

# Section 5: Tools to Support Objectives and Address Possible Consequences

The effectiveness of deposit insurance depends critically on its interaction with other policy tools. Tools can increase the efficacy with which deposit insurance promotes financial stability or may dampen undesirable consequences associated with deposit insurance. Changes to deposit insurance coverage should be made in conjunction with an evaluation of the best associated policy tools.

## Bank Regulation and Supervision

Bank regulation and supervision play a major role in promoting financial stability, limiting the moral hazard concerns posed by deposit insurance, and responding promptly to risks that arise. For this discussion, regulation refers to the body of written rules in the Code of Federal Regulations, which have the force of law. Supervision refers to the totality of actions the federal banking agencies can take to enforce the rules and to carry out their respective statutory mandates to ensure the safe and sound operation of banks. This section refers collectively to supervision and regulation as the risk control framework.

This section identifies five areas within the risk control framework that may play critical roles in supporting the objectives and mitigating the undesired consequences of deposit insurance: capital, liquidity, long-term debt, interest rate risk, and growth supervision.

### Capital

Capital requirements can minimize the potential for moral hazard and promote safe and sound banking practices by increasing the costs of risk-taking to shareholders, thus increasing shareholder discipline. Higher levels of deposit insurance coverage weaken depositor discipline and increase bank risk-taking incentives. Meanwhile, shareholders disproportionately benefit on the upside of such risk-taking relative to creditors. Higher levels of capital make shareholders more attuned to the downside

of risk and so increase shareholder discipline, which mitigates moral hazard. Therefore, to the extent that increased deposit insurance limits erode depositor discipline, capital requirements can be used to mitigate moral hazard concerns.

Recent developments have also focused attention on the definition of capital for regulatory purposes. In accordance with U.S. generally accepted accounting principles (GAAP), an institution must measure and recognize available-for-sale (AFS) debt securities at fair value on the balance sheet, while held-to-maturity (HTM) debt securities are carried at amortized cost. For AFS debt securities, unrealized holding gains and losses are excluded from earnings and reported in a separate component of equity capital: accumulated other comprehensive income (AOCI). AOCI is excluded from regulatory capital for most institutions.<sup>107</sup> Meanwhile, HTM debt securities are not adjusted to fair value in accordance with GAAP and for financial reporting purposes.

Accumulating unrealized losses on debt securities increases the likelihood of a run by uninsured depositors when those losses are large compared to capital. This is because withdrawals coordinated with the sale of these debt securities force the recognition of losses and promptly force a bank into insolvency. For example, SVB's year-end 2022 Call Report reported tier 1 capital of about \$17.0 billion; it also reported unrealized holding losses of \$2.5 billion on AFS securities and \$15.2 billion on HTM securities. None of these losses lowered its tier 1 capital under the regulatory capital regulations.

A more rigorous approach to valuing securities for regulatory capital purposes may induce institutions to either limit their exposure to highly interest-rate sensitive assets or take steps to raise capital, limit dividends, shed securities, or hedge their exposures earlier when interest rates start to increase. If net unrealized holding losses on AFS or HTM debt securities are reflected in regulatory capital, then

<sup>107</sup> AOCI is a component of regulatory capital for advanced approaches banks and other institutions that opted into including it. See 12 CFR Part 324, Capital Adequacy of FDIC-Supervised Institutions, <https://www.ecfr.gov/current/title-12/chapter-III/subchapter-B/part-324>.

institutions would have had to take actions to increase their capital or face regulatory restrictions. Future changes to regulatory capital calculations could range from incremental steps such as expanding the recognition of AOCI in regulatory capital to a larger group of banks to more comprehensive changes to the regulatory capital framework. It is possible that the recognition of net unrealized holding losses through the inclusion of AOCI in regulatory capital would still prompt withdrawals of uninsured deposits. However, incorporating AOCI in regulatory capital can promote financial stability by compelling earlier remediation actions and prevent the accumulation of net unrealized holding losses.

## Liquidity

Liquidity regulations can complement deposit insurance to mitigate stability risks associated with funding long-term assets with short-term liabilities. For example, the Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR) apply fully to the U.S. global systemically important banks (GSIBs). Also, the LCR and NSFR apply to institutions with \$250 billion or more in assets, with the degree of stringency depending on thresholds related to average weighted short-term wholesale funding, and a subset of banks between \$100 billion and \$250 billion that meet certain criteria. SVB and Signature, for example, were not subject to the LCR or NSFR rules.

Liquidity regulations can support financial stability objectives to ensure that banks retain sufficient liquid assets to account for the risk of outflows, including uninsured depositor runs. For example, simple limits on uninsured depositor funding for banks, or unstable short-term funding more broadly, can reduce the exposure of banks to runs, while requirements on liquid assets can provide depositors confidence that banks hold sufficient liquidity to meet outflows.

Alternatively, regulations like the LCR and NSFR can reduce the mismatch that naturally arises in banks that use short-term liabilities to fund long-term assets.

## Interest Rate Risk

The incorporation of interest rate risk as part of capital or liquidity regulations, or through a supervisory approach, can also support financial stability objectives.<sup>108</sup> Interest rate risk for activities banks conduct in their trading books are captured, in principle, by trading book capital rules, but no regulation exists that provides an explicit constraint on how much interest rate risk banks can take for exposures held in the banking book.<sup>109</sup> Based on feedback from commenters, the Basel Committee on Bank Supervision did not pursue a regulatory approach but subsequently published principles for the measurement and management of interest rate risk.<sup>110</sup>

Enhanced risk management standards for interest rate risk may reduce risks to financial stability. Evaluating the tradeoffs associated with different options to address interest rate risk within the regulatory and supervisory frameworks is a topic meriting consideration but beyond the scope of this report.

## Long-Term Debt

Long-term unsecured debt requirements can support the financial stability objective of deposit insurance in several ways. For example, in 2016, the Federal Reserve published a final rule to require U.S. GSIBs and the U.S. operations of foreign GSIBs to meet a long-term debt requirement and a total loss-absorbing capacity, or TLAC, requirement.<sup>111</sup> As described by the Federal Reserve, the requirement to maintain sufficient amounts of long-term debt, which can be converted to equity during resolution, was intended to help facilitate an orderly resolution of an institution in the event of failure.<sup>112</sup>

<sup>108</sup>Interest rate risk management is discussed in “Interagency Guidelines Establishing Standards for Safety and Soundness” in Appendix A of Part 364 of FDIC regulations. In addition, sensitivity to market risk—including interest rate risk—has been part of the Uniform Financial Institution Rating System since 1997. Supervisors require banks to manage their interest rate risk exposures, and failure to meet standards can subject them to enforcement actions. See Fed. Reg., Vol. 61, No. 245, December 19, 1996, <https://www.fdic.gov/news/financial-institution-letters/1996/fil96105.pdf>.

<sup>109</sup>The trading book capital rules apply only to banks with sufficiently large trading accounts. See Basel Committee on Bank Supervision, Consultative Document: Interest Rate Risk on the Banking Book, September 11, 2015, <https://www.bis.org/bcbst/publ/d319.pdf>.

<sup>110</sup>Basel Committee on Banking Supervision, Standards: Interest Rate Risk in the Banking Book, April 2016, <https://www.bis.org/bcbst/publ/d368.pdf>.

<sup>111</sup>Fed. Reg. 2017-00431, <https://www.govinfo.gov/content/pkg/FR-2017-01-24/pdf/2017-00431.pdf>.

<sup>112</sup>On October 24, 2022, the FDIC and the Board of Governors of the Federal Reserve published an advance notice of proposed rulemaking regarding Resolution-Related Resource Requirements for Large Banking Organizations that sought comment on the advantages and disadvantages of requiring an expanded group of large banking organizations to maintain long-term debt. See 87 Fed. Reg. 64170.

Although long-term debt requirements have been viewed primarily as a resolution tool and applied to bank holding companies rather than banks, long-term unsecured debt may also support deposit insurance by mitigating moral hazard incentives at banks. For example, a significant increase in explicit deposit insurance coverage could increase incentives for banks to fund themselves with deposits and whatever equity is required, and very little debt. In the case of full deposit insurance coverage, banks may have little incentive to fund their operations with long-term unsecured debt. The scope and cost of the deposit insurance safety net could greatly expand as a result.

In contrast to shareholders, long-term debtholders are asymmetrically exposed to the downside of bank risk-taking; they do not reap the benefits of bank risk-taking and are exposed to losses when bank risk-taking goes wrong. Moreover, long-term debt holders cannot run before the scheduled maturity date, incrementally reducing the bank's exposure to risk. Their exposure to loss and the long-term nature of that exposure give long-term unsecured debtholders strong incentives relative to shareholders to monitor and discipline bank risk-taking by charging banks a premium for risk-taking on their issuances or by refusing to roll over maturing debt. Increased yields on long-term unsecured debt or difficulties in rolling over debt can act as an early-warning indicator for bank supervisors and trigger intervention that may avert the need for a resolution. As an alternative to depositor discipline, which is often exerted in the form of a run, market discipline through long-term debt—through the refusal to roll over long-term debt or through pricing—may promote financial stability.

Either to support financial stability objectives or mitigate moral hazard concerns associated with deposit insurance, the expansion of the application of long-term debt requirements beyond the U.S. GSIBs is worthy of careful consideration as part of deposit insurance reform.

### Rapid Growth

Strengthening supervision surrounding rapid bank growth may also support deposit insurance objectives. Rapid growth is generally recognized as a potential

indicator for bank risk-taking and the first stage in the development of bank financial distress. Rapid growth may signal an increase in risk-taking for several reasons. First, rapid growth is often coupled with a relaxation in loan standards or an expansion into new lending businesses. Second, rapid growth likely occurs during benign economic environments, and the bank and its borrowers are insufficiently tested in an economic downturn. Third, as was the case with the banks that failed in March 2023, rapid asset growth is often fueled by volatile forms of funding. Compared to a similarly sized bank with stable growth, the funding base at a bank that has grown rapidly is less likely to have long-standing relationships with the bank and may therefore be more inclined to withdraw funds in response to signals of stress.<sup>113</sup>

## Deposit Insurance Pricing

Deposit insurance can cause moral hazard as it removes incentives for insured depositors to monitor banks, allowing bank management to take on excessive risk. Risk-based deposit insurance pricing that charges premiums commensurate with the risk assumed by banks can mitigate moral hazard.<sup>114</sup> Risk-based pricing can also promote fairness, whereby banks that pose higher risk pay higher premiums and mitigate cross-subsidization from lower-risk to higher-risk banks.

It is difficult to measure bank risk and price accurately.<sup>115</sup> Data limitations are one of the major challenges. Although quarterly bank financial filings are extensive, they often lack enough detail to accurately price risk. In addition, failures are relatively rare events and are clustered in time. Statistical analyses that rely on past predictive risk factors are less capable of capturing new risks in the system, especially when failures are associated with macroeconomic events. Liquidity risk measurement is especially challenging as bank runs are far fewer compared with insolvency failures. Moreover, government intervention in recent and past bank runs impedes measuring historical losses that would have occurred absent extraordinary measures.

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<sup>113</sup>FDIC (1997).

<sup>114</sup>Ehrlich and Becker (1972), Demirgüç-Kunt and Detragiache (2002), Hovakimian, Kane, and Laeven (2003), and Shoukry (Forthcoming).

<sup>115</sup>The goals of risk-based pricing include additional objectives, such as transparency. For the purposes of this report, risk-based pricing is discussed primarily in regard to its ability to affect bank risk-taking.

A risk-based pricing system is unlikely to fully and accurately reflect the risks posed by banks. Despite such challenges, a well-designed system can help measure material risks, identify riskier banks and charge those banks higher premiums, and discourage banks from excessive risk-taking. Changes to pricing based on bank liability structure and interest rate risk may mitigate moral hazard concerns and maintain fairness within a deposit insurance system.

### Pricing for Risks in Liability Structure

Bank liability structure can influence the FDIC's risk position in several ways. First, the FDIC's deposit insurance assessment revenue depends on how a bank funds its assets between equity and liabilities. The assessment base used to calculate the deposit insurance premium is average consolidated total assets minus average tangible equity, which approximates a bank's total liabilities. The more a bank funds its assets with liabilities instead of equity, the higher the assessment base and the higher the assessment revenue.

Second, the FDIC's loss exposure is determined by the failed bank liability structure. The National Depositor Preference statute in the Omnibus Budget Reconciliation Act of 1993<sup>116</sup> established the following priority order of receivership claims of creditors if a bank fails:<sup>117</sup>

1. Secured claims
2. Administrative expenses of the receivership
3. Domestic deposit liabilities
4. General creditor claims including unsecured borrowing and foreign deposits
5. Subordinated claims
6. Cross-guarantee claims
7. Stockholders

When a bank fails, secured liabilities such as FHLB advances, repurchase agreements, public deposits, and borrowings from the Federal Reserve Bank discount window have the highest priority claim

on the receivership. Assets used as collateral for secured liabilities are unavailable to the FDIC. Then, administrative expenses of the receivership are paid. Insured deposits are paid in full by the FDIC, and then the FDIC replaces the insured depositors in the priority of payments. Domestic depositors have priority over non-collateralized, non-deposit creditors.<sup>118</sup> Then, general creditors are paid, followed by subordinate creditors and finally stockholders.

Based on the priority of the claims, a bank's loss given failure is influenced by its liability structure. Banks with high shares of secured liabilities and insured deposits will result in higher cost to the FDIC compared to banks with identical assets but with lower secured liabilities and insured deposits.

Third, a bank's liability structure can influence its risk-taking behavior. Secured liabilities are collateralized and are first in priority of the claims.<sup>119</sup> As a result, the holders of these liabilities have little incentive to monitor or discipline banks beyond the specific collateral backing their claim. Banks that rely more heavily on secured liabilities and less on unsecured credits subject themselves to less market discipline. In addition, readily available secured liabilities can fuel a bank's high growth strategies, which have been associated historically with increased failure probability. The current deposit insurance pricing system accounts for the effect secured liabilities can have on expected failure losses by including liabilities in the assessment base. Similarly, unsecured liability holders can affect the risk-taking behavior of banks because they have an incentive to impose market discipline on banks by demanding a higher rate when banks assume greater risk (see Regulation and Supervision).

The deposit insurance pricing systems for large banks and highly complex banks include liquidity risk measures to capture these institutions' ability to withstand funding-related stress and the relative

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<sup>116</sup>Pub. L. 103-66, § 3001.

<sup>117</sup>FDIC (2000) and Marino and Bennett (1999).

<sup>118</sup>Under depositor preference, insured depositors (subrogated claims of the FDIC) and uninsured depositors share in losses and incur the same loss rate on their claim.

<sup>119</sup>According to Shibut (2002), borrowings from the Federal Reserve Board discount window face potential loss because FDICIA allows the FDIC to charge the Federal Reserve Board for failed-bank losses attributable to discount window borrowings made to undercapitalized banks.

magnitude of potential losses to the FDIC should such an institution fail.<sup>120</sup> The funding-related stress metrics for these banks are composed of a core deposit to total liabilities ratio and a balance sheet liquidity ratio. The core deposit metric excludes uninsured, non-brokered time deposits. Meanwhile, balance sheet liquidity metrics measure highly liquid assets relative to potential short-term outflows, including outflows of uninsured deposits. In addition, funding-related stress metrics for highly complex banks include an average short-term funding to average total assets ratio that measures a bank's reliance on short-term funding.<sup>121</sup> The loss severity measure applies a standardized set of assumptions regarding liability runoffs, including uninsured deposit runoff, and the recovery value of asset categories to calculate possible losses to the FDIC.

The measures of a bank's ability to withstand funding-related stress used in pricing do not explicitly account for the liquidity risk posed by bank reliance on uninsured deposits. Implicitly, funding-related stress is captured in part by including liquidity ("L") and sensitivity to market risk ("S") in supervisory bank CAMELS ratings. Uninsured deposits are a form of unsecured credit that pose liquidity risk to a bank. Ensuring that such risks are appropriately addressed within large and highly complex banks could involve changes to the current pricing systems.<sup>122</sup> Changes to account for uninsured deposit risk directly could be made within the scorecards applicable to these institutions or could take the form of a separate adjustment measure that increases a bank's assessment rate to reflect increased risk to the DIF. Adjusting pricing for uninsured deposit risks at large or highly complex banks would be an incremental change and may fit within existing liquidity approaches applied to these institutions.

## Pricing Interest Rate Risk

Interest rate risk is the potential for movements in interest rates to reduce bank earnings and capital. Interest rate risk is inherent in banking as banks generally borrow short and lend long. Banks make loans and other investments with longer maturity using non-maturity deposits and other liabilities that tend to have shorter maturities.

Mismatch in asset and liability maturities exposes banks to repricing risk, one type of interest rate risk. The extent of mismatch in asset and liability maturities is important in assessing a bank's exposure to interest rate risk. Aggregate balance sheet information in Figure 5.1 shows that the industry increased its exposure to longer-term assets while reducing its reliance on longer term liabilities, further escalating the mismatch in maturities. While on-balance sheet mismatch in asset and liability maturities is widening, it is possible that the banks are hedging their interest rate risk using off-balance sheet instruments such as interest rate derivatives. Figure 5.1 also shows the aggregate gross notional amount of interest rate risk derivative contracts held for purposes other than trading in the banking sector. While the notional amount of interest rate risk derivative contracts roughly doubled from 2010 to 2022, it has not kept up with the increasing trend in on-balance sheet asset and liability mismatch. Moreover, some portion of interest rate derivatives is likely accommodations to loan customers (for example, to convert a variable rate loan to fixed rate from the customer's perspective) rather than hedges of banks' own investments. The notional amount of interest rate risk derivatives is lower than the difference in long-term assets and liabilities.<sup>123</sup> Overall, Figure 5.1 indicates that bank exposure to repricing risk has increased over time.

<sup>120</sup>For the purposes of deposit insurance pricing, a large bank is defined as an insured depository institution with assets of \$10 billion or more. A highly complex bank is defined as (1) An insured depository institution (excluding a credit card bank) that has had \$50 billion or more in total assets for at least four consecutive quarters that either is controlled by a U.S. parent holding company that has had \$500 billion or more in total assets for four consecutive quarters, or is controlled by one or more intermediate U.S. parent holding companies that are controlled by a U.S. holding company that has had \$500 billion or more in assets for four consecutive quarters, and (2) a processing bank or trust company, defined in 12 CFR 327.8(s).

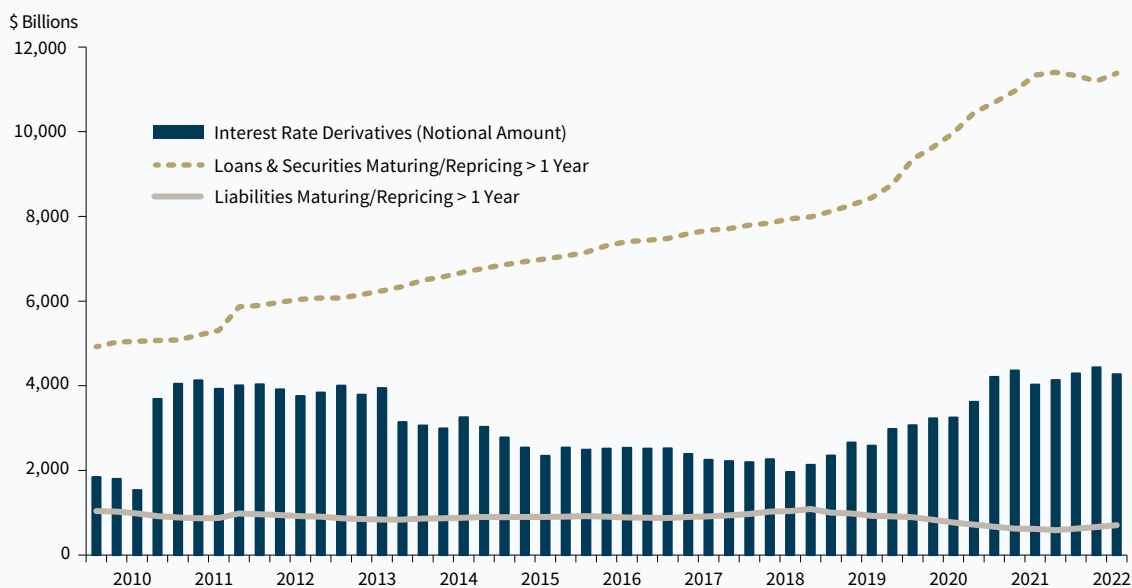
<sup>121</sup>Garnett, Henry, Hoople, and Mihalik (2020).

<sup>122</sup>Deposit insurance pricing for large and highly complex institutions is outlined in 12 CFR Part 327.16(b).

<sup>123</sup>Figure 5.1 provides information on mismatch only for assets and liabilities that mature or reprice in more than a year and excludes those assets and liabilities with less than one year until maturity or repricing. The notional amount of interest rate risk derivatives graphed is for all interest rate risk hedging, which can include hedging for assets and liabilities with less than one year until maturity or repricing. As a result, the shortfall in notional amount of interest rate risk derivative contracts to cover the mismatch is likely to be greater than shown in Figure 5.1.

**FIGURE 5.1**

### Loans and Securities That Mature or Reprice in More Than 1 Year Rose Dramatically During the Pandemic



Source: FDIC.

Besides repricing risk, there are four other types of interest rate risk: yield curve risk, basis risk, option risk, and price risk.<sup>124</sup> Yield curve risk refers to risk associated with changes in the shape or slope of the yield curve. If the yield curve flattens or inverts so that the short-term interest rate rises while the long-term rate remains the same or falls, then banks face higher funding cost when loan revenue remains the same or falls. Differences in maturity or repricing frequency of assets and liabilities also expose banks to yield curve risk. Basis risk refers to risk associated with unequal adjustments in different market rates. Even when assets and liabilities have similar repricing characteristics, the earnings spread from these instruments can differ because of the index rates used. For example, Treasury rate-based deposit rates can change differently than floating loan rates. Interest rate movements can also expose banks to option risk, which can change banks' cash flow as a creditor or borrower exercises the option to withdraw or pay back debt at different times. For example, a depositor can withdraw funds to invest in higher-yielding instruments when interest rates rise, while a borrower

can prepay and refinance a mortgage when interest rates fall. Price risk is the risk that market value instruments change value in response to movements in interest rates. When interest rates rise, the value of investment securities declines, causing unrealized losses.

The deposit insurance pricing system could be improved by incorporating interest rate risk metrics, as they are not explicitly included but are implicitly included through the incorporation of supervisory ratings. Plausibly, price risk of interest rate movements can be incorporated into the system by measuring potential changes to the fair value of the bank's investment securities from movements in the interest rate. Similarly, unrealized losses could be incorporated into risk-based pricing. In contrast, it would be difficult to include metrics to accurately measure repricing and yield curve risk of interest rate movements into the system.

Refinements to deposit insurance pricing can allocate the cost of assessments more appropriately based on

<sup>124</sup>FDIC, "Sensitivity to Market Risk," Risk Management Manual of Examination Policies, section 7.1, <https://www.fdic.gov/regulations/safety/manual/section7-1.pdf>.



the risks taken by institutions and can, to an extent, incentivize more prudent risk-taking by banks. But there are limits to the extent risks can be accurately priced and to the premiums the FDIC can realistically charge. Thus, while pricing is one tool that can account for risk in a deposit insurance regime, the limitations of pricing suggest that it should be part of a joint approach to manage risk-taking incentives alongside other tools discussed in this section.

## Fund Adequacy

The FDI Act requires that the FDIC Board of Directors designate a reserve ratio for the DIF, known as the designated reserve ratio (DRR). The reserve ratio is measured as the ratio of the Fund balance (or net worth) to estimated insured deposits. The DRR is set by the Board based on analysis of the risk of losses to the DIF, economic conditions affecting insured depository institutions, prevention of sharp swings in assessment rates, and other factors the Board determines appropriate. The DRR for any year may not be less than 1.35 percent. Generally, if the reserve ratio falls below the statutory minimum of 1.35 percent or is expected to within six months, the FDIC must adopt a restoration plan to restore it to at least 1.35 percent within eight years. Since 2010, the Board has set the DRR at 2.0 percent with the view that the DRR is a long-term goal.

Increases in insured deposits, because of increases in the deposit insurance limit or other changes,

decrease the reserve ratio. So any changes to the deposit insurance limit should also consider the effect on the reserve ratio, including whether the minimum reserve ratio, set by law, and the DRR, set by the FDIC Board based on statutory factors, are still appropriate, and the amount of time required to reach these levels. Although precise information on the distribution of account balances is not available, the volume of uninsured deposits relative to the number of accounts suggests that a modest increase in the standard deposit insurance amount is unlikely to have significant implications for the reserve ratio. Eliminating a deposit insurance limit altogether and providing universal deposit insurance would increase the volume of insured deposits by about 70 to 80 percent and decrease the reserve ratio by more than 40 percent, excluding associated inflows that might result from more coverage.<sup>125</sup>

Restoring the DIF to the statutory minimum reserve ratio, absent changes to requirements related to adopting a restoration plan, would require raising deposit insurance assessments on the industry. Because assessments are based on total assets less average tangible equity, or essentially total liabilities, an increase in insured deposits at a bank due to increases in the deposit insurance limit would not inherently result in greater assessment revenue. Instead, assessment rates would likely have to be increased across the entire industry.

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<sup>125</sup>Based on the Deposit Insurance Fund balance as of December 31, 2022.