

# DANMARKS NATIONALBANK

25 NOVEMBER 2020 — NO. 25

## Can capital buffers actually help banks in times of crisis?



### Capital buffers should serve their purpose

It is important that capital buffers can act as a cushion and absorb losses during an economic downturn, so that banks can continue providing credit to the economy.

[Read more](#)



### Low usability of buffers

The usability of capital buffers is limited by the leverage ratio requirement and the minimum requirement for own funds and eligible liabilities for several of the largest Danish financial institutions.

[Read more](#)



### Interaction between requirements should be addressed

Different requirements for banks target different types of risks. The interaction between requirements should be addressed, so that all requirements can serve their purpose.

[Read more](#)

Banks are currently subject to a number of different requirements that must be met simultaneously. The different requirements address different types of risks.

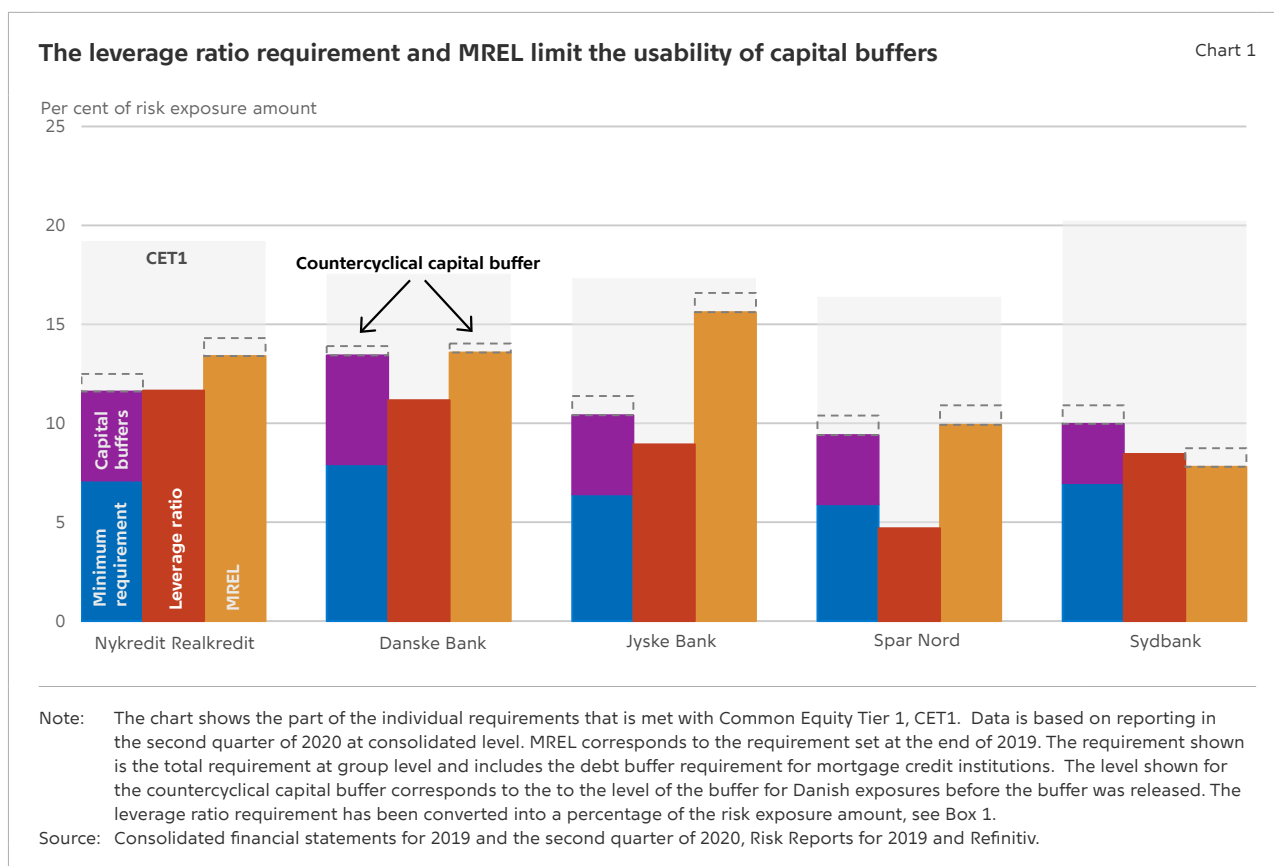
Banks are subject to a risk-based capital requirement consisting of a minimum requirement and a capital buffer requirement.<sup>1</sup> From 1 July 2021, the financial institutions must also meet a minimum leverage ratio requirement, which measures a bank's capital as a share of its total assets. Financial institutions are also subject to a minimum requirement for the size of their own funds and eligible liabilities, MREL. The MREL is to ensure that a bank maintains sufficient funds so that it can be resolved without compromising public finances.

During the lockdown in response to the covid-19 outbreak, a number of authorities in Europe, including Denmark, decided to release the countercyclical capital buffer, while other authorities permitted the use of other capital buffers. Capital buffers should function

as a cushion and absorb losses during an economic downturn, so that banks can continue their provision of credit to the real economy. If other requirements, such as the leverage ratio requirement or the MREL, exceed the capital buffer requirements, the buffers cannot act as effective buffers. This is the case for several of the largest Danish banks, see Chart 1. The chart shows the part of each bank's requirements that is met with Common Equity Tier 1, CET1. The leverage ratio requirement and MREL can also be met with other types of capital, and the chart is therefore based on the banks' current balance sheet composition.

The release of the countercyclical capital buffer in March 2020 resulted in a capital relief for the banks, as the MREL was reduced correspondingly at the same time.

In practice, the usability of the capital buffers is considerably lower than intended by regulation. Future amendments to regulation should therefore take



1 In Denmark, the combined capital buffer requirement consists of the countercyclical capital buffer (0 per cent), the capital conservation buffer (2.5 per cent) and an institution-specific SIFI buffer.

into account the interaction between the various requirements, so that all requirements can serve their purpose.

## Different risks – different requirements

Different bank requirements address different risks that materialised during the financial crisis. The purpose of each of the requirements and the interaction with the capital buffer requirements are discussed below.

### Capital buffers should support lending in times of economic distress

Banks' risk-based capital requirements must reflect the risk in their lending portfolio and are therefore expressed as a percentage of their risk-weighted exposures. The requirements consist of an individual solvency requirement<sup>2</sup>, which is a 'hard' minimum requirement, and a number of capital buffer requirements. The capital buffer requirements were introduced in the wake of the financial crisis as part of the Capital Requirements Regulation and Directive CRR/CRD IV, which aimed at increasing the quality and amount of capital banks maintain.

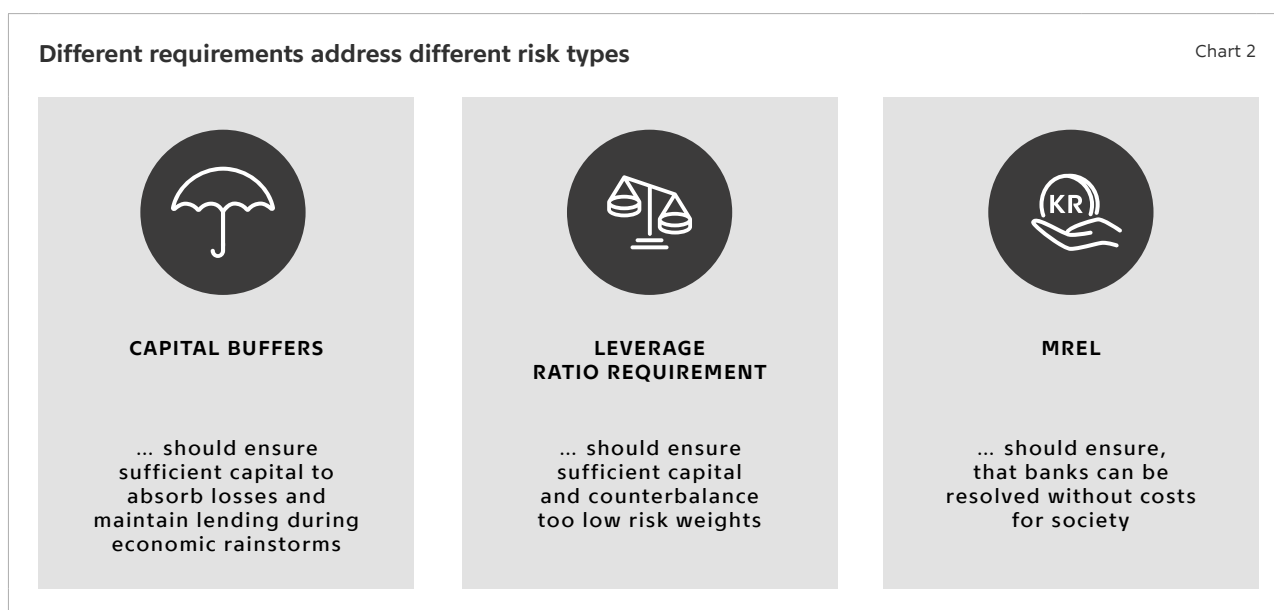
Previously, the capital requirements consisted solely of a so-called minimum requirement. Breach of the minimum requirement meant that the bank had to close down and could no longer provide credit to businesses and households. The minimum requirement is therefore also called a 'hard' requirement.

Capital buffers are, on the contrary, softer requirements that are to act as a cushion and absorb losses during an economic downturn or an unexpected shock, so that a bank can continue lending to the economy. Breach of the capital buffer requirements results in restrictions on the payment of dividends and bonuses, allowing the financial institutions to reverse the situation before the minimum requirement is breached.

In Denmark, the combined capital buffer requirement consists of the countercyclical capital buffer, the capital conservation buffer and, for systemically important financial institutions (SIFIs), a SIFI buffer.

### The leverage ratio requirement fences in risks of too low risk weights and excessive leverage

Systemic financial institutions use their own models to estimate the risk on their exposures, the so-called internal models. The financial crisis exposed certain challenges in relation to the use of internal models. Risks can be difficult to estimate. If the internal mod-



<sup>2</sup> A minimum requirement, Pillar I, of 8 per cent, laid down in the Capital Requirements Regulation (CRR), and an individual solvency supplement, Pillar II.

els underestimate the true risks, it would mean that the model-based risk weights are too low and banks do not reserve sufficient capital to absorb losses and continue lending during an economic downturn. This may have negative consequences for financial stability.

To ensure banks reserve sufficient capital irrespective of risk weights, a minimum leverage ratio requirement will apply to banks from 1 July 2021.<sup>3</sup> The leverage ratio requirement implies that a bank's capital in relation to its non-risk-weighted exposures must be minimum 3 per cent.

Whether the leverage ratio requirement is the binding minimum requirement, depends on the risk weights of a bank's exposures. The lower a bank's risk weights are on average, the more binding the leverage ratio requirement will be, see Chart 3 and Box 1.

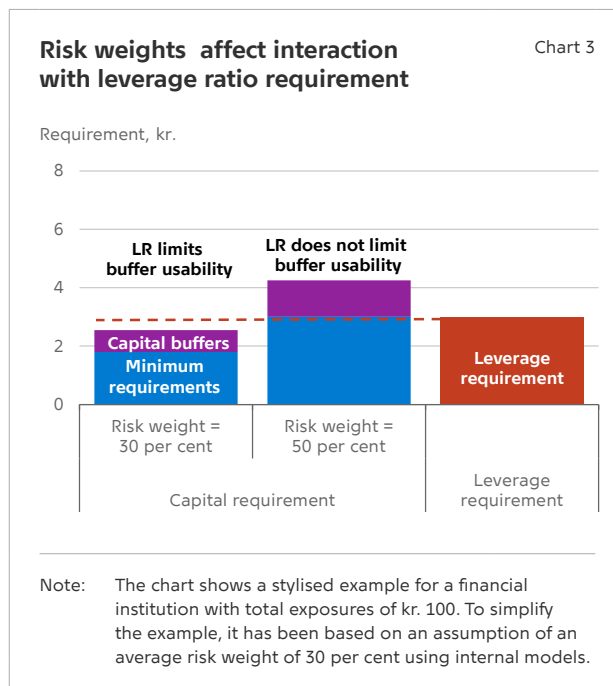
Capital buffers cannot be fully used, if the leverage ratio requirement exceeds the minimum risk-based requirement. This is the case for some of the largest Danish banks, as their average risk weights are relatively low due to low risk weights on mortgage loans.

### MREL ensures that banks can be resolved without use of government funds

The financial crisis also highlighted the importance of resolving banks without the use of government funds or negative effects on financial stability. With the implementation of the Bank Recovery and Resolution Directive (BRRD), a minimum requirement for own funds and eligible liabilities – MREL – has therefore been introduced for financial institutions.

The objective of MREL is to ensure that banks have sufficient equity and debt resources to absorb losses in resolution. This ensures that investors and creditors rather than taxpayers bear the costs of recovery and resolution of a failing bank.

For SIFIs, the MREL is set at twice the total capital requirement, including the SIFI buffer and capital con-



servation buffer.<sup>4</sup> For non-systemic banks, the requirement is set as the total capital requirement, including capital buffers, and an MREL add-on. The MREL add-on is dependent on the bank's balance sheet size and is phased in gradually towards 2023.

MREL can be met with *both* capital and debt instruments. As all requirements must be met simultaneously, capital instruments used to meet the combined buffer requirement can also be used to meet MREL, see Chart 4.

SIFIs have had to comply with MREL since 2019, and several have issued non-preferred senior debt in order to comply with the requirement. However, SIFIs also use a significant part of their CET1 to meet the requirement. For the current balance sheet composition, this means that the amount of CET1 needed to meet MREL exceeds the amount needed to meet the risk-based capital requirement. For most systemic banks, this means that MREL limits buffer usability.

Many of the non-systemic banks use primarily CET1 instruments to meet MREL. For most non-systemic

<sup>3</sup> See the revised Capital Requirements Regulation (CRR2).

<sup>4</sup> In Denmark, mortgage credit institutions are exempt from a MREL requirement and must instead meet a debt buffer requirement of 2 per cent of the unweighted loans; however, the MREL requirement constitutes a minimum of 8 per cent of banking groups' total consolidated liabilities.

banks, the MREL will therefore also limit the effective size of the capital buffers.

Whether other requirements limit the effective size of capital buffers depends on banks' business models and the composition of their funding.

## Regulation should be adjusted to take account of the interaction between requirements

In order to secure that all requirements serve their purpose, it is necessary to adjust the requirements so they can function as intended regardless of the bank's business model and funding composition. The regulatory framework for Danish financial institutions' capital buffers, minimum requirements and eligible liabilities is governed by international regulation. The framework for setting both capital requirements and MREL will be changed in the future, which will have an impact on buffer usability.

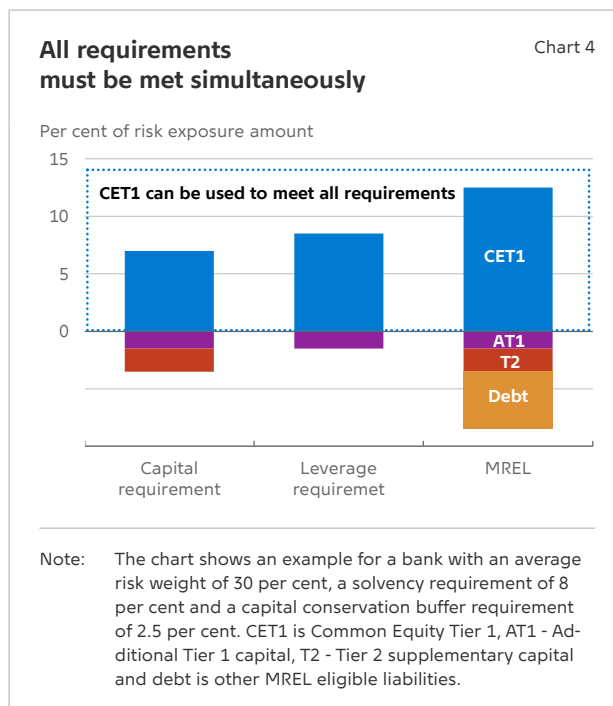
### New MREL offers a partial solution

The implementation of the Bank Recovery and Resolution Directive (BRRDII) from 1 January 2021 will change the method for setting MREL, see Box 2. The combined buffer requirement will no longer be a part of the MREL, but must instead be met as a separate requirement. This means that capital used to meet the buffer requirement cannot simultaneously be used to meet MREL. Seen in isolation, this entails that the capital buffers can be fully used as effective buffers.

However, BRRDII also introduces a *non-risk-based MREL requirement*. The requirement is calculated as twice the leverage ratio requirement. Capital used to meet this MREL requirement can also be used to meet the buffer requirement implying that the problem of limited buffer usability persists for some banks. This interaction problem mirrors the interaction problem between the leverage ratio requirement and the buffer requirements. Hence, BRRDII does not solve the problem of limited usability of capital buffers.

### Capital buffer usability can be increased through multiple channels

The problem of low buffer usability is currently discussed in various international forums. Buffer usability can be increased through a number of channels.

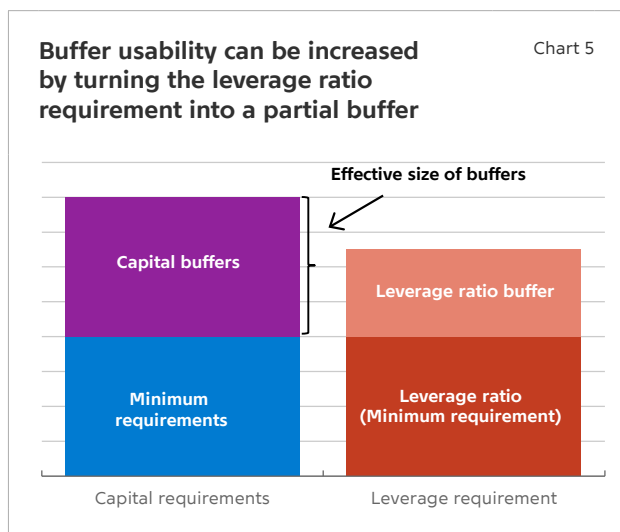


### Leverage ratio buffers can boost buffer capacity

One way of ensuring that capital buffers can actually be used is to convert the leverage ratio requirement of 3 per cent to a full or partial buffer. The minimum requirement of 3 per cent would then be reduced and instead consist of a full or partial buffer. This will increase the effective buffer capacity as financial institutions will be able to use more of their buffers before breaching the minimum leverage ratio requirement, see Chart 5.

Alternatively, leverage ratio buffers can be introduced on top of the current leverage ratio requirement of 3 per cent. Leverage ratio buffers are already part of the Basel Committee's global standards for global systemically important banks (G-SIBs).

There are no G-SIBs in Denmark, but the requirement will be introduced in EU legislation from 1 July 2023. The size of the leverage ratio buffer for G-SIBs depends on the bank's global systemic importance and represents 50 per cent of the corresponding risk-based requirement. A bank with a risk-based G-SIB capital buffer requirement of 2 per cent will therefore be subject to a G-SIB leverage ratio buffer of 1 per cent. According to the CRR II, the EU Commission must publish a report on the expediency of introducing corresponding leverage ratio buffers for other systemically important financial institutions, including Danish SIFs, by the end of 2020.



If the leverage ratio requirement is converted into a full or partial buffer, the non-risk-based MREL could be adjusted in the same way as the risk-based MREL. In such case, capital used to meet the leverage ratio requirement cannot simultaneously be used to meet the non-risk-based MREL. This could resolve the problem that the MREL may be the binding requirement before the capital buffers have been exhausted.

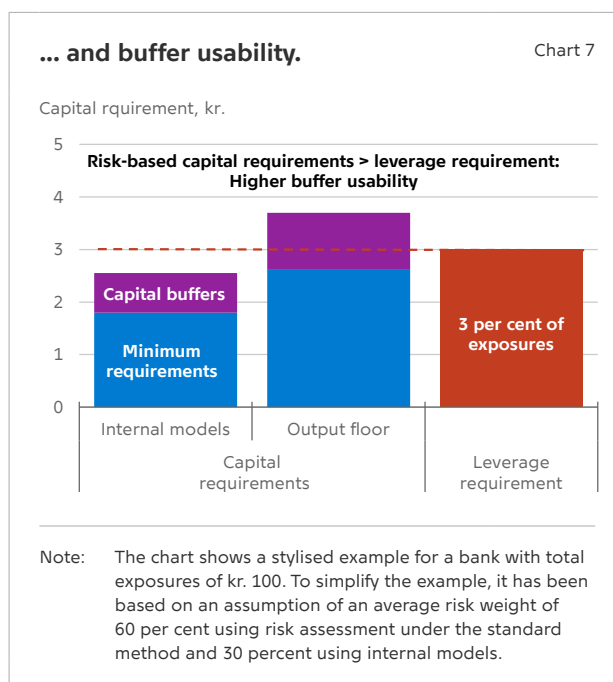
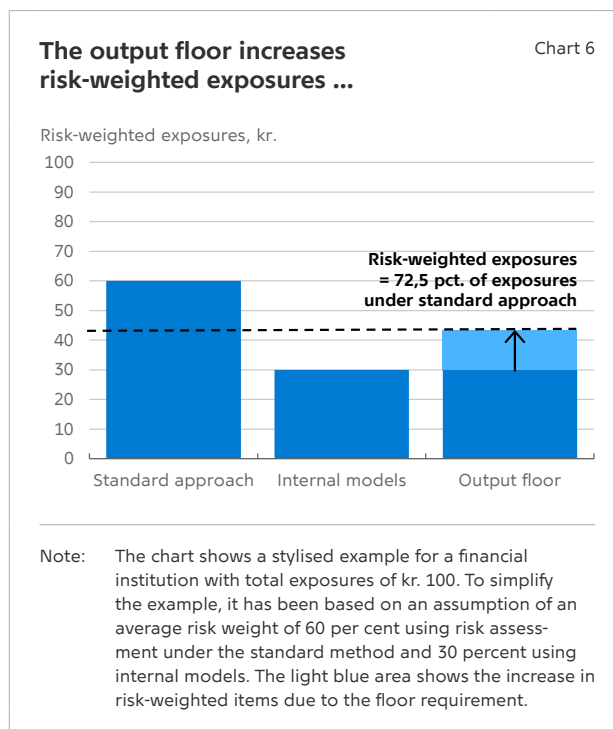
### Output floors can also increase buffer usability

The interaction between the leverage ratio requirement and the buffer requirements is linked to banks' balance sheet composition, and the risk weights on their exposures are of major significance. The lower a bank's risk weights are, the more binding the leverage ratio requirement will be.

An increase in risk-weighted exposures could therefore also increase the usability of capital buffers. The Basel Committee's so-called output floor, which is scheduled to be implemented gradually in the EU from 2023 to 2028, will work in this direction.

The output floor limits how low the risk weights can be for banks using the internal models to calculate the risk-weighted exposures. The output floor is set at a fixed percentage of the risk weighted exposures calculated under the revised standard approach. For banks using internal models, this may result in an increase of their risk-weighted exposures, see chart 6.

Higher risk-weighted exposures will result in an increase in the risk-based capital requirement, which, all else equal, will increase the effective usability



of the buffers, see chart 7. In order to secure that buffers can be used as intended, it is important that the implementation of the output floor in the EU does not depart from the Basel standard, so that all requirements and buffers are included in the calculation of the risk exposure amount. Otherwise, a situation may again arise in which the buffers cannot actually be used as intended.

### How to compare different requirements?

Box 1

This analysis compares three requirements, which differ in terms of how the requirements are calculated and the types of instruments which can be used to meet the requirements.

While the risk based capital requirements and buffer requirements are measured as a percentage of a bank's risk-weighted exposures, the leverage ratio requirement is measured as a share of the bank's total exposures. To make the requirements comparable, the leverage ratio requirement is therefore converted into a requirement as a percentage of the risk exposure amount (REA):

Leverage ratio requirement =

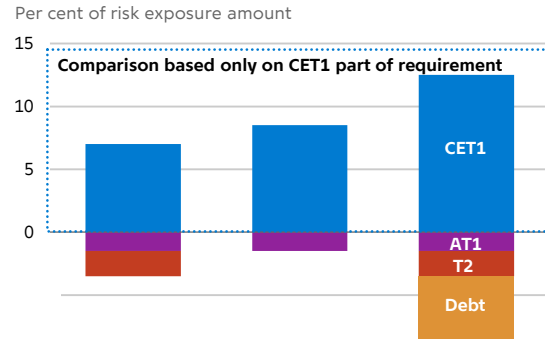
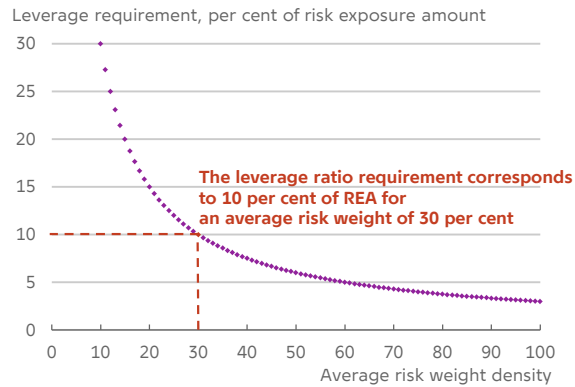
$$3 \text{ per cent} * \text{exposures} = 3 \text{ per cent} \frac{REA}{RW}$$

$$\Leftrightarrow \frac{\text{Leverage requirement}}{REA} = \frac{3 \text{ per cent}}{RW}$$

with the risk exposure amount being equal to the average risk weight (RW) multiplied by the total exposures. The size of the converted leverage ratio requirement will depend on the average risk weight density of a bank's exposures. The lower the average risk weight for a bank's exposures, the higher the converted leverage ratio requirement will be, see chart on the left. The composition of the bank's assets and their risk weighting are therefore of importance to the relative size of the leverage ratio requirement.

The composition of a bank's funding is important in assessing whether the leverage ratio requirement and the MREL limit the effective size of the capital buffers. The more supplementary capital or non-preferred senior debt a bank has, the less Common Equity Tier 1 it will need to meet the leverage ratio requirement and MREL. The comparison of the requirements is therefore based on the amount of CET1 capital necessary to fulfill each of the requirements, after taking into account the bank's other capital and debt instruments, see chart on the right.

### Composition of both assets and liabilities is of importance to interaction between requirements



Note: *Right:* The chart shows an example for a bank with an average risk weight density of 30 per cent, a solvency requirement of 8 per cent and a capital conservation buffer requirement of 2.5 per cent. CET1 is Common Equity Tier 1, AT1 - Additional Tier 1 capital, T2 - Tier 2 supplementary capital and debt is other MREL eligible liabilities.

### Upcoming changes to MREL with BRRDII

Box 2

In May 2020, the European Commission adopted a number of amendments to the Bank Recovery and Resolution Directive (BRRDII). The amendments especially concern MREL and must ensure conformity with the requirements laid down for global systemically important banks. Some parts of BRRDII have already been implemented in Denmark, while the rest of the amendments will take effect on 1 January 2021.

#### Combined buffer requirement must be met separately

The combined buffer requirement is currently part of both the loss absorption amount and the recapitalisation amount in MREL. The loss absorption amount consists of the minimum capital requirement and the combined buffer requirement, while the recapitalisation amount consists of the minimum capital requirement and the combined buffer requirement excluding the countercyclical capital buffer. With BRRDII, the combined buffer requirement will no longer be included in the loss absorption amount in MREL,

but only in the recapitalisation amount. It will thus only be included once in the total MREL. Instead, banks will have to comply with the combined buffer requirement separately, see the chart below. The instruments used to meet the combined buffer requirement cannot be used to meet MREL at the same time. The two requirements will thus be 'stacked' on top of each other.

#### Two MREL requirements

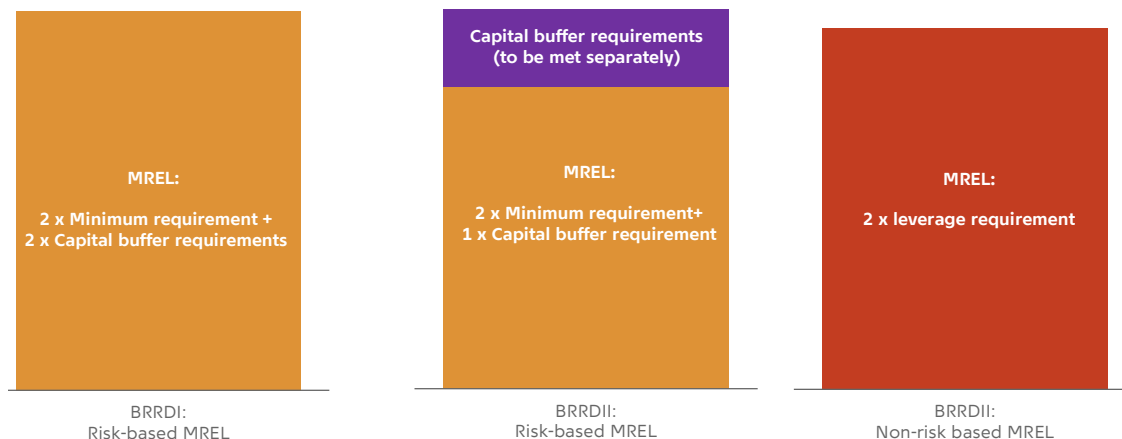
The MREL is currently determined only as a percentage of risk-weighted exposures. In the future, MREL must be determined both as a percentage of risk-weighted exposures and as a percentage of total exposures, see chart. For the non-risk-weighted MREL, the basis is that both the loss absorption amount and the recapitalisation amount must correspond to the leverage ratio requirement, i.e. 3 per cent of total exposures. Capital instruments which are used to meet the buffer requirements can at the same time be used to meet the non-risk-based MREL requirement.

### BRRDII introduces a non-risk-based MRE

Per cent of risk exposure amount

Per cent of risk exposure amount

Per cent of total exposure amount





## PUBLICATIONS



### NEWS

News offers a quick and accessible insight into an Analysis, an Economic Memo, a Working Paper or a Report from Danmarks Nationalbank. News is published continuously.



### ANALYSIS

Analysis from Danmarks Nationalbank focuses on economic and financial matter. Some of the analyses are published with a regular frequency e.g. *Outlook for the Danish economy and Financial stability*. Other analyses are published continuously.



### REPORT

Report comprises recurring reports and reviews of the functioning of Danmarks Nationalbank. For instance Report includes the *Annual report* and the annual publication *Danish government borrowing and debt*.



### ECONOMIC MEMO

Economic Memo is a cross between Analysis and Working Paper and it often shows the ongoing study of the authors. The publication series is primarily targeted at professionals. Economic Memo is published continuously.



### WORKING PAPER

Working Paper presents research projects by economists in Danmarks Nationalbank and their associates. The series is primarily targeted at professionals and people with an interest for academia. Working Paper is published continuously.

The analysis consists of a Danish, Greenlandic and an English version. In case of doubt regarding the correctness of the translation the Danish version is considered to be binding.

DANMARKS NATIONALBANK  
LANGELINIE ALLÉ 47  
DK-2100 COPENHAGEN Ø  
WWW.NATIONALBANKEN.DK

This edition closed for contributions  
on 10 November 2020.



**DANMARKS  
NATIONALBANK**

**Christian Sinding Bentzen**  
Principal  
Macroprudential Expert  
[csb@nationalbanken.dk](mailto:csb@nationalbanken.dk)

**Ianna Georgieva Yordanova**  
Senior  
Macroprudential Expert  
[igy@nationalbanken.dk](mailto:igy@nationalbanken.dk)  
FINANCIAL STABILITY

## CONTACT

**Teis Hald Jensen**  
Communications  
and Press Officer

[tehj@nationalbanken.dk](mailto:tehj@nationalbanken.dk)  
+45 3363 6066

SECRETARIAT  
AND COMMUNICATIONS