

# ECB Research

## ECB and two-tier deposit rate system – the Danish lesson

Wednesday's *Reuters* story has added to market expectations of an aggressive ECB move at the 3 December meeting. A roughly 16bp cut is now priced in for December and an accumulated 20bp cut is priced in 12M.

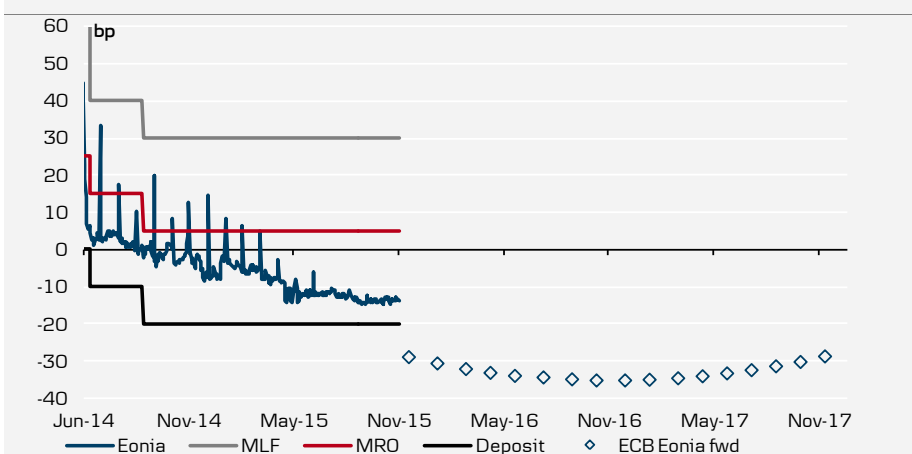
The *Reuters* story (<http://uk.reuters.com/article/2015/11/25/uk-ecb-policy-meeting-idUKKBN0TE0T220151125>) also included the interesting possibility of 'introducing a two-tier penalty charge on banks that park money with the ECB'. A 'two-tier deposit rate system' is already in place in both Denmark and Switzerland. In this document, we take a closer look at the lessons from the Danish system, as this could potentially have similar implications for the euro area, Eonia fixings and the swap curve.

The motivation behind a two-tier deposit rate system is to reduce the cost to the banking system. As long as banks are not willing to pass on the cost to the retail customer directly by introducing a negative deposit rate on retail deposits, cutting the ECB deposit rate further into the negative implies a higher cost for the banking system. A two-tier deposit rate scheme would reduce this cost, as some of the liquidity is placed at the 'higher deposit rate' but there are also potential negative effects from such a scheme. To illustrate, we take a look at the Danish set-up and experiences.

The Danish experience shows that it is definitely possible and it benefits the banking system. However, it could create negative side effects in terms of a higher spread between the overnight rate and the lowest deposit rate and larger volatility in fixings. In the DKK market, the uncertainty has been transferred into other short-term money-market rates.

For the EUR market, we would expect a smaller effect on the Eonia rate but it could result in a slightly higher spread to the lower deposit rate. However, as in Denmark, the key determinants would be (1) the spread between the two deposit rates, (2) the amount of excess liquidity and the fraction that can be placed at the two rates and (3) banks' willingness/ability to lend excess liquidity to each other (fragmentation).

ECB rates and Eonia forward pricing



Source: Bloomberg, Danske Bank Markets

**Chief Analyst**  
Anders Møller Lumholtz  
+45 45 14 69 98  
[andjrg@danskebank.dk](mailto:andjrg@danskebank.dk)

**Senior Analyst**  
Anders Vestergård Fischer  
+45 45 14 69 96  
[afis@danskebank.dk](mailto:afis@danskebank.dk)

**Analyst**  
Hans Roager Jensen  
+45 45 12 31 87  
[hroa@danskebank.dk](mailto:hroa@danskebank.dk)

## Danish experience of two-tier deposit rate system

In order to evaluate the Danish lessons, it is important first to characterise the structure of some of the Danish Central Banks' 'deposit instruments'. For a more thorough description, see *Danmarks Nationalbank: Monetary Review 3rd Quarter 2012, p. 59-72*. There are two main deposit rates in Denmark.

- The certificate of deposit rate – currently -75bp (one week).
- Current account rate – currently 0bp. There is an upper size for the limit for each individual bank to be placed in the current account – and total limits on the banking system as a whole. If the total limit is breached, every individual bank will be forced into certificates of deposit until their liquidity is below their individual limit.

In order to defend the Danish peg to the EUR, the Danish Central Bank has cut the policy rate all the way down to -75bp currently. Danish banks have so far not introduced a negative deposit rate for retail customers, so with high excess liquidity in the Danish system from currency interventions, the banking system endures a cost from the Danish Central Bank's deeply negative deposit rate. However, to reduce this cost banks are allowed to place a larger amount in the current account at 0bp. Currently, the current account limit makes up one-third of the total liquidity in the system and over the past year the fraction has been in the range of roughly 15-80%, driven mainly by FX intervention.

The current account limits are small enough to ensure that there is always a decent fraction that has to be placed at the Danish Central Bank at -75bp. As, from a theoretical point of view, it should be the marginal rate at the central bank that determines money market rates, the Danish Central Bank has thereby in theory created a system where it can control money markets rates without enduring the full negative impact on the banking system.

In practice, the liquidity in the Danish market is heavily influenced by the Danish Central Bank's FX interventions, which add or reduce DKK liquidity in the system. With the Danish Central Bank's flexibility in the current account limits, these limits can be (and have been) changed over time. This allows the central bank to conduct monetary policy operations with lower cost for the banking system than otherwise would have been the case.

However, the theoretical point does not always keep up with reality and the Danish overnight money market fixing (CITA) has been relatively volatile (see chart below). We point to the relatively large corridor between the dual deposit rates (75bp) having proved to allow a high variance in the fixings. Furthermore, fragmentation of the liquidity needs across banks and substantial differences in counterparty risk have also played a role. Hence, a bank can choose to place its excess liquidity at the Central Bank at -75bp despite being offered a better overnight/weekly bid in the market, for a number of possible reasons.

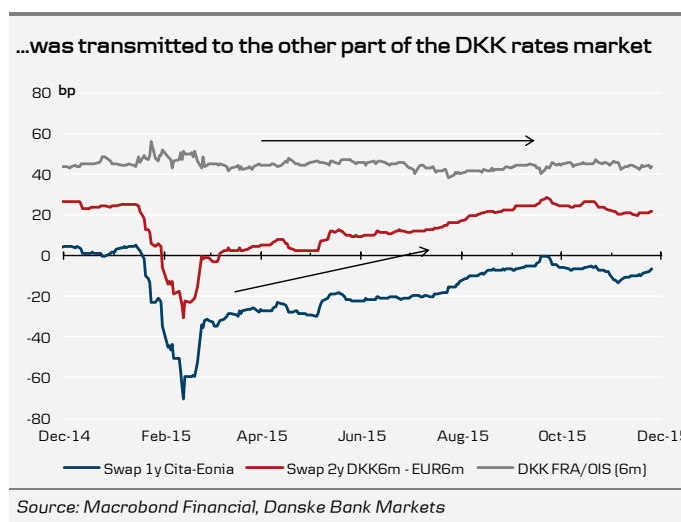
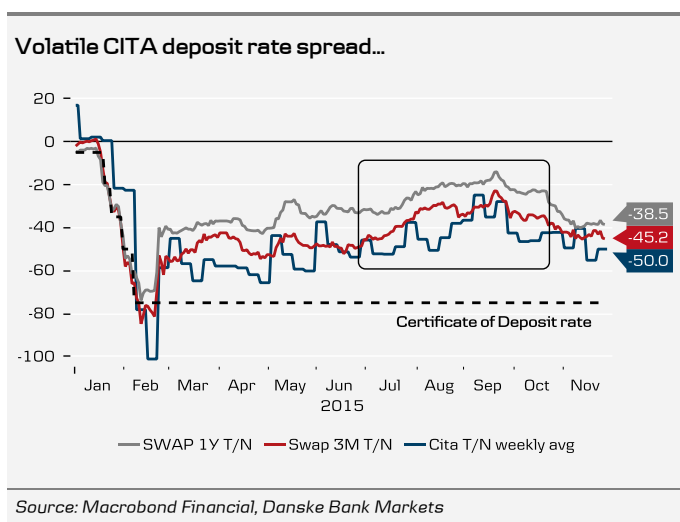
### **The following factors determine the effective fixings within the 'deposit range'.**

1. High excess liquidity in the system. A lower current account limit would also cause a higher amount of excess liquidity again pushing the fixings down in the interval.
2. Large dispersion of the excess liquidity among banks.
3. Banks' willingness/ability to lend the excess liquidity to others. Both the counterparty risk and the credit lines can be obstacles.

4. High turnover in the money market. In Denmark, the turnover that determines the fixing is on average around DKK3bn out of a total excess liquidity of currently DKK190bn.

A unique Danish feature is that certificates of deposit are weekly from Friday to Friday. Hence, the Friday fixing in the CITA T/N becomes very important, as it determines the effective (weekly) CITA. Combined with point 4 above, in some weeks this can create high uncertainty and volatility, as the Friday fixing (three day) determines the weekly effective roll and is vulnerable with a low turnover.

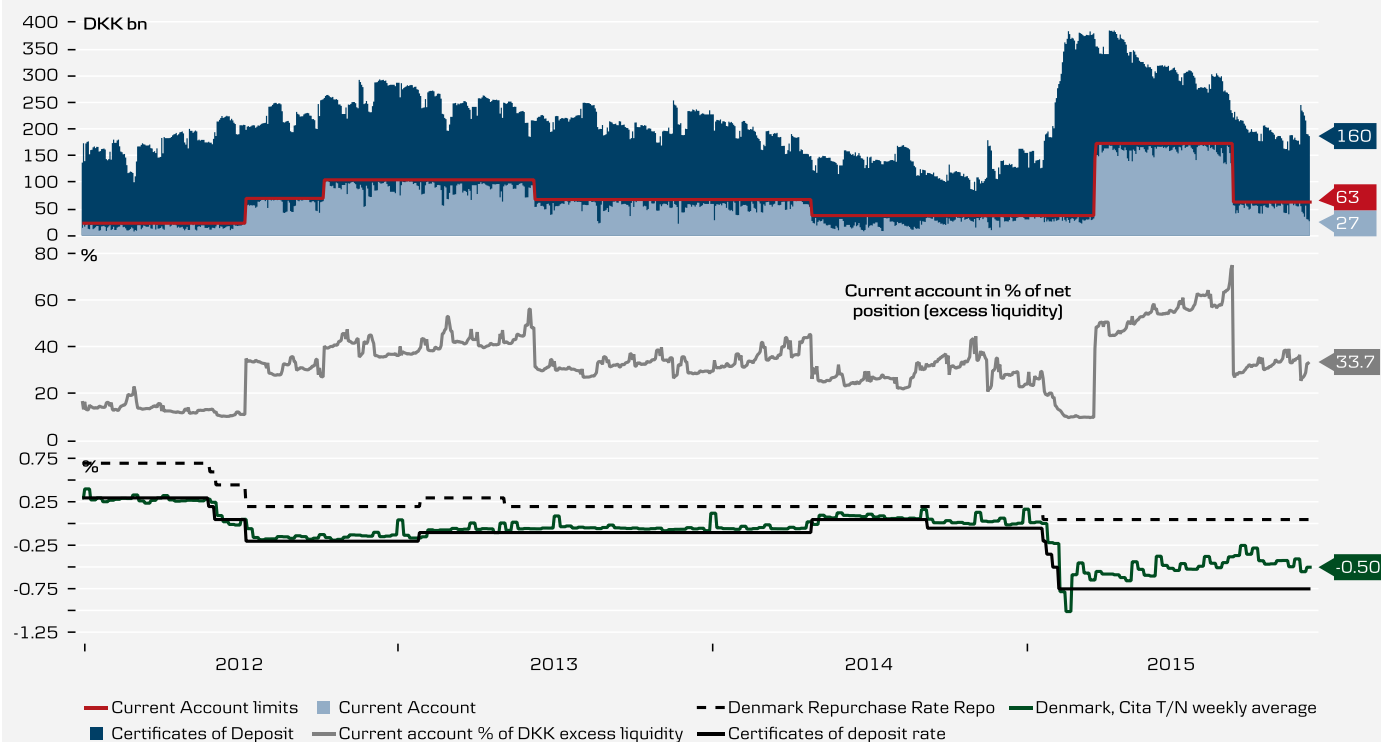
Note also that in Denmark an increased rate corridor between the deposit rates has increased the volatility in the overnight fixing as explained above. However, the volatility in the O/N fixing (in Denmark T/N) will be visible not only in the day-to-day fixing. Furthermore, the level of the effective overnight fixing has also been higher relative to the lowest deposit rate (certificate of deposit) since the corridor was widened. In 2014, the effective CITA fixing was 5bp above the certificate of deposit rate and this spread has averaged 26bp since the current account limit was increased in March 2015. It will be transferred to short-term money markets rates due to the rising uncertainty with respect to where the daily fixing should be. Furthermore, as Fra/OIS spreads in DKK are normally relatively constant this has also affected Cibor 3M and 6M (see charts below).



The main determinant of fixings and thereby money market rates is the amount of excess liquidity in the system. In Denmark, the Central Bank has adjusted limits when the current account has been too large relative to excess liquidity (currently illustrated by the net position). The reason is that the Central Bank wants the certificate of deposit rate always to be the marginal rate. The more the current account limits make up the total excess liquidity, the less important become certificate of deposit rate. Thus, the Central Bank has a large focus on this relationship.

In short, the Danish experience shows that it is definitely possible and it benefits the banking system. However, it could create negative side effects.

### The Danish two tier deposit system



Source: Danmarks Nationalbank, Bloomberg, Danske Bank Markets

### Implications for the ECB

Currently, around EUR640bn is deposited overnight at the ECB. Of this, around EUR110bn covers the minimum reserve requirement, which is remunerated at the MRO rate (5bp). This leaves around EUR530bn of excess liquidity, which is subject to the ECB deposit rate regardless of whether it is placed in the current account or the deposit facility. As a consequence, Eonia is pushed down in the corridor currently fixing at -14bp, -6bp above the deposit rate. The spread to the deposit rate is in line with the level after the LTROs in 2012, which resulted in a sharp increase in excess liquidity. Thus, Eonia is currently fixing at its lower bound in the corridor.

A potential two-tier deposit rate as hinted in the Reuters story would thus introduce a second effective deposit rate. As in the Danish case, the motivation would be to reduce the cost to the banking system. Another motivation is that if retail banks were to pass on the negative deposit rate to retail customers, it could lead to cash hoarding.

In theory, if a higher share can be placed at the higher deposit rate, it should not lead to higher Eonia fixings, as it is the marginal rate that determines the overnight fixing. However, the Danish experience shows that the average rate has a large impact on the fixing. As in Denmark, we would expect the Eonia fixing to be affected depending on points 1-4 stated above.

In the euro area, the dispersion of the excess liquidity among banks would also be important and banks' willingness/ability to lend excess liquidity to others and across country borders can also affect Eonia. Both the counterparty risk and the credit lines can be obstacles here and with more than 5,000 banks in the euro area, it is clear that there could be obstacles. Despite the euro market being much bigger than the Danish market, the quoted turnover in the Eonia fixings is around EUR10bn – only 2% of current excess liquidity. Therefore, the fixing is very vulnerable to even small changes in behaviour.

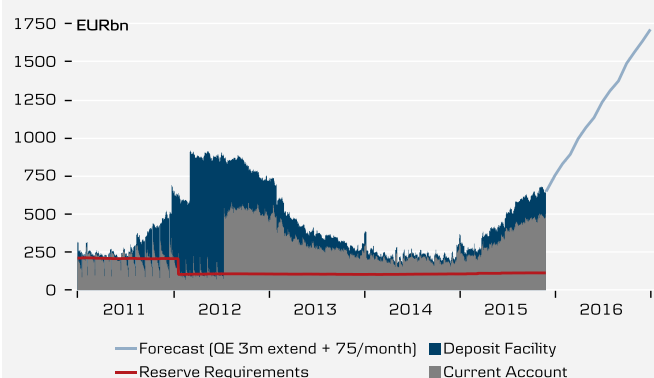
There are different ways that a two-tier deposit rate could be introduced but in all scenarios the individual bank limit would be an important factor. A relatively easily implementable approach could be to introduce a minimum-maximum for the reserve requirement. Currently, the minimum is 1% of the *deposit base*, meaning an aggregate reserve requirement of EUR110bn. If a maximum of say 3% was introduced, the excess liquidity could fall to just above EUR300bn (if all banks were to use the maximum). As the QE programme continues and could potentially be extended at an increased pace at the December meeting, the rise in the ECB's balance sheet could be countered by lifting the maximum reserve requirement further.

In such a scenario, we would expect the Eonia rate to fix with a slightly higher spread to the lower deposit rate but we do not expect the same degree of spread widening and increase in volatility as we have seen in Denmark. Also, certificates of deposit in Denmark are sold on a weekly basis, while access to the ECB deposit facility is daily. However, as in Denmark, the key determinants would be (1) the spread between the two deposit rates, (2) the amount of excess liquidity and the fraction that can be placed at the two rates and (3) banks' willingness/ability to lend excess liquidity to each other (fragmentation). Therefore, we would expect slightly less transmission from cutting the deposit rate into Eonia (i.e. not a one-to-one decline in Eonia).

A small caveat here is that the reduced cost to the banking industry means a smaller gain for the ECB. One of the arguments for the ECB not buying bonds below the deposit rate could be to ensure that the purchases should not be a cost for the euro system, as the effective funding rate for the ECB is the deposit rate. In a two-tier system, this would be more complicated but the ECB is likely to decide the benefits for the banking system outweigh the small loss for the ECB.

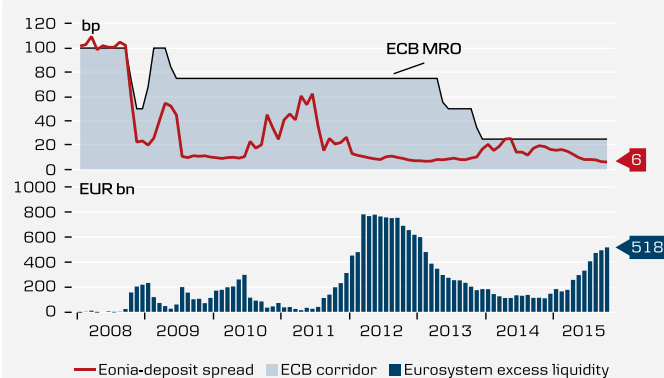
The market's reading of the introduction of a two-tier deposit scheme has been an increased likelihood of a bigger cut. However, the cost to the banking system is not only increasing in the deposit rate level but also in the size of the excess liquidity (QE size) and the time span over which excess liquidity will be very high (forward guidance). Hence, if the ECB were to reintroduce forward guidance such as, for instance, 'keeping rates at the current level or lower until the end of 2017', a two-tier deposit scheme would also make sense in order to reduce the cost to the banking system.

Liquidity deposited overnight at the ECB and forecast



Source: ECB, Danske Bank Markets

High level of liquidity results in Eonia fixing low in the corridor



Source: ECB, Danske Bank Markets

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This research report has been prepared by Danske Bank Markets, a division of Danske Bank A/S ('Danske Bank'). The authors of the research report are Anders Møller Lumholtz (Senior Analyst), Anders Vestergård Fischer (Analyst) and Hans Roager Jensen (Analyst).

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