

# DANMARKS NATIONALBANK

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STRESS TEST – 1ST HALF 2021

## A few systemic banks have capital shortfall in severe recession scenario



### A few systemic banks fall short of capital requirements

In the severe recession scenario, a few systemic banks fall short of their capital buffer requirements and, to a limited extent, the leverage ratio requirement. In comparison, non-systemic banks pass the stress test without falling significantly short of the buffer requirement.



### Weaker earnings pose challenges

The banks are generally better capitalised than in the past. However, in the stress test, many banks are challenged by weaker earnings, which means that they are less resilient under stress.



### Banks are challenged by the MREL

The stress test shows that the banks will have a substantial need to issue MREL-eligible instruments if they are to continue to meet the MREL in a severe recession scenario. It is therefore important that they have sufficient surplus relative to the MREL and long maturities on their MREL-eligible instruments.

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Danmarks Nationalbank performs a semi-annual stress test of the largest Danish banks.<sup>1</sup> In the stress test, the banks' capital is compared with the applicable capital requirements in three macroeconomic scenarios: A baseline scenario that follows Danmarks Nationalbank's latest projection and two recession scenarios, both entailing an economic downturn in the second half of 2021.<sup>2</sup>

Looking at the scenarios in the light of previous economic developments, especially the severe recession scenario is very severe. The economic downturn in the recession scenarios occurs in a situation in which the Danish economy is already in a recession, and, at the end of the severe recession scenario, GDP is as much as 10 per cent below the baseline scenario level, see Chart 1.

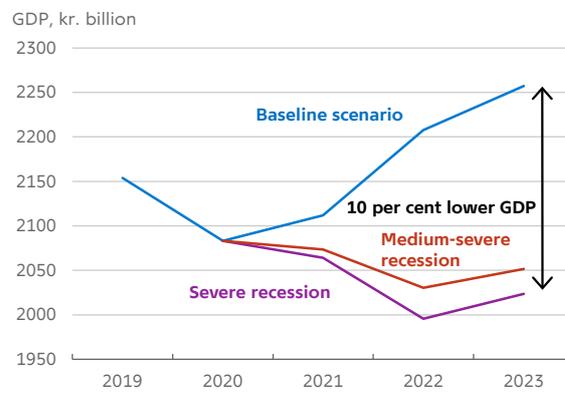
In the first part of the stress test, we focus on the consequences of the banks' loss of capital, under the assumption that they cannot raise new capital, for example via the equity market. This part of the stress test shows that most banks meet all requirements for their capital in the recession scenarios. A significant reason for this is that, during the past year, most of the banks have increased their excess capital adequacy, including as a result of limited impairment charges, combined with no distribution of dividend or share buy-backs in 2020. Despite the increased excess capital adequacy, a few systemic banks fall short of the capital buffer requirement and, to a modest extent, the leverage ratio requirement in the severe recession scenario.

The stress test has been conducted under a number of stylised assumptions, including that the management does not make business changes when the banks come under pressure. Although, in practice, management interventions must be expected if the economy suffers a severe negative shock, breaches of the leverage ratio requirement in the stress test should give the institutions cause to consider whether they are adequately capitalised.

In the second part of the stress test, we examine how the institutions perform if, in addition to a lack

### Banks are hit by severe economic downturn in stress test recession scenarios

Chart 1



Note: The baseline scenario is Danmarks Nationalbank's economic projection from March 2021.  
Source: Own calculations.

of access to new capital, they also cannot issue new debt instruments to meet the MREL<sup>3</sup>. This means that the institutions are challenged by both loss of capital and maturity of debt issuances, thus depleting their excess capital adequacy relative to the MREL. Furthermore, the lack of MREL issuances could lead to a breach of the capital buffer requirement, as, with the implementation of the Bank Recovery and Resolution Directive (BRRD2), this must be met as a separate requirement in addition to the MREL in future. This means that the institutions must first ensure that the MREL is met and that capital instruments used to meet the MREL cannot concurrently be used to meet the capital buffer requirement. We find that the lack of access to issuance of MREL instruments under the stress test will result in the majority of the institutions falling short their capital buffer requirement. Many of the institutions will also breach the MREL. This stresses that the institutions should ensure a sufficient surplus relative to the MREL as well as long maturity on their MREL-eligible issuances.

1 See Appendix 1 for an overview of the institutions that constitute the stress test population.

2 See Appendix 2 for an overview of key figures for the scenarios.

3 Requirement for the bank's eligible liabilities aimed at ensuring that the bank has sufficient funds to absorb losses and recapitalise the bank, if that is the resolution strategy, in a crisis situation.

## A few systemic banks fall short of capital requirements in severe recession

The stress test shows that the banks can cope with a medium-severe recession without major breaches of the capital buffer requirements, see Chart 2. However, a more severe recession may cause problems, and a few systemic banks risk falling short of their capital buffer requirements. Overall, they have a shortfall of approx. kr. 15 billion in satisfying the buffer requirements in the severe recession scenario. The banks are required to meet both minimum and buffer requirements for their capital, see Chart 3. The requirements shown are risk-based, i.e. the amount of capital is assessed in relation to the risk exposure amounts. All systemic banks are well above their risk-based minimum requirements in both recession scenarios.

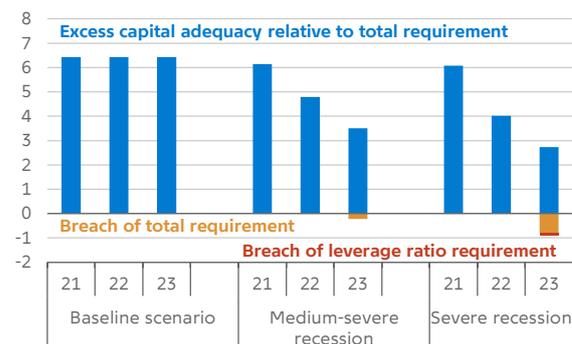
From 28 June 2021, a minimum requirement will also apply to the banks' non-risk weighted assets, a so-called leverage ratio requirement, aimed at limiting risks of too low risk weights.<sup>4</sup> The leverage ratio requirement entails that the banks' common equity capital (Tier 1) must constitute 3 per cent of their unweighted exposures. A few systemic banks modestly exceed the leverage ratio requirement in the severe recession scenario, see Chart 2.

If a bank's capital ratio falls below the buffer requirements, a number of restrictions will be imposed, for example in relation to dividend payments and payment of coupon rates on hybrid capital instruments. The bank must also submit a capital conservation plan to the Danish Financial Supervisory Authority and take measures to restore the capital buffers. The leverage ratio requirement is instead a minimum requirement, and a breach thereof is expected to trigger stringent requirements for the bank's recovery initiatives, so that the bank will again be able to meet the requirement within a short deadline. If the bank cannot meet the requirement within a given deadline, the Danish Financial Supervisory Authority will be forced to revoke the bank's licence to continue its operations.

### A few systemic banks fall short of buffer and leverage ratio requirements

Chart 2

Excess capital adequacy/capital shortfall, per cent of risk exposure amounts



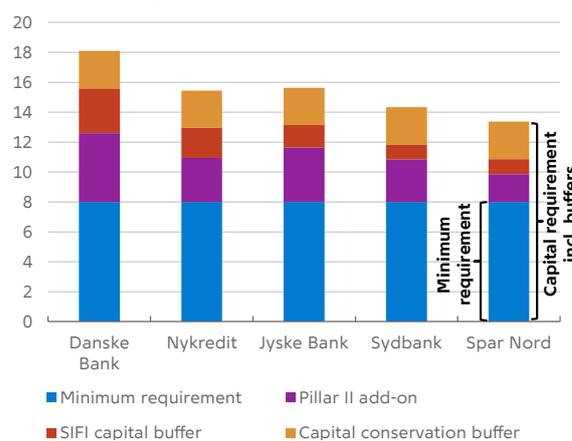
Note: The chart shows the excess capital adequacy or capital shortfall of systemic banks that either have excess capital adequacy or a capital shortfall as percentages of their total risk exposure amounts.

Source: The Danish Financial Supervisory Authority and own calculations.

### Composition of capital requirements for systemic banks

Chart 3

Per cent of risk exposure amounts



Note: Risk-based capital requirements as at end-2020.

<sup>4</sup> The systemic banks use internal models to calculate the risk of their exposures. If the internal models underestimate the actual risks, the calculated risk weights become too low.

The non-systemic banks can handle both recession scenarios without significant breaches of the capital buffer requirement, see Chart 4. In addition, all non-systemic banks meet the risk-based minimum requirement and the 3 per cent leverage ratio requirement in both recession scenarios.

### Banks are better capitalised than before covid-19

Both the systemic and non-systemic banks in the stress test are generally better capitalised than they were a year ago. Even though several banks have planned dividend payments in 2021, it contributes positively to their excess capital adequacy that their proposed share buybacks and dividend payments are lower than usual.<sup>5</sup>

The release of the countercyclical capital buffer in March 2020 also helped increase the banks' excess capital adequacy. As Danmarks Nationalbank normally assumes in its stress tests that the buffer is released in a recession scenario, this release does not change the excess capital adequacy under stress.

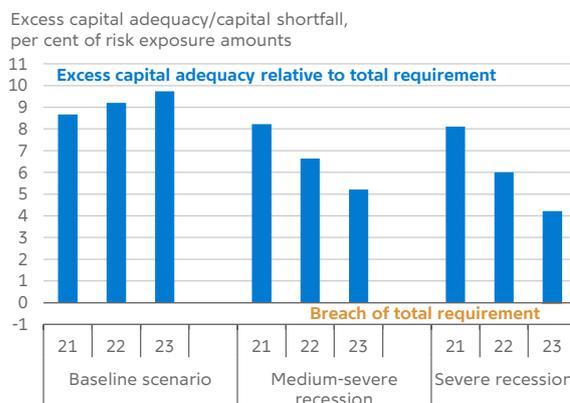
Conversely, the banks are adversely affected by being in a slightly weaker earnings position today than they were a few years ago. In recent years, a decline in the banks' net interest income and higher costs have reduced their core earnings. This has a negative effect on the banks' projected core earnings in the stress test, which means that they are less resilient in a stress scenario.

## Interaction between MREL and buffer requirements

With the implementation of the Bank Recovery and Resolution Directive (BRRD2), which entered into force in December 2020, the rules on determination of the banks' MREL were amended. The so-called combined capital buffer requirement is no longer part of the MREL, but must instead be met as a separate requirement, see Chart 5. This means that the

### Non-systemic banks have no significant breaches of buffer requirement

Chart 4

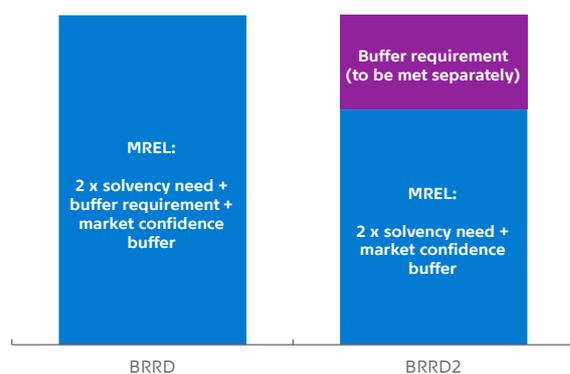


Note: The chart shows the excess capital adequacy or capital shortfall of non-systemic banks that either have excess capital adequacy or a capital shortfall as percentages of their total risk exposure amounts. The reason for the accumulation of capital in the baseline scenario is that non-systemic banks are assumed to retain earnings in order to satisfy the MREL, which will be gradually phased in between now and 2023.

Source: The Danish Financial Supervisory Authority and own calculations.

### BRRD2 introduces separate capital buffer requirement

Chart 5



<sup>5</sup> Danmarks Nationalbank, Build-up of risks in credit institutions, *Danmarks Nationalbank Analysis (Financial Stability)*, No. 12, May 2021 ([link](#)).

institutions must first ensure that the MREL is met and that capital instruments used to meet the MREL cannot concurrently be used to meet the capital buffer requirement. As shown in Chart 5, the change does not affect the size of the total requirement for the banks, but it means that capital buffers can be used to absorb losses to a greater extent without breaching other requirements.

From 1 January 2022, Danish SIFIs that are or comprise a mortgage credit institution will also be subject to a minimum requirement for their eligible liabilities. The minimum requirement entails that the financial institution's MREL and buffer requirements, together with the mortgage credit institution's capital adequacy and debt buffer requirements must constitute minimum 8 per cent of the group's total liabilities.<sup>6</sup> These SIFIs must thus comply with two parallel requirements for their eligible liabilities, with the largest being the binding requirement for the institution.

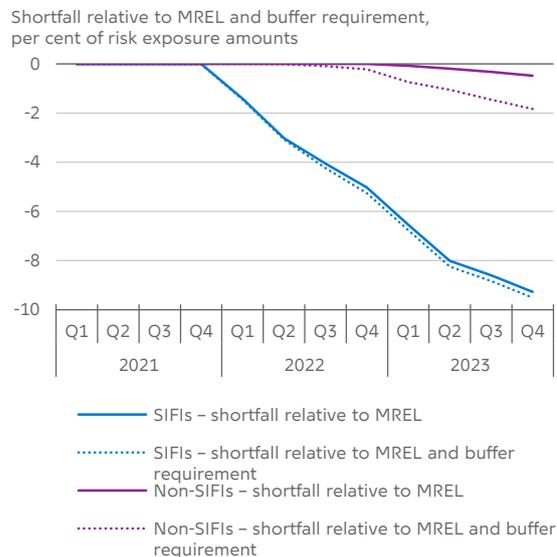
### Systemic institutions will have large issuance requirements under stress

The institutions may meet the MREL and buffer requirements by means of the capital they use to meet the capital requirements and using additional eligible liabilities. The stress test results presented above are based on the assumption that the institutions can continuously issue eligible debt instruments to a sufficient extent to meet the MREL. In a stress test context, it is also interesting to examine for how long and to what extent the institutions can meet the MREL and buffer requirements if they are unable to issue the necessary eligible liabilities.

In the severe recession scenario, especially systemic banks will have a substantial need to issue new eligible liabilities, see Chart 6. The chart shows two time profiles for the estimated shortfall of MREL instruments that the systemic institutions will have in relation to the MREL (fully drawn blue line) and the sum of the MREL and buffer requirements (dotted blue line) if they do not make new issuances of eligible liabilities in the last two and a half years of the stress test. The reason for the limited distance

The MREL challenges institutions in severe recession scenario

Chart 6



Note: The shortfall relative to the MREL and buffer requirements is defined as the amount by which the institutions (systemic and non-systemic, respectively) fall short of satisfying the MREL and the sum of the MREL and buffer requirements, respectively, divided by their total risk exposure amounts. The shortfall reflects both the effect of debt issuances ceasing to count towards the MREL and the effect of capital loss due to stress. The dotted lines show the institutions' shortfall in relation to the sum of the MREL and capital buffer requirements. The institutions' MREL instruments and their maturity profile have been estimated on the basis of data provided by the Danish Financial Supervisory Authority and Bloomberg.

Source: The Danish Financial Supervisory Authority, Bloomberg and own calculations.

between the two profiles is that, for several SIFIs, the 8 per cent requirement will be the first requirement they breach. Based on the institutions' current composition of liabilities, this limits their opportunity to use the buffers to absorb losses under stress.

Especially the SIFIs which have low risk weights, including as a result of significant mortgage lending, will be affected by the 8 per cent requirement. The reason for this is that it will, among other fac-

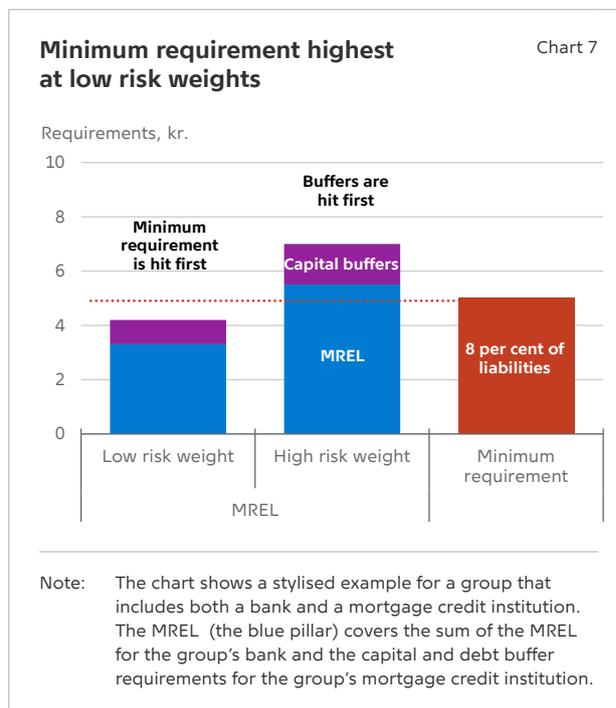
<sup>6</sup> Danish mortgage credit institutions are not subject to the MREL, but must instead meet a debt buffer requirement, which must, as a general rule, constitute 2 per cent of the mortgage credit institution's unweighted lending.

tors, depend on the risk weights of the institution's exposures whether the 8 per cent requirement will be the binding requirement. Chart 7 shows that the lower the risk weights, the higher the 8 per cent requirement will be relative to the MREL and buffer requirements. It is therefore important that the institutions that will be affected by the 8 per cent requirement assess already now whether the new requirement will entail a need for further issuance of MREL instruments so that they can ensure adequate surplus when the requirement becomes effective in 2022.

### Several non-systemic banks breach both the MREL and buffer requirements under stress

Unlike the systemic institutions, which typically build up the MREL by issuing eligible liabilities, the non-systemic banks primarily satisfy the MREL with own funds. Chart 6 shows that several of the non-systemic banks have difficulty satisfying the MREL and buffer requirements in the severe recession scenario. The large difference between the two time profiles (fully drawn purple line and dotted purple line) for the non-systemic banks' estimated shortfall illustrates that a significant part of their issuance need is due to a failure to satisfy the buffer requirement and not the MREL.

One reason that the non-systemic banks are unable to satisfy the MREL and buffer requirements under stress is that the MREL for these banks increases year on year in line with it being phased in towards 2023. It is expected that the banks will continuously assess whether the gradual phasing-in of the MREL will entail a need for additional capital to ensure excess capital adequacy. The Danish Financial Supervisory Authority has made the phasing-in conditional on a number of assumptions about levels of earnings and impairment charges during the phasing-in period. If these assumptions fail, the phasing-in period may be extended. Following the covid-19 outbreak, the Danish Financial Supervisory Authority decided to extend the phasing-in period by six months in May 2020.



## Stress test scenarios

The stress test is based on three macroeconomic scenarios, covering the period from 2021 to 2023: A baseline scenario as well as two recession scenarios, with the economic downturn in both recessions starting in the third quarter of 2021.<sup>7</sup>

The baseline scenario follows Danmarks Nationalbank's projection for the Danish economy.<sup>8</sup> Both recession scenarios are based on a global downturn in which export market growth is reduced, GDP and house prices decline substantially, and unemployment increases. In the severe recession scenario, GDP falls by 2.8 per cent over the three-year period covered by the scenario, while the unemployment rate increases by 6 percentage points.

When preparing the recession scenarios, Danmarks Nationalbank emphasises developments in unem-

<sup>7</sup> See Appendix 2 for an overview of key figures for the scenarios.

<sup>8</sup> Danmarks Nationalbank, Outlook for the Danish economy – Prospects of a rapid recovery once restrictions are eased, *Danmarks Nationalbank Analysis*, No. 7, March 2021 ([link](#)).

ployment, real GDP and house prices. For each of these variables, a systematic approach is applied to determine their increase (unemployment) or decrease (GDP growth and house prices) over the three-year period covered by the scenarios.<sup>9</sup> In specific terms, we use data for the years leading up to the stress test to calculate a target for each variable within a given range. For example, the target for the decrease in GDP could be 3-7 per cent, which is fixed on the basis of experience from previous recessions. If GDP growth has been strong in the years leading up to the stress test, the target for the decrease will be greater and thus closer to 7 per cent. Conversely, the target will not be as high if the development in GDP has been less favourable, which is, for example, the case for the period preceding this stress test. The retrospective approach to the calculation of the targets thus ensures that the scenarios reflect the cyclical position, so that, for example, there is more severe stress after a period of marked economic progress.

The targets for the three variables are calculated independently of each other, and we must therefore ensure consistency in the development of the variables by using the economic model MONA to determine the scenarios. This means that the actual development in the variables may differ slightly from the targets, as the development in the variables cannot be set at any given level because they are interrelated in MONA. It has proved difficult in this stress test to hit the targets for GDP and unemployment simultaneously. According to the targets, real GDP was to decrease by 3.0 per cent, while unemployment was to increase by 5.1 percentage points. Based on the previous economic development, we have decided in the severe recession scenario that the decrease in GDP is to be slightly below the target, while the increase in unemployment of 6 percentage points is, on the other hand, greater than targeted. One reason for the large increase in unemployment is a built-in sluggishness in the correlation between the development in GDP and unemployment in MONA, i.e. that unemployment reacts with a certain delay to a decrease in GDP. This means

that, in the severe recession scenario, unemployment increases by more than the normal rate in the stress test recession scenarios, as GDP has decreased prior to the commencement of the scenarios.

In 2020, the housing market was characterised by high trading activity, resulting in a significant decrease in the number of homes for sale and sharp increases in house prices. Low interest rates and rising incomes generally support the increase in house prices, but there is significant uncertainty about the future housing market development, which is reflected in the stress test scenarios. The decrease in prices in the severe recession scenario reflects that our target indicates a major drop in house prices based on the recent development in house prices relative to disposable income. It also reflects that, based on the heavy increase in house prices, we have manually raised the drop in house prices a little.

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<sup>9</sup> The scenarios are developed in cooperation with the Danish Financial Supervisory Authority. The approach used to generate the scenarios is described in detail in Danmarks Nationalbank, *The largest banks satisfy capital requirements in stress test*, *Danmarks Nationalbank Analysis (stress test)*, No. 21, November 2018 ([link](#)).

## Appendix 1: Institutions in the stress test

### Systemic banks (credit institutions)

Danske Bank

Nykredit Realkredit

Jyske Bank

Nordea Kredit

Sydbank

DLR Kredit

Spar Nord

### Non-systemic banks (credit institutions)

Arbejdernes Landsbank

Ringkøbing Landbobank

Sparekassen Kronjylland

Vestjysk Bank

Lån & Spar Bank

Jutlander Bank

Sparekassen Sjælland-Fyn

Sparekassen Vendsyssel

Den Jyske Sparekasse

## Appendix 2: Stress test scenarios

<b>Key variables</b>	Baseline scenario	Medium-severe recession	Severe recession
<b>2021</b>			
GDP, per cent year-on-year	1.4	-0.5	-0.9
Private consumption, per cent year-on-year	1.3	-2.1	-2.9
Export market growth, per cent year-on-year	2.9	-0.6	-0.9
House prices, per cent year-on-year	9.7	2.3	1.5
Gross unemployment, per cent of labour force	4.0	4.5	4.6
Bond yields	0.3	0.3	0.3
<b>2022</b>			
GDP, per cent year-on-year	4.5	-2.1	-3.3
Private consumption, per cent year-on-year	7.7	-3.9	-6.1
Export market growth, per cent year-on-year	9.8	-3.4	-5.5
House prices, per cent year-on-year	3.0	-21.6	-25.1
Gross unemployment, per cent of labour force	3.9	7.4	8.1
Bond yields	0.4	0.4	0.4
<b>2023</b>			
GDP, per cent year-on-year	2.2	1.0	1.4
Private consumption, per cent year-on-year	2.5	-0.7	-0.5
Export market growth, per cent year-on-year	3.9	-0.8	-0.5
House prices, per cent year-on-year	2.3	-0.8	-2.6
Gross unemployment, per cent of labour force	3.7	9.7	10.6
Bond yields	0.6	0.6	0.6
Note: Annual averages. House prices are cash prices of single-family houses.			

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