

NOTE

June 2021

Recommendation of DEST_R as the preferred risk-free reference rate in Danish kroner

NOTE

In 2021 Danmarks Nationalbank established a working group consisting of financial counterparties that are active in the Danish market. Danmarks Nationalbank and the Danish FSA participate as observers in the working group that has a dual objective. Firstly, the working group has to identify the future preferred short-term reference rate in DKK. Secondly, the working group should prepare a plan for the adoption of DESTR and the transition from the current Tomorrow/Next rate to the preferred reference rate. This report delivers on the first part.

The working group recommends DESTR (Denmark Short Term Rate) as the preferred Risk-Free Rate (RFR) in Danish kroner.¹ The underlying transactions of the reference rate will be unsecured O/N-deposits from banks and other financial institutions. The choice of O/N-deposits is due to a stable and broad-based turnover. Thus, the working group finds that DESTR will be a robust reference rate that can serve as a strong, reliable anchor in the short end of the curve, enhance a liquid swap and loan market and function as both a complement to and fallback for the CIBOR fixings.

Background of the recommendation

Post-financial crisis regulation and excess liquidity have altered the incentive to do unsecured interbank lending in both shorter and longer tenors. As global benchmark rates

for interbank lending (IBORs) increasingly depended on quotes, they became vulnerable to manipulation and at risk of premature cessation. As benchmark rates are the backbone of the financial industry, their vulnerability created a risk of financial disruption. In 2013, the International Organisation of Securities Commissions (IOSCO) developed a set of principles to which financial benchmarks should adhere. A year later, in 2014, the Financial Stability Board (FSB) followed up with a report that recommended a global reform of financial benchmarks including rooting benchmark rates in actual transactions to the greatest extent possible. The recommendation of DESTR as the new RFR in Denmark should be viewed in this global context.

The working group's recommendation of DESTR is based on previous work done by Finance Denmark and Danmarks Nationalbank. In 2019 Finance Denmark published a thorough analysis of the unsecured money market in Danish kroner and concluded that O/N-deposits were the most suitable segment for a reference rate in Danish kroner. Danmarks Nationalbank recently published an evaluation, which confirmed the conclusions and the methodology behind DESTR.²

Selection criteria

The following criteria have been considered and discussed in the evaluation of the preferred RFR in Danish

¹ The terminology risk-free has been slightly misused during the benchmark rates reform. Unsecured O/N rates, e.g. DESTR and €STR, do contain credit risk albeit less than the existing term reference rates. Nonetheless the alternative reference rates are commonly referred to as being risk-free rates, so we stick to this terminology in order to avoid any confusion.

² DESTR evaluation, ([link](#)).

kroner. The criteria are similar to the ones identified by the ECB working group on risk free rates.³

1. Qualities

- Derived from broad-based arm's length transactions
- Robust across monetary regimes and changes of market structures

2. Properties

- Sensitive and reactive to the policy rates of Danmarks Nationalbank
- Correlated with other DKK money market rates
- Transparent what economic variable the rate is supposed to measure

3. Methodology

- Based on transactions to the extent possible
- Market data is clearly identified and understood
- Normal and contingency methodology is transparent
- Data is easily accessible to the administrator

4. Governance and accountability

- Compliance with IOSCO's principles and expected to become EU BMR compliant
- Appropriate controls, oversights and data confidentiality in place

5. Other considerations

- In line with other RFRs in other jurisdictions
- Historical data is available or can be produced
- Potential of creating derivatives and loan markets that reference the rate

Potential candidates for the preferred RFR in Danish kroner

Different RFR choices prevail across jurisdictions, e.g. the secured SOFR rate for USD and the unsecured €STR rate for EUR. The working group has considered various transactions for the preferred risk-free reference rate in Danish kroner. Both secured and unsecured as well as FX forward transactions have been analysed as outlined below:

1. A reference rate based on repo transactions

Turnover in the DKK repo market is decent yet more evenly distributed across tenors when compared to unsecured deposits.⁴ Approximately half of the transactions occur in tenors around one week and execution is done directly between banks and clients. Moreover, the nature of these trades varies as a significant part of the repo market is driven by demand for specials and not liquidity. Consequently, the working group does not find these transactions suitable for the foundation of a risk-free reference rate.

2. A reference rate based on FX forwards transactions

The FX forward market is the biggest market, measured by turnover in both O/N and T/N with the main activity in USD/DKK.⁵ However, a common USD rate is required for the calculation of a reference rate based on FX forward transactions. The members of the working group consider this an extremely complicated task. Further, a reference rate based on FX forward transactions would clearly stand out compared to other jurisdictions. Hence, we conclude that this approach would be very difficult and not appropriate to implement in practice.

3. The Tomorrow/Next rate (T/N fixing)

The T/N fixing is based on unsecured interbank lending transactions with settlement on the subsequent Danish banking day (T+1) and maturity two Danish banking days following the day of the transaction (T+2). The T/N fixing is the current reference rate in Danish kroner, and both the term rates in the CITA fixings and the DKK OIS interest rate swap market currently refer to the T/N fixing.

4. Denmark Short Term Rate (DESTR)

DESTR is based on unsecured overnight deposits from banks and other financial institutions. The rate is calculated as a 12.5 per cent trimmed volume-weighted mean of O/N borrowing transactions deposited at the ten most active banks in the DKK money market.⁶ Test data for the reference rate (pre-DESTR) is available until end of April 2021 and it is scheduled to enter into production in 2022.

³ Public consultation on €STR, ([link](#)).

⁴ Cf. Danmarks Nationalbank money market survey, ([link](#)).

⁵ Cf. Danmarks Nationalbank money market survey, ([link](#)).

⁶ Details for the proposed methodology for DESTR can be found in the public consultation by Finance Denmark ([link](#)) and in the evaluation published by Danmarks Nationalbank ([link](#)) in June 2021.

Thus, the working group will compare DESTR and the T/N fixing in the determination of the preferred RFR in Danish kroner, which also supports Denmark's tight financial link to the euro area given the choice of an unsecured rate. The comparison and evaluation of these two candidates take inspiration from the criteria used for RFRs in other jurisdictions cf. the previous section. However, we do not evaluate them exhaustively when comparing the two candidates below.

A comparison of DESTR and the current T/N fixing

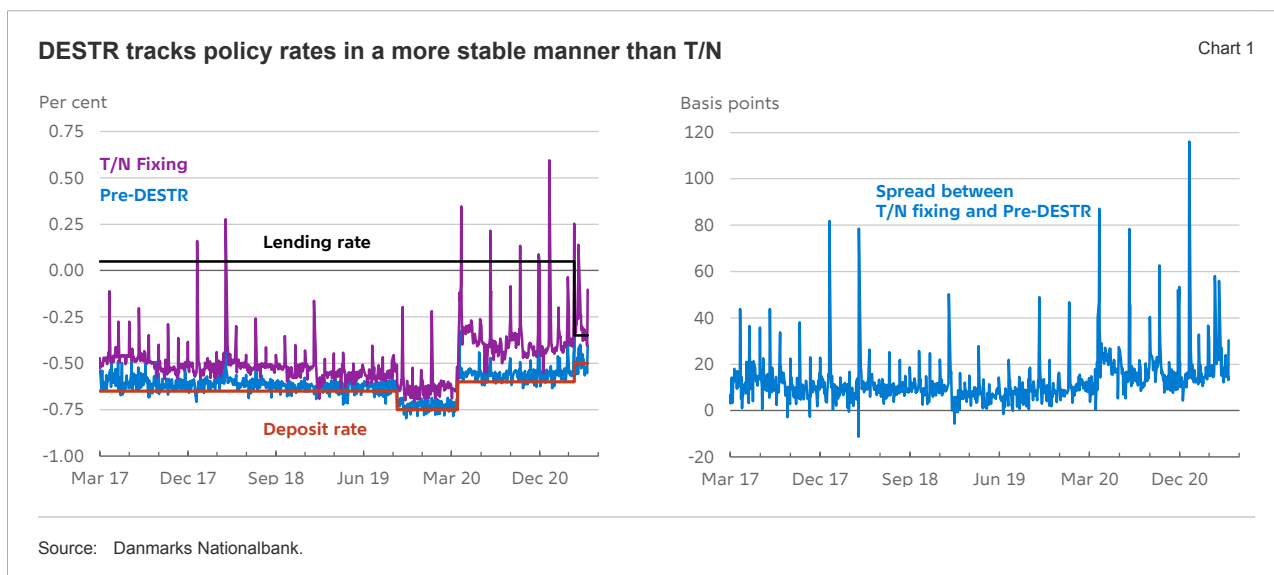
In June 2021 Danmarks Nationalbank published a new evaluation of DESTR with a newly collected dataset from the ten most active banks in the unsecured money market covering the period from March 2017 until April 2021. On this ground we compare DESTR based on unsecured overnight (O/N) deposits from banks and other financial institutions with the current Tomorrow/Next (T/N) fixing, which represents the unsecured interbank lending rate in Danish kroner.

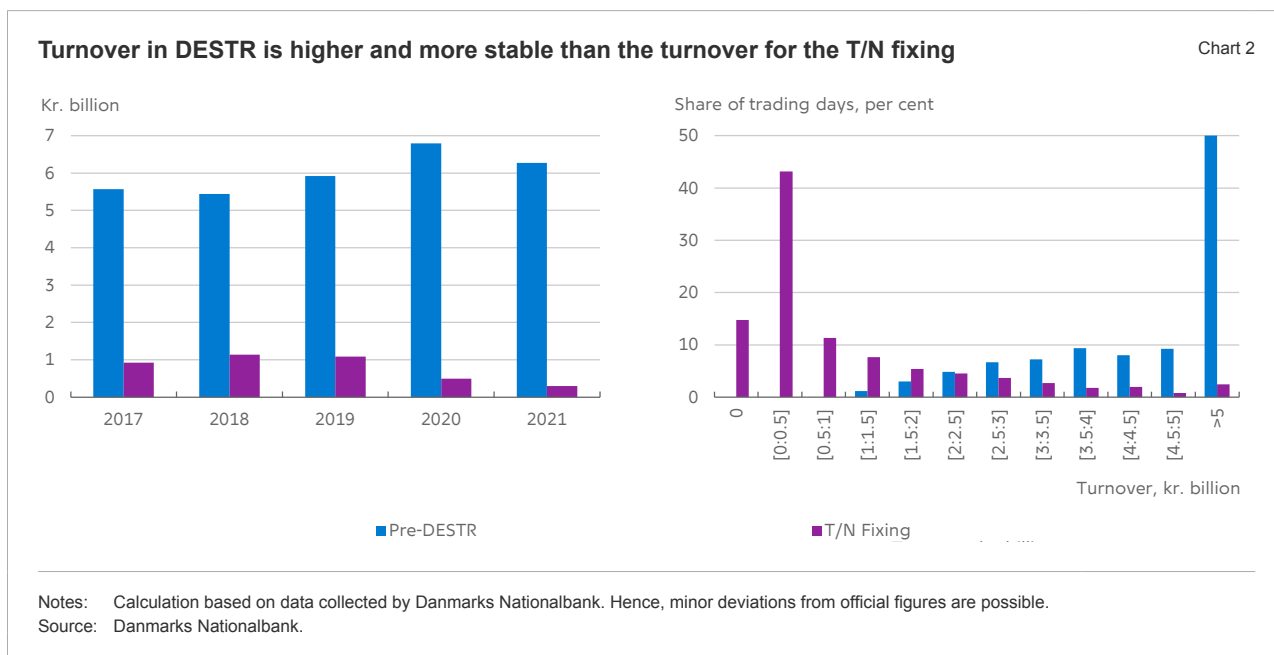
The two candidates in general track movements in Danmarks Nationalbank's policy rates well, cf. Chart 1 (left). However, DESTR exhibits less volatility than the T/N fixing. This is particularly due to the pronounced turn effects in the latter, amplifying the spread between DESTR and T/N fixing at quarter-ends to between 30 bps and 120 bps, cf. Chart 1 (right). Stability and predictability are desirable features for a fixing, since they create a better foundation for building liquid swaps and loan markets in which participants are willing to trade.

Sub-conclusion: When compared to the current T/N fixing, DESTR appears to be a more stable and predictable fixing with limited turn effects. Moreover, it tracks movements in Danmarks Nationalbank's policy rates well albeit not bounded by its deposit rate.

In terms of the size and consistency of the underlying market, unsecured O/N-deposits appear to be more liquid and stable when compared to the market for unsecured T/N-lending. The average daily turnover for DESTR is kr. 5.5 billion and kr. 0.9 billion for the T/N fixing, and the turnover in DESTR has exhibited more stability over time. In contrast, the market underlying the T/N fixing has experienced a decline in volume, cf. Chart 2 (left). As illustrated in Chart 2 (right) the distribution of the daily turnover confirms that DESTR will be a more reliable reference rate. The daily turnover for DESTR is centred on a higher mean. Equally important, there have been zero days without turnover in DESTR.

Moreover, the T/N fixing is partly quote-based whenever the daily turnover is below kr. 3 billion and fully quote-based when turnover is zero. The T/N fixing has been quote-based on 99 per cent of the trading days in 2021. Consequently, the T/N fixing struggles to fulfil the criteria of being based on transactions to the extent possible. Finally, it has to be emphasised that Danmarks Nationalbank's exit from its two-tiered deposit system, effective from 19 March 2021, might alter the incentives to do interbank borrowing transactions. Without any limits on the current account the need for doing interbank exchange of liquidity could become less pronounced. Consequently, it remains to be seen whether the changes create a structural drop in liquidity for O/N-deposits. However, the latest available





data do not indicate this with around kr. 5 billion in average daily turnover for DESTR in April 2021 and without any activation of contingency procedures. Finally, considering the low turnover in T/N-lending the working group still expects O/N-deposits, and thereby DESTR, to be superior in terms of turnover despite the policy changes.

Sub-conclusion: DESTR seems to be more robust across different economic regimes and more stable over time. Hence, with respect to size and consistency of the turnover in the underlying market, DESTR is preferred over the current T/N fixing.

The working group's preference of DESTR is strengthened when comparing the concentration for DESTR and the current T/N fixing. In general, large and diverse contributions impede manipulation and make reference rates more representative of the underlying market, less vulnerable to idiosyncratic factors and thereby more predictable and understandable for their users. The average share from the biggest contributor is merely 48 per cent for DESTR as opposed to 89 per cent for T/N fixing cf. Chart 3 (left). A similar conclusion emerges when analysing the distribution of trades across banks in Chart 3 (right). For DESTR four or more banks provide turnover on around 98 per cent of the days. This is in sharp contrast to the T/N fixing where four or more provide turnover around 5 per cent of the days and for more than 80 per cent of the days a maximum of two banks contribute turnover.

Sub-conclusion: The dispersion in contributions is likely to make DESTR less prone to idiosyncratic factors and less dependent on contingency procedures. Finally, it will represent a broad-based unsecured money market to a much larger extent than the T/N fixing in Danish kroner.

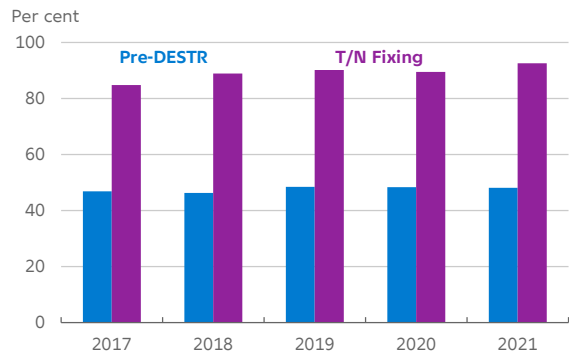
The working group's conclusion

The working group recommends DESTR as the new risk-free rate for DKK. The recommendation is based on a comparison between two potential candidates: DESTR and the currently used T/N fixing. When comparing the historical turnover, the working group concludes that DESTR will be a more resilient and robust reference rate than the current T/N fixing. In addition, DESTR appears to be a more stable and predictable fixing which creates a strong foundation for building derivatives and potentially loan markets using the new RFR. Finally, the working group considers that it is a strength and source of credibility that DESTR will be administered by Danmarks Nationalbank.

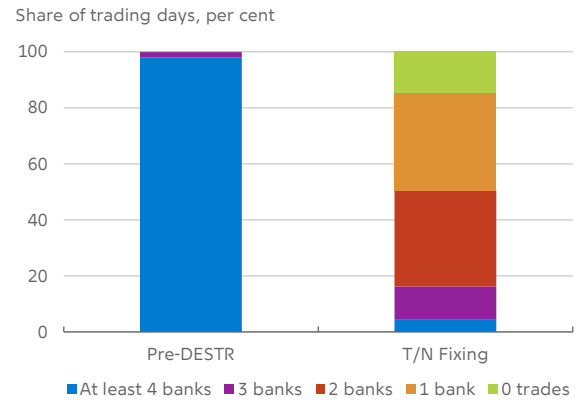
Distribution of turnover is less concentrated for DESTR than T/N fixing

Chart 3

Share of daily turnover provided by the largest contributor



Distribution of trades across banks



Notes: Calculation based on data collected by Danmarks Nationalbank. Hence, minor deviations from official figures are possible.
 Source: Danmarks Nationalbank.