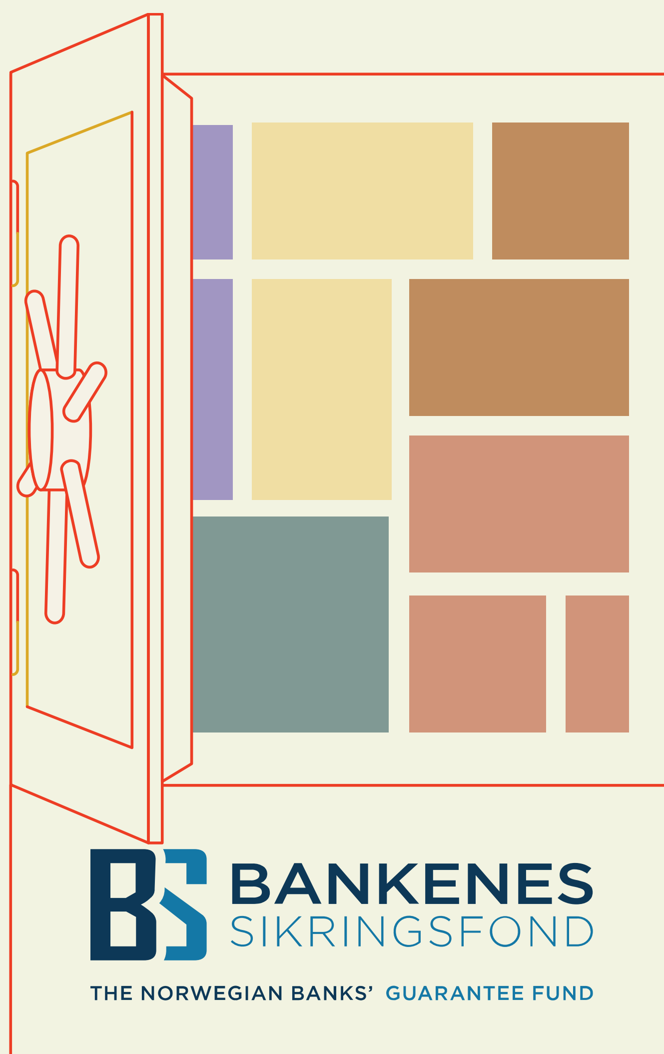
The deposit guarantee scheme's guarantee liability

Report 2022



Contents

About this report 3

Summary 4

Facts and figures 5

Covered deposits 5

Member banks 6

Box: Member banks and coverage limits 7

Box: Rules on the treatment of failing banks 8

Covered deposits as a source of funding 9

Box: Banks’ creditor hierarchy 11

Banks’ financial position 12

Estimation of guarantee liability 13

Worst-case scenario 13

Simulations 14

Box: A simulation model to estimate the scheme’s guarantee liability 17

Guarantee liability and available financial means 18

Box: Banks’ contributions to the deposit guarantee fund 19

Regulatory developments 19

References 19

About this report

The Norwegian Banks' Guarantee Fund (NBGF) is to contribute to financial stability by administering the deposit guarantee scheme and managing the deposit guarantee fund.

Everyone must feel confident that their deposits are safe. Openness and information are important for trust. In this report, the NBGF presents an assessment of the deposit guarantee scheme's guarantee liability. The contents offer an insight into various aspects of the deposit guarantee and can supply the factual basis needed for discussion and debate on financial stability.

If the Ministry of Finance decides to wind up a bank under public administration, the bank's customers are no longer able to access their deposits. The NBGF must then make covered deposits available within seven working days. The deposit guarantee scheme must also contribute under specific rules if the Ministry decides to put a failing bank into resolution. It is these obligations that make up the scheme's guarantee liability.

The size of this liability depends on the probability of banks failing, how much liquidity is needed to make covered deposits available, and the final loss borne by the scheme.

This report focuses on the scheme's overall guarantee liability rather than individual banks' contributions to this liability. It nevertheless considers the consequences of various trends. The report is based on the situation at the end of 2021 and concentrates on developments during the year but sometimes also over a longer period. There have been very few occasions when it has been necessary to use the deposit guarantee scheme in Norway. Any estimation of the scheme's guarantee liability must therefore build on various assumptions, introducing uncertainty. All data are from the NBGF. The report has not been audited.

If you have any questions or input on the report, please contact garantiansvaret@sikringsfondet.no.

The report is available to download from the NBGF's website.

Summary

The NBGF is responsible for Norway's deposit guarantee. This covers up to NOK 2 million per depositor per member bank. The NBGF is to make covered deposits available within seven working days. Funds received as a result of a special life event in the past 12 months have unlimited coverage and are to be made available within three months.

There has been strong growth in covered deposits. The NBGF covered bank deposits of NOK 1,566 billion at the end of 2021. Norwegian households accounted for 80% of these. Covered deposits grew more than 12% during the pandemic, and this was in a period with extremely low interest rates.

Covered deposits vary widely from bank to bank. The deposit guarantee scheme has 126 members: 117 banks headquartered in Norway and nine Norwegian branches of foreign banks with topping-up arrangements. The seven largest banks combined hold around half of covered deposits. 111 banks have covered deposits below NOK 20 billion each, and 50 have covered deposits of less than NOK 3 billion each.

Small banks have the highest share of deposit funding. Deposits are an important source of funding for banks, and covered deposits account for more than half of their funding mix. Covered deposits amount to a third of member banks' total liabilities and own funds, but there are major variations between banks. The median share is 53%, and in six cases covered deposits amount to more than 75% of the bank's total liabilities and own funds. On average, small banks have a higher share of deposit funding than large banks.

The deposit guarantee scheme is well protected against loss if a bank fails. Losses are absorbed first by a bank's own funds and most of its liabilities other than covered deposits. A failing bank's assets would need to drop substantially in value for the deposit guarantee scheme's claim on the bank not to be met. This report presents calculations from different angles that support this.

In a payout-situation, the deposit guarantee scheme has a liquidity outlay until the administrators realise the bank's assets. This liquidity outlay will naturally be larger than the final loss. This report estimates the scheme's liquidity need. The calculations are sensitive to key assumptions, such as whether the authorities decide to liquidate or resolve a failing bank.

The deposit guarantee scheme has available financial means in reasonable proportion to its guarantee liability. The deposit guarantee fund provides very good coverage for the scheme's potential loss. It also provides good coverage for the scheme's liquidity need, but the calculations in the report show that there may be a need to draw on other available financial means in a particularly serious bank crisis. These consist of credit lines that the scheme has established, as well as guarantees and extraordinary contributions from banks.

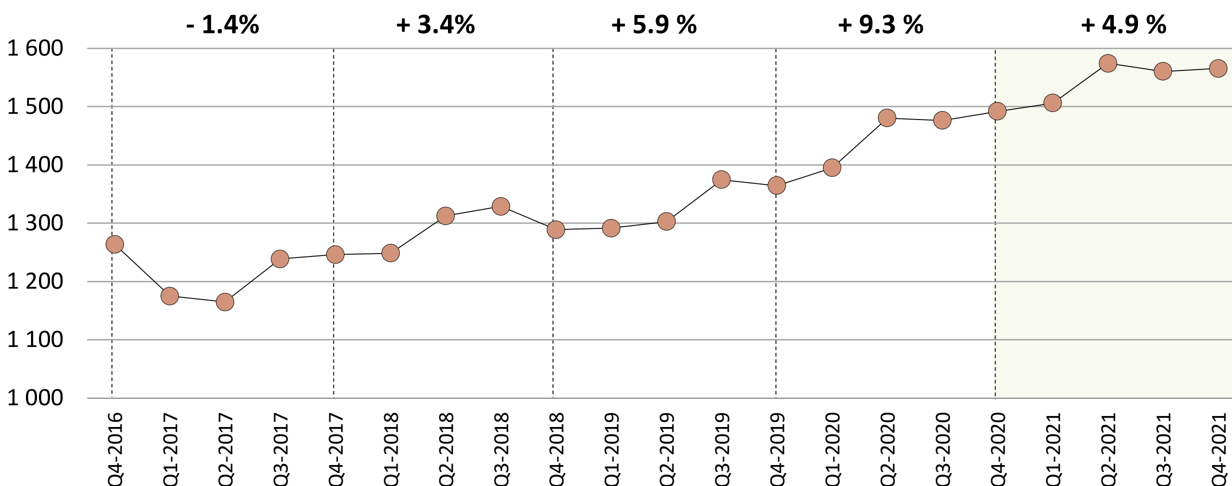
The review of European deposit insurance regulations could increase the scheme's guarantee liability. The European Commission is currently reviewing the EU's framework for bank crisis management and deposit insurance. The consultation paper asks whether the creditor hierarchy should be altered so that deposit guarantee schemes have more exposure to loss when banks are liquidated. Draft new rules are expected in the course of 2022.

Facts and figures

Covered deposits

Covered deposits grew strongly during the pandemic, see Figure 1. From March 2020 to December 2021, they increased by more than 12% to a total of NOK 1,566 billion. More than 80% of these deposits were from Norwegian households. Firms accounted for around 10%, while the remainder were deposits from abroad or other sectors.

Figure 1 Covered deposits, past five years



The rate of growth in 2021 was lower than in 2020 but still high by historical standards. This was in a period of lower interest rates than in the years before 2020. Most of the growth can probably be attributed to consumers having limited opportunities to spend money as a result of pandemic restrictions. Greater economic uncertainty may also have played a role. At the same time, this growth is a sign of confidence in the banks and in the safety of covered deposits.

An analysis by Norges Bank looking at the first part of the pandemic shows that all age groups contributed to the growth in deposits, but the largest contributions were from the youngest and older households. Both those with relatively high and relatively low levels of debt in relation to their income increased their bank deposits substantially. See also Statistics Norway's article "Endret spareadferd under pandemien" (available only in Norwegian) for further information on the changes in households' saving behaviour during the pandemic.

The NBGF estimates that around NOK 82 billion of covered deposits, or 5.2%, come from customers abroad. The bulk of this, NOK 50 billion, consists of deposits in foreign branches of Norwegian banks, while the remainder are deposits from Norwegian banks' cross-border activities. This last type of activity has become more widespread in recent years, partly through the use of digital marketplaces/platforms for bank deposits. 6.5% of covered deposits are in currencies other than NOK, primarily SEK, DKK or EUR.

Member banks

The deposit guarantee scheme has 126 members: 117 banks headquartered in Norway and nine Norwegian branches of foreign banks with topping-up arrangements. See the box «Member banks and coverage limits» below for information on these two types of membership.

Table 1 Member banks

	Number of members		Covered deposits	
Covered deposits in NOK billion	31.12.2021	31.12.2020	31.12.2021	31.12.2020
Members headquartered in Norway	117	118	1 508	1 439
Branch members[1]	9	9	58	53
Total	**126**	**127**	**1 566**	**1 492**

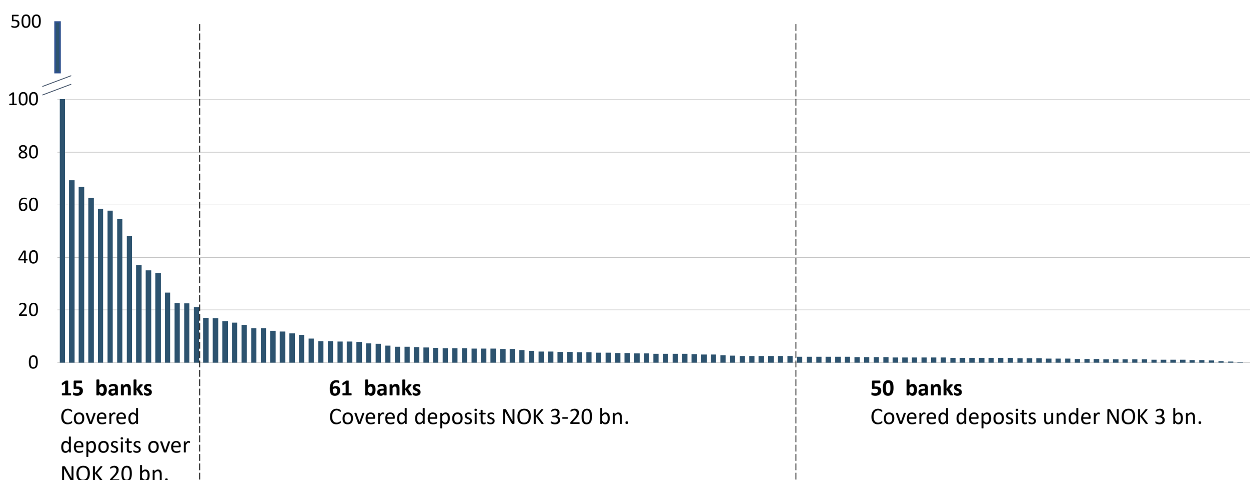
[1] The figures for covered deposits at branches include only the amount covered by the Norwegian deposit guarantee scheme under topping-up arrangements.

Changes in 2021:

- Boligbanken ASA was admitted as a member of the deposit guarantee scheme from 6 September 2021
- Surnadal Sparebank and SpareBank 1 Nordvest merged on 3 May 2021 under the name SpareBank 1 Nordmøre
- SpareBank 1 BV and SpareBank 1 Telemark merged on 1 June 2021 under the name SpareBank 1 Sørøst-Norge
- Optin Bank ASA was put into liquidation under public administration on 23 June 2021 but will remain a member of the deposit guarantee scheme and be included in the membership count until the administrators complete their work.

Covered deposits vary widely between these 126 member banks, see Figure 2. The largest has covered deposits of almost NOK 500 billion, which is more than the total for the 111 banks with covered deposits below NOK 20 billion, including 50 with covered deposits of less than NOK 3 billion.

Figure 2 Covered deposits at Norwegian banks



Member banks and coverage limits

All **banks headquartered in Norway** are required to be a member of the deposit guarantee scheme. The deposit guarantee covers up to NOK 2 million per depositor per bank.

Banks headquartered in Norway may also have activities abroad. The guarantee covers deposits from these activities, but limited to an amount in NOK equivalent to EUR 100,000. This rule is intended to create a level playing field and prevent Norwegian banks from using Norway's more generous deposit guarantee scheme as a competitive advantage in other markets.

Deposits at **Norwegian branches of banks headquartered in another EEA member state** are covered in the first instance by their home country's deposit guarantee scheme. However, they may also be a member of the Norwegian scheme if it provides better protection. In this case, the NBGF guarantees only the amount that comes on top of the home country's coverage, which in practice means deposits between EUR 100,000 and NOK 2 million. This additional coverage is referred to as a topping-up arrangement and contributes to a level playing field in the Norwegian deposit market. If a branch chooses not to be a member of the Norwegian scheme, it will benefit only from its home country's deposit guarantee and coverage. See the NBGF's website for an overview of banks' membership status.

In special cases, the guarantee also extends to deposits above NOK 2 million. This applies where a deposit has been made within the past 12 months as a result of a special life event, such as an insurance payout or the sale of a home. Temporary high balances of this kind are not, however, included in the data presented in this report. See the NBGF's website for more information on what the deposit guarantee covers.

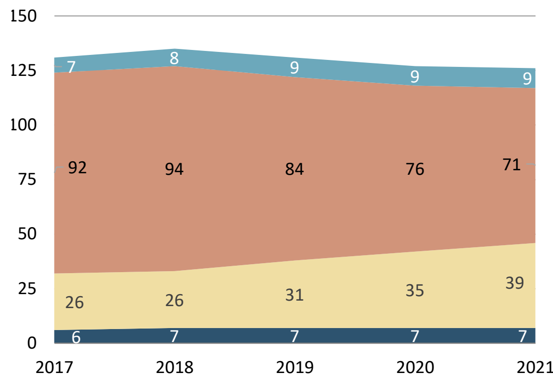
The number of member banks has been relatively stable over the past five years, but with a slight shift in the distribution of covered deposits between banks. The large banks have increased their share somewhat, see Figure 3. Just over half of covered deposits are at the seven banks with assets above NOK 100 billion. The remainder are split between 119 small and medium-sized banks and branches. The 70 banks with assets below NOK 10 billion account for 11% of covered deposits.

The deposit guarantee's purpose and coverage are the same for all banks, but the deposit guarantee scheme's guarantee liability depends on how the authorities choose to deal with a failing bank. See the box «Rules on the treatment of failing banks» for a discussion of the rules and their implications for the scheme's guarantee liability. While the potential loss for the deposit guarantee scheme is little affected by whether the authorities choose to liquidate or resolve a bank, the latter approach requires much less liquidity from the scheme than if the same bank were to be liquidated.

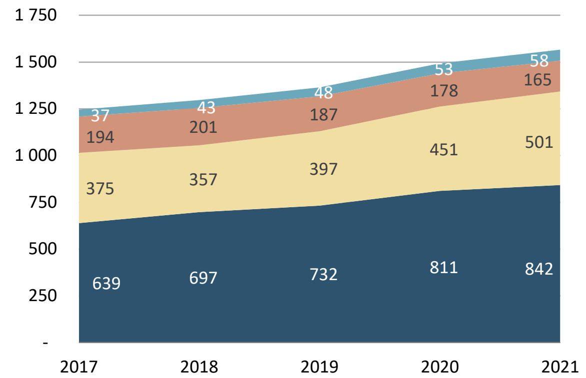
There is reason to believe that the larger the bank, the more likely it is to be put into resolution if it is failing or likely to fail. Consequently, all else equal, a growing share of covered deposits at large banks will reduce the scheme's liquidity need.

Figure 3 Member banks and deposits by size of bank

Breakdown of member banks, past five years



Breakdown of covered deposits, past five years
NOK bn.



Branches

Smaller banks
Assets under NOK 10 bn.

Medium-sized banks
Assets NOK 10-100 bn.

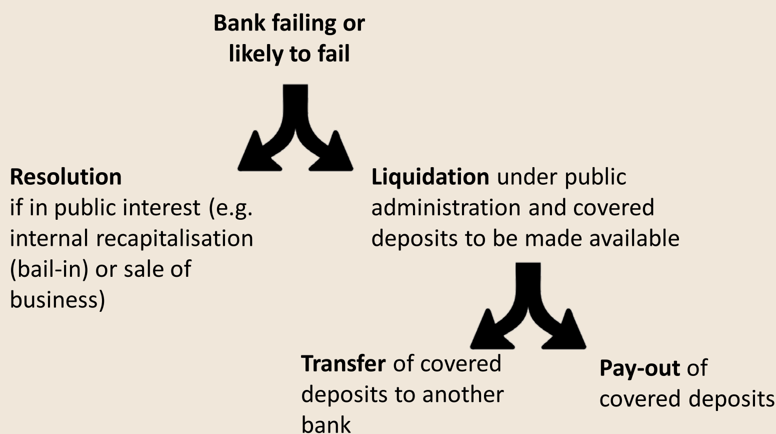
Large banks
Assets over NOK 100 bn.

Rules on the treatment of failing banks

If a bank is considered to be failing or likely to fail, the Norwegian financial supervisory authority, Finanstilsynet, must notify the Ministry of Finance. The definition of failing or likely to fail is set out in the Financial Institutions Act.

If the Ministry of Finance agrees with this assessment, there are two possible ways forward, see Figure 4. The bank is to be **resolved** if it is considered to serve the public interest, like ensure the continuation of critical functions. Resolution covers a range of measures, such as an internal recapitalisation (bail-in) or the sale of the bank's business to another institution. If this approach is not in the public interest, the bank is to be **liquidated** under public administration.

Figure 4 Treatment of failing banks



If the Ministry of Finance decides to liquidate the bank, its doors are closed and customers are no longer be able to withdraw (or make) deposits. This decision automatically triggers a role for the NBGF, which must make covered deposits available to customers within seven working days. The NBGF either pays out covered deposits to customers or transfers them to another bank in consultation with the administrators. In this report, we assume that the NBGF pays out covered deposits if a bank is liquidated.

Once deposits have been paid out, the NBGF will have a claim on the bank that is being wound up. This claim has priority over other unsecured borrowers and the bank's shareholders. The risk of the deposit guarantee scheme ultimately incurring a loss is therefore small, but not completely eliminated.

In a liquidation, therefore, the scheme's guarantee liability consists of both an obligation to repay covered deposits (a liquidity risk) and the possibility of not receiving full coverage of its claim on the bank (a credit risk).

If, on the other hand, the Ministry of Finance decides to put the bank into resolution, the guarantee liability is different. There is then no need to repay covered deposits, because deposit operations will either continue at the same bank or be transferred to another bank. The Financial Institutions Act does, however, require the deposit guarantee scheme to contribute funds to the resolution process. This amount must not exceed the loss that the scheme would have incurred had the bank been liquidated instead. Nor should this amount exceed 50% of the minimum size of the deposit guarantee fund, although the Ministry of Finance may depart from this in special cases where there is a need for a larger contribution.

The deposit guarantee scheme's credit risk is therefore largely the same whether a bank is liquidated or resolved, whereas its liquidity risk is much lower with resolution.

Covered deposits as a source of funding

Deposits from customers are an important source of funding for Norwegian banks, and covered deposits made up more than half of their funding mix at the end of 2021.

When a bank fails, losses are absorbed first by its own funds and most of its liabilities other than covered deposits. The composition of banks' funding therefore has implications for the scheme's guarantee liability. See the box «Banks' creditor hierarchy» for more information on the rules on coverage in a liquidation.

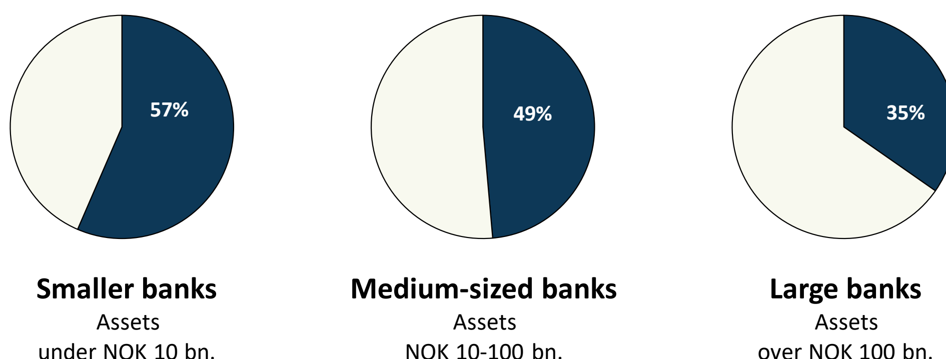
All else equal, a bank that has a large share of its funding in covered deposits presents a greater risk of loss for the deposit guarantee scheme than a bank with a small share of covered deposits. This applies even though a high share of deposits may be beneficial for the bank itself, for example by providing more stable funding or better earnings.

The data presented in this section and in the rest of the report cover the 117 member banks headquartered in Norway. Norwegian branches of foreign banks are excluded. Since 2008, banks' funding of housing loans has largely involved transferring them to separate mortgage companies which then issue covered bonds. The owners of these bonds have a preferential claim on the mortgages, which means that

the potential loss for the deposit guarantee scheme is largely linked to the parent bank's assets. We therefore use data at the parent bank level.

Overall, covered deposits amount to 33% of banks' total liabilities and own funds, but there are substantial variations between them. The median level is 53%, and at six banks covered deposits come to more than 75% of total liabilities and own funds. These variations in deposit funding largely correlate with the size of the bank: large banks tend to have much lower deposit funding than smaller banks, see Figure 5 which shows the average levels for smaller, medium-sized and large banks.

Figure 5 Covered deposits as a share of banks' total liabilities and own funds



A large share of other types of funding means that a failing bank's assets will in most cases need to drop substantially in value for the deposit guarantee scheme not to get its money back after repaying covered deposits. The scheme's position is weaker if the bank's assets are in some way pledged to third parties as collateral, but levels of this are low.

The transfer of housing loans to mortgage companies has increased the deposit guarantee scheme's guarantee liability, as the remaining assets on banks' balance sheets generally have a higher probability of default. On the other hand, the deposit guarantee scheme benefits from banks having access to stable funding in the covered bond market.

The figures and analysis in this report are based on banks' current funding. During a crisis, a bank's funding may change in ways that weaken the deposit guarantee scheme's protection against loss. For example, it may be difficult for the bank to roll-over unsecured interbank loans and bonds when they mature. Two alternative sources of funding might then be covered bonds or secured loans from Norges Bank. The risk of loss for the deposit guarantee scheme will then increase as a result of other creditors having a claim on the bank's assets.

For 14 large and medium-sized banks, Finanstilsynet has set a minimum requirement for own funds and eligible liabilities (MREL) – capital and liabilities which can quickly be written down or converted into new equity. These liabilities rank lower than covered deposits. MREL thus provides substantial protection for covered deposits and the deposit guarantee scheme, and limits how much a bank's funding can change.

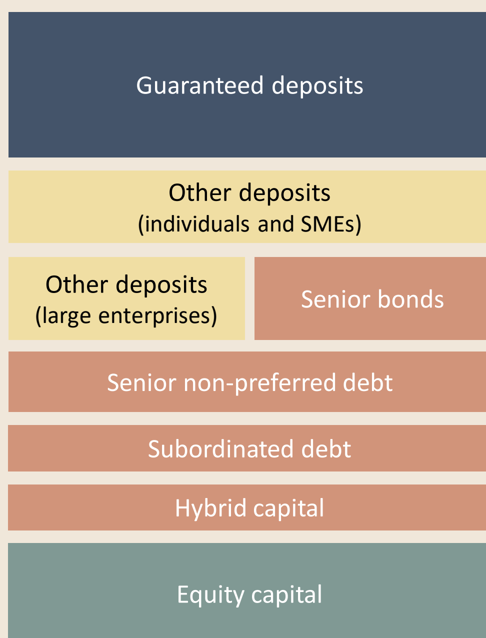
Banks’ creditor hierarchy

When the Ministry of Finance decides that a bank is to be liquidated under public administration, a board of administrators handles the winding up of the bank and its business. The bank’s remaining assets are distributed between its various creditors in line with their ranking in the creditor hierarchy. As with any other business, liquidation costs, salaries and taxes are paid first. Covered deposits are the next to be paid.

If the NBGF has repaid covered deposits to customers in connection with the bank’s liquidation, the NBGF assumes depositors’ claim on the bank, with the same priority. Covered deposits must be fully protected. In other words, these deposits have priority over other unsecured liabilities, such as bonds issued by the bank and deposits in excess of NOK 2 million. This position for covered deposits, known as a «super-preference», was introduced in Norway in 2019 and entails very strong protection against loss for the deposit guarantee scheme.

Figure 6 summarises the ranking of banks’ unsecured liabilities and own funds. Covered deposits have their claim covered first, followed by other creditors further down the creditor hierarchy.

Figure 6 Banks’ creditor hierarchy



Even if the deposit guarantee scheme has good coverage for its claim, it may take time for the administrators to wind up the bank. However, rules on the provisional division of assets mean that the deposit guarantee scheme can, on certain terms, receive full or partial coverage as soon as the estate has funds available. This reduces the time it takes for the deposit guarantee scheme to have its claim met.

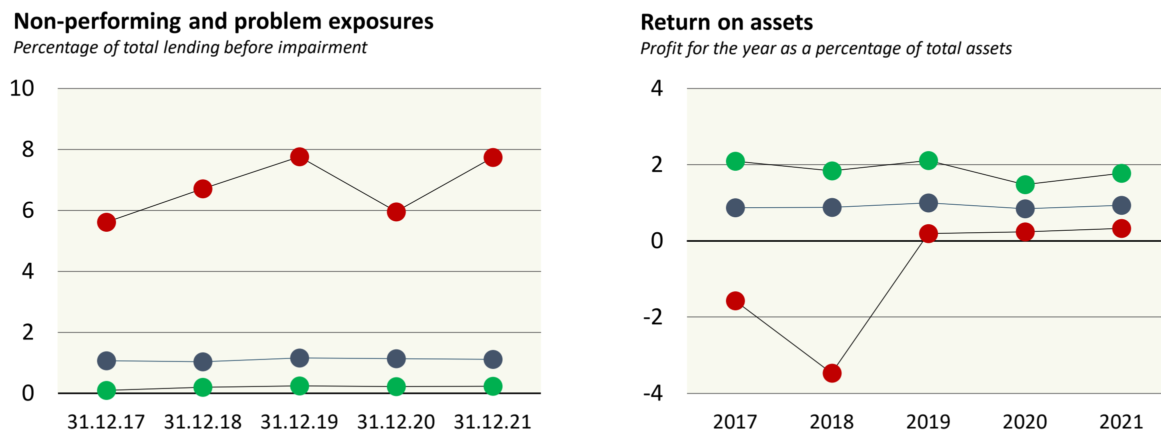
Banks' financial position

Banks' financial position affects the scheme's guarantee liability both through the probability of banks failing and through the size of the loss if they do. The composition of banks' funding was discussed earlier in the report. Figure 7 shows banks' return on assets and their non-performing loans over the past five years.

There is a relatively large gap between the median bank and those with the highest share of non-performing and problem exposures. Non-performing loans have also risen in recent years, which, all else equal, points to an increased guarantee liability. On the other hand, recent years have seen fewer banks with a negative return on assets.

Figure 7 shows movements in two specific metrics, but it is mainly banks with a combination of weak operating earnings and/or high-risk loans on the one hand, and a large share of covered deposits in their funding mix on the other, that present an increased guarantee liability for the deposit guarantee scheme. The estimation of the scheme's guarantee liability in the next section attempts to capture this relationship. For a more detailed analysis of the Norwegian banking sector, please see Norges Bank's Financial Stability Report 2021: Vulnerabilities and Risks and Finanstilsynet's Risk Outlook – December 2021.

Figure 7 Financial metrics for Norwegian banks



For each metric, we show the median observation (blue dots) and, to illustrate the spread between banks, the bank where only 5% of banks have a worse score (red dots) and the bank where only 5% have a better score (green dots).

Market prices for banks' shares and bonds can provide information on how the financial market rates their financial position and prospects. The risk premium in the market prices of bank bonds decreased in the course of 2021. This premium compensates for different types of risk, including credit risk and liquidity risk, and so the decrease can be put down to a number of factors. There is, however, reason to believe that uncertainty about the Norwegian economy and banks' financial position subsided during the pandemic and contributed to the fall in the risk premium. The premium has risen again in 2022. The collapse in share prices when the pandemic struck in March 2020 pulled down banks' price-to-book ratios. This more than reversed in 2021, which could indicate reduced uncertainty among investors about banks' value and ability to deliver a satisfactory return on equity. So far in 2022, price-to-book ratios have fallen and are largely back to pre-pandemic levels.

Estimation of guarantee liability

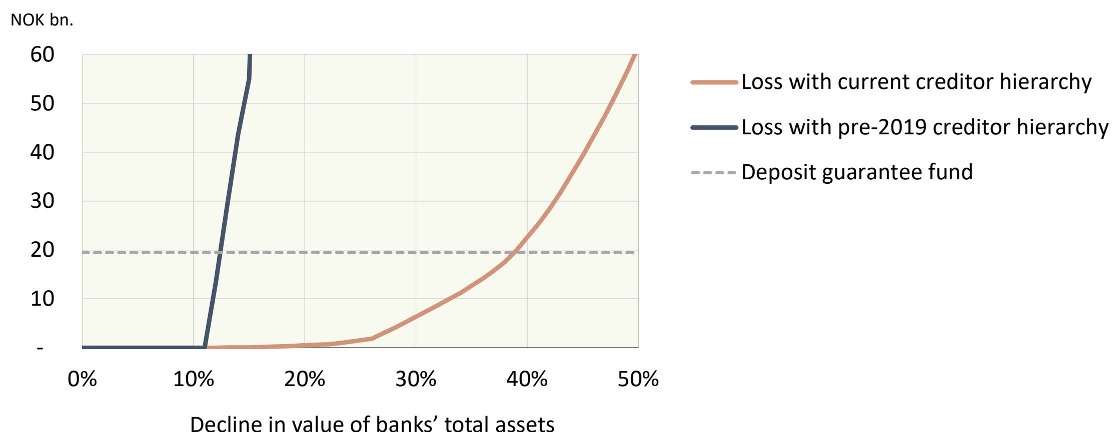
Worst-case scenario

As explained in the box «Banks' creditor hierarchy» above, a bank's own funds and most of its liabilities other than covered deposits are to absorb losses first if it fails. To quantify what this means for the risk of loss for the deposit guarantee scheme, we look first at a hypothetical extreme case where all banks fail simultaneously.

Not until the value of banks' assets drops by 12% is there a bank that causes a loss for the deposit guarantee scheme, see Figure 8. If all Norwegian banks lose 39% of their value, the deposit guarantee scheme incurs a loss of around NOK 20 billion. This calculation assumes that there are no changes in the composition of banks' funding in the course of the crisis. By way of comparison, the biggest losses at individual banks in the Norwegian banking crisis of the 1990s were around 10% of assets, and there were losses of up to 13% at European banks during the global financial crisis. As mentioned earlier, housing loans have largely been transferred to mortgage companies since the financial crisis, which means that the scheme's loss in the worst-case scenario is linked to the remaining assets on banks' balance sheets.

The worst-case scenario shows that the creditor hierarchy provides good protection against loss for the deposit guarantee scheme. However, its guarantee liability is sensitive to changes in the creditor hierarchy. Until 2019, covered deposits had weaker protection, as a bank's other unsecured liabilities ranked alongside covered deposits in insolvency. If this were still the case today, the deposit guarantee scheme would lose NOK 20 billion if banks' value decreased by 14%, as opposed to 39% with today's creditor hierarchy, see Figure 8.

Figure 8 Stress test for the deposit guarantee scheme's loss



This worst-case scenario illustrates the potential loss for the deposit guarantee scheme, but the scheme will generally have a liquidity need many times larger than its final loss. Quantifying the need for liquidity in a hypothetical scenario where all banks are liquidated simultaneously does not provide useful information, because it will always be equal to total covered deposits. A more detailed analysis of the scheme's potential loss, and also its liquidity need, can be found in the next section.

Simulations

To analyse the deposit guarantee scheme's expected loss and liquidity need in greater depth, the NBGF has developed a simulation model in conjunction with the Norwegian Computing Center. The model builds on information from the market pricing of banks' shares and bonds. It captures both situations where a single bank fails and systemic crises where multiple banks fail at the same time. See the box «A simulation model to estimate the scheme's guarantee liability» for further information on the model.

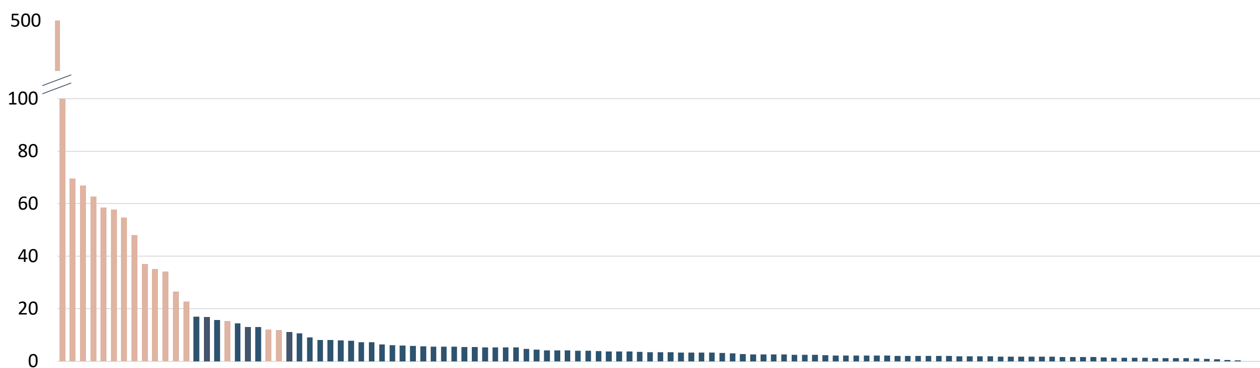
The parameters used in the simulations are based as far as possible on observable inputs, but there is still a need for some assumptions. The report presents results based on one of a number of possible sets of assumptions.

The most important assumption concerns which banks can be expected to be put into resolution if they fail. In this report, we assume that 16 banks would be resolved rather than liquidated under public administration, see Figure 9. These are the 14 for which Finanstilsynet has set a MREL, which means that they should have sufficient own funds and convertible debt to be resolved without the use of public money, and two subsidiaries of large international banking groups. Norwegian branches of foreign banks are excluded. Note that this is a technical assumption made by the NBGF, and that Finanstilsynet as resolution authority has not stated that these banks would be resolved if they were to fail. Internally, the NBGF also analyses the effects of other assumptions on the eligibility of resolution.

Figure 9 Assumptions about resolution

NOK bn. Note break in y-axis.

Dark blue columns are covered deposits at banks assumed to be liquidated. Light brown columns are covered deposits at banks assumed to be resolved.



Each individual simulation can be viewed as what happens in a random year, and we estimate both the liquidity need and the final loss for the deposit guarantee scheme for that year. In around 90% of the simulations (years), no banks default and there is no need to repay covered deposits or contribute funds for resolution.

Table 2 sums up the results. The average annual loss is estimated at NOK 51 million. This includes the simulations (years) when no banks fail. If we look only at the simulations (years) where one or more banks default, the average loss is estimated at NOK 495 million. This is referred to in the table as the «conditional average».

Table 1 Simulation of deposit guarantee scheme's loss and liquidity need on a one-year horizon

	Estimated loss		Estimated liquidity need	
Millions of NOK	31.12.2021	31.12.2020	31.12.2021	31.12.2020
Average	51	86	1 041	1 208
Conditional average	495	632	10 121	8 875
98th percentile (2% probability of exceeding this level)	600	1 388	12 947	14 934
99.5th percentile (0.5% probability of exceeding this level)	1 908	3 005	37 013	37 109

These averages say something about normal years and what is most likely to happen, but if the deposit guarantee is to contribute to financial stability, it is important to look at what might happen in a financial crisis where large banks get into trouble or large numbers of banks have problems at the same time.

The rarer the event, the larger the estimated loss. The figures for the different percentiles in Table 2 show that the scheme's loss exceeds NOK 600 million in 2% of the simulations (years) and NOK 1.9 billion in 0.5% of the simulations (years). In the simulations, a loss in the order of NOK 1.9 billion is typically associated with situations where between five and 15 banks default in the same year. A loss beyond this level generally requires at least 15 banks to fail at the same time, although there are a few simulations where a loss of this magnitude is triggered by a single bank defaulting.

The simulations thus capture situations where multiple banks fail simultaneously and cause a loss for the deposit guarantee scheme, but the model does not say anything about what might lead to systemic crises of this kind. In general, banks with similar business models will be more likely to default at the same time. Those with similar loan portfolios (e.g. in the same sector, geographical area or customer group) are to some extent exposed to the same underlying risk factors. The interconnectedness between banks may also mean that a loss of confidence in one bank spreads to similar banks. An example of this is when allegations of money-laundering at Swedish and Danish banks active in the Baltic market led to a loss of confidence in other banks operating in the Baltic States.

Banks may also have direct financial exposure to one another. Contagion can then occur where one bank defaults on its obligations to another. A fire sale of securities could also lead to a drop in prices that affects other banks even where they do not have any direct relationship with one another. See more on this in Norges Bank's paper "Smitte mellom banker – Systemrisiko som følge av bankenes sammenkobling" (available only in Norwegian).

At a very general level, most banks that are members of the deposit guarantee scheme have a geographical concentration in Norway, the main exceptions being individual branches of foreign banking groups. A sharp downturn in the Norwegian economy is therefore the greatest risk driver for a systemic crisis. When it comes to the ongoing war in Ukraine, Norwegian banks have limited direct exposure to either Ukraine or Russia.

Table 2 shows that the estimated loss was lower at the end of 2021 than at the end of 2020. This can be explained mainly by lower risk premiums in the bond market, which transforms to both a lower likelihood of banks failing and a smaller loss if they do. The reduction in these two factors more than offsets the increase in the scheme's guarantee liability from the growth in covered deposits. There were no membership changes in 2021 with any notable effect on the scheme's guarantee liability.

The estimated liquidity need does not take account of amounts that the deposit guarantee scheme eventually recovers, and is therefore much higher than the estimated loss. The scheme's average liquidity need is estimated to be just over NOK 1 billion, but if we look exclusively at the simulations (years) where there is a need for one or more payouts, its average liquidity need is an estimated NOK 10.1 billion. The scheme's liquidity need is more than NOK 12.9 billion in 2% of the simulations (years) and more than NOK 37.0 billion in 0.5% of the simulations (years). As with the estimated loss, this last figure typically applies to simulations where a large number of banks fail at the same time.

The largest of the banks that are not assumed to be put into resolution if they fail, or are not branches of large Nordic banking groups, has almost NOK 17 billion in covered deposits. This shows how the assumptions made about resolution have a significant impact on the estimated liquidity need. The same applies to any changes to the structure of the banking sector through mergers and acquisitions.

The simulated liquidity need in both 2020 and 2021 is increased significantly by two strict assumptions. First, even if the scheme eventually recovers all or most of what it pays out to depositors, the simulations assume that no part of this claim is received in the form of a dividend or provisional distribution during the year being simulated. In practice, the money paid out for covered deposits at Optin Bank ASA in June 2021 was returned to the deposit guarantee scheme by the administrators before a year had passed. Second, it is assumed that all covered deposits are repaid when a bank is liquidated, while one alternative is to help transfer deposits to another bank, which could reduce the scheme's liquidity need considerably. This can also take place before a bank actually fails, such as when the deposit guarantee scheme contributed to Glitnir Bank ASA being sold to another banking group in 2008 when its Icelandic parent company failed.

The scheme's estimated average liquidity need was lower in 2021 than in 2020. As with the estimated loss, this can be explained by reduced risk premiums in the bond market, which mean that we can assume a lower likelihood of a bank failing. Should there nevertheless be a need to repay deposits, this will be larger than before as a result of the growth in deposits at the banks in 2021. This last factor explains why the conditional average in Table 2 increase from NOK 8.9 billion to NOK 10.1 billion.

A simulation model to estimate the scheme's guarantee liability

How does the model work? The model randomly draws whether or not each bank defaults in a given year. An estimate of the probability of default is specified in advance (see below). The model also takes account of correlations between banks, which determine the extent to which multiple banks default simultaneously.

For the banks that default in the simulation, we estimate the liquidity need and loss for the deposit guarantee scheme. The liquidity need corresponds to covered deposits at the bank, unless the bank is to be put into resolution. The expected loss for the scheme takes account of the dividend that the scheme receives when the bank is liquidated (see below). Where banks are expected to be resolved, the deposit guarantee scheme is not required to pay out covered deposits, but it must compensate the resolution fund for the amount that the scheme would have lost had they been paid out. For these banks, therefore, the liquidity need is the same as the expected loss. The liquidity need and loss, respectively, for each bank in default are then added together to give the total loss and liquidity need for the deposit guarantee scheme in each simulation.

How does the model estimate PD and LGD? The model uses the risk premium in market pricing of banks' bonds to estimate the probability of default (PD) and loss given default (LGD). This risk premium includes not only a credit premium but also a liquidity premium and potentially other risk premiums. To separate out the credit premium, the model uses values (percentages) from empirical research. For risk-neutral investors, the credit premium for a given bond class can be approximated as a function of PD and LGD. The model assumes that bonds from the same issuer that rank differently have the same PD but a different LGD. This means that the relationship between the LGD for each bond class from a given issuer is the same as the relationship between the credit premiums for each class.

The recovery rate for the bank's total liabilities is assumed to be beta-distributed. The model then finds the parameters in the beta distribution that best fit the bank's balance sheet and the observed credit premiums. The model thus estimates both the total LGD and the LGD for each bond class. Finally, it assumes the LGD for uncovered deposits and other liabilities, and the deposit guarantee scheme's LGD is then the loss that remains after other creditors have taken their losses.

Once the model has established the LGD, a risk-neutral PD is calculated. Under the assumption of risk aversion, the real PD will be lower than the risk-neutral PD. The model uses results from empirical research to adjust for this.

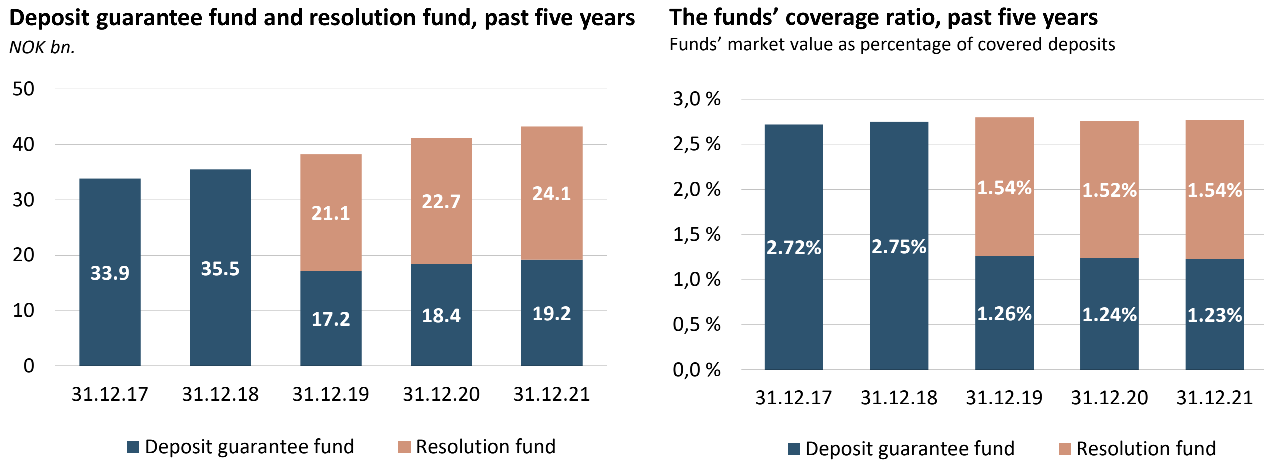
To calculate correlations between banks' returns, the model uses prices for the banks' shares and equity certificates. Where banks do not have listed shares or equity certificates, or they have only a short history, the model estimates the correlation on the basis of the bank's size. There is reason to assume that general market movements will dictate large parts of the variations in returns during stressed periods. The model therefore assumes a correlation that is higher than the median observation, because it is simulations of market turmoil that are most relevant to the model's aims.

The simulations referred to in this report are based on the latest available market prices. Where banks have not issued market instruments or they are rarely traded, the model cannot estimate the PD and LGD directly from their pricing, and so these banks are assigned a pricing category. Detailed model documentation is available on the NBGF's website.

Guarantee liability and available financial means

The deposit guarantee scheme is required to have a deposit guarantee fund and other available financial means in reasonable proportion to its guarantee liability. At the end of 2021, the deposit guarantee fund had liquid assets of NOK 19.2 billion, equivalent to 1.23% of covered deposits, see Figure 10.

Figure 10 The deposit guarantee fund and the resolution fund



The worst-case scenario presented earlier in this report shows that all Norwegian banks would need to have asset losses of more than 39% for the deposit guarantee scheme's loss to exceed the value of the deposit guarantee fund. The fund is more than ten times larger than the 99.5th percentile when the scheme's losses are simulated. The calculations indicate that the fund will receive good coverage for the deposit guarantee scheme's final loss when banks are liquidated or resolved.

The simulations also show that the deposit guarantee scheme's liquidity need is adequately met by the deposit guarantee fund. The assumptions that all deposits will be made available by being paid out, and that liquidating dividends will not be received within a year, mean that there are simulations where the deposit guarantee scheme needs to draw on other available financial means to meet its liquidity need. Other available financial means consist of guarantees and extraordinary contributions from banks, as well as lines of credit established by the deposit guarantee scheme.

The requirement for guarantees and extraordinary contributions from banks in a rare but serious financial crisis could serve to exacerbate that crisis. Such a situation can be avoided by deciding on resolution rather than liquidation of the failing bank, which would also reduce the deposit guarantee scheme's liquidity need. Finanstilsynet as resolution authority has more than NOK 24 billion at its disposal in the resolution fund for use in bank resolution, see Figure 10.

Banks’ contributions to the deposit guarantee fund

Each year, member banks are to make a total contribution to the deposit guarantee fund equivalent to 0.08 per cent of their total covered deposits. The size of this total contribution is laid down in the Financial Institutions Act. A total contribution of NOK 1.1 billion was made in 2021.

The NBGF sets each individual member’s contribution on the basis of that member’s share of the deposit guarantee scheme’s total guarantee liability. The calculation method is based on guidelines from the European Banking Authority (EBA) and starts from each bank’s share of total covered deposits. This base contribution is then adjusted up or down according to how member banks score across a set of financial metrics that serve as risk indicators. See the NBGF’s website for further information on the calculation of contributions.

Banks and some other financial institutions also make annual contributions to the resolution fund. The total contribution to the resolution fund is 0.1 per cent of total covered deposits. NOK 1.4 billion was paid into the resolution fund in 2021.

Regulatory developments

The scheme’s guarantee liability is sensitive to changes in the rules for deposit guarantee schemes and banks. The European Commission is currently reviewing its framework for bank crisis management and deposit insurance. The questions in the consultation affecting the deposit guarantee scheme stem mainly from the observation that banks in the EU have only on very rare occasions been put into resolution. Instead, national insolvency rules or other measures have been used, which the Commission fears could result in differences in how banks are treated, and increased use of public money. The consultation paper asks whether the creditor hierarchy should be altered so that deposit guarantee schemes have more exposure to loss when banks are liquidated, which means that they would also need to contribute more money to bank resolution. Drafts of the revised EU directives are expected to be published in the course of 2022.

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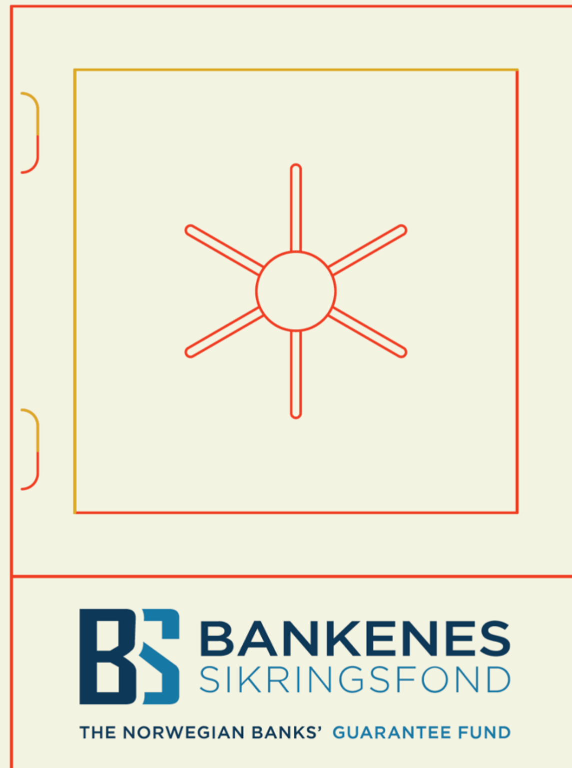

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