danish CPI relative to the Euro area HICP.



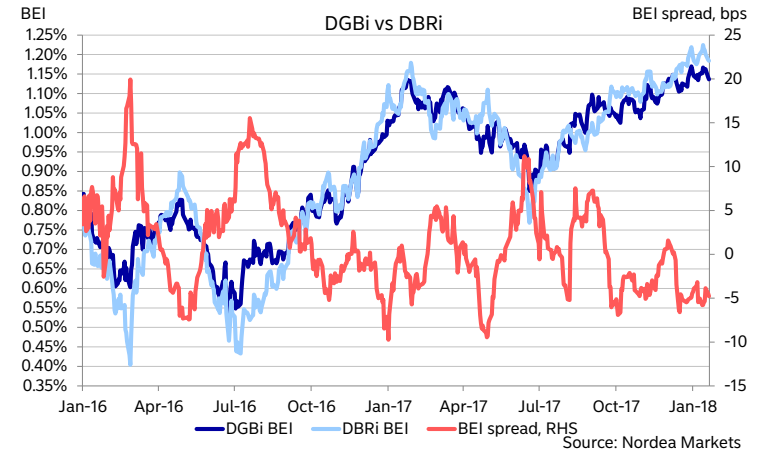
Source: Nordea Markets and Macrobond

Introducing DGBi 2030

Current pricing of DGBi 2023

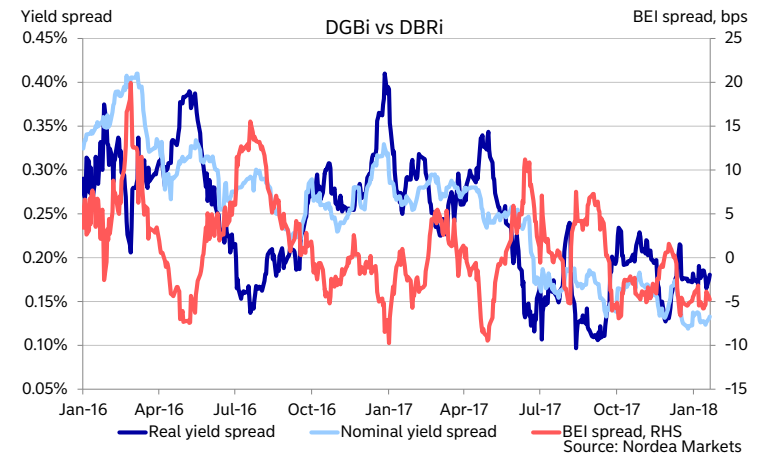
- The break-even inflation, BEI, for DGBs has increased over the last couple of months
- The current BEI is 1.14%, so if the actual annual inflation on average is above 1.14% until 2023, then the bond provides a higher payoff than the corresponding nominal bond
- DBRi BEI is above the DGBi BEI at 1.18%
- The break-even inflation spread is -5bps and it has been trading around this level for a month

Breakeven inflation and spread



- The real yield spread between DGBi and DBRi 2023 has overall decreased in 2017 with 20bps to 0.2%
- This follows a underperformance of DBRi 2023
- This is also the case with the nominal yield spread

Real vs nominal bond yield



Introducing DGBi 2030

Indicative real yield of **-0.47%** non-adjusted for seasonality

- For the nominal yields we have used the match maturity points on the Danish government curve and German government curves instead of the nominal bonds with the closest maturity, since DGB 2027 has a maturity, which is 3 years shorter, and DBR 2030 has a coupon of 6.25% vs 0.5% for DBRi 2030
- In our calculation, we have adjusted the real yield for the seasonality effect in the consumer prices
- We have calculated the adjusted BEI for DGBi 2030 by adding the BEI structure between DBRi 2023 and DBRi 2030 to the BEI for DGBi 2023
- The non-adjusted real yield and BEI results for DGBi 2030 is based on the adjusted yield result
- We end at an indicative yield of -0.47% for DGBi2030, which is not adjusted for the seasonality effect. This corresponds to a price of DKK 107.5 and an indicative yield spread of 22bps to DBRi 2030
- We expect that there will be an issuance premium at the first auction on 7 February

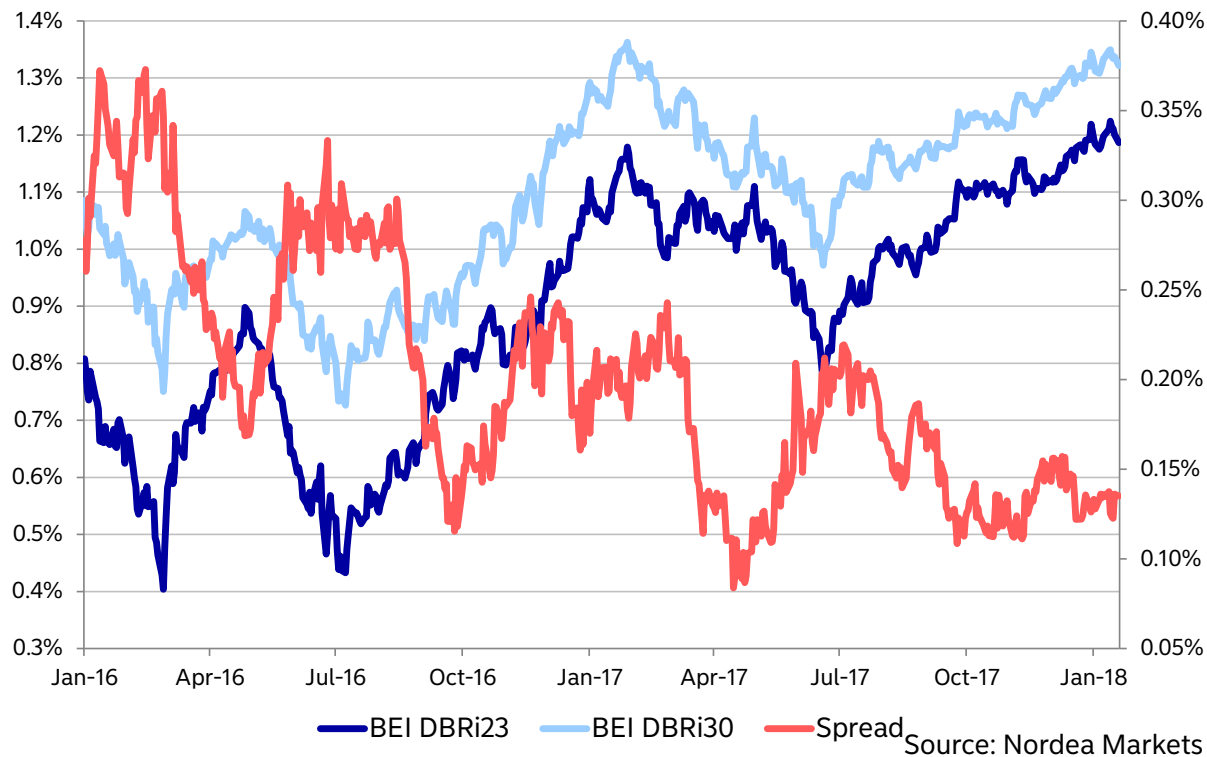
Calculation summary for DGBi 2030

	Non-adjusted	Adjusted	Seasonality adjustment
DKKgov yield, 15/11/23	0.09%	0.09%	
DGBi23 yield	-1.06%	-1.00%	0.06%
BEI DGBi23	1.15%	1.09%	
DEMgov yield, 15/4/23	-0.06%	-0.06%	
DBRi23 yield	-1.24%	-1.40%	-0.16%
BEI DBRi23	1.19%	1.34%	
DEMgov yield, 15/4/30	0.76%	0.76%	
DBRi30, yield	-0.69%	-0.76%	-0.07%
BEI DBRi30	1.45%	1.52%	
BEI DBRi 23vs30	0.26%	0.18%	
DKKgov yield, 15/11/30	0.82%	0.82%	
DGBi30 yield	-0.47%	-0.45%	0.02%
BEI DGBi30	1.29%	1.27%	

Introducing DGBi 2030 BEI for DBRi 2023 and DBRi 2030

- In the calculation for the BEI for DGBi 2030 we have used the BEI spread for DBRi 2023 vs DBRi 2030
- As can be seen the spread has tightened since July 2017 and been trading between 0.10% and 0.15% since October

Break even spread for DBRi



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