FEDERAL DEPOSIT INSURANCE CORPORATION
STAFF PAPER

DEPOSIT INSURANCE FUNDING: ASSURING CONFIDENCE

November 2013

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Introduction

As the world has suffered more frequent financial crises, it also has come to recognize the importance of deposit insurance in promoting financial stability. Countries around the world increasingly recognize the importance of deposit insurance for the well-being of their financial systems.

The FDIC was created in 1933 during a period of widespread bank runs and bank failures. From 1930 through 1933, more than 9,000 banks in the U.S. failed.[1] Given the environment of fear at the time, the establishment of the FDIC was a crucial factor serving to restore stability and confidence in the banking system.

As the FDIC approaches its 80th anniversary, the deposit insurance it provides has helped to maintain that confidence through two subsequent banking crises when the U.S. experienced hundreds of bank failures.

The FDIC's operations and challenges are in many ways – but not entirely – similar to those facing any insurance company, be it a life or property and casualty company. Banks apply for insurance and the FDIC agrees to insure those that present an acceptable level of risk. Insurance is provided according to well defined rules. The FDIC charges premiums based upon the risk that the insured bank poses, and it inspects, or examines, banks to further manage that risk.

The FDIC similarly invests its funds to enhance total revenue, and it establishes funding arrangements to ensure that it can readily pay claims when a bank fails. There are even some features similar to a reinsurance arrangement. The banking industry, backstopped by the federal government, ultimately covers the risk associated with the deposit insurance system. U.S. history with private and state deposit insurance systems has proven that only the federal government has the capacity to fund the financial industry's most catastrophic risks.

Within this general context, this paper describes how the FDIC has developed its system to both fund its insurance program and appropriately price insurance for the risk that an individual firm may pose to the fund.

Funding Deposit Insurance

In its 80 year history, how the FDIC funds itself has evolved from a relatively simple set of rules to a more sophisticated system where risk is explicitly taken into account in determining the appropriate size of the insurance fund and what premiums banks pay. This evolution reflects the FDIC's experience gained from past crises, its greater authority to manage the deposit insurance system, and its better analysis of funding requirements.

Funding arrangements play a critical role in the success of any deposit insurance system. A well-designed system will ensure that adequate funds are readily available to respond to

* The author gratefully acknowledges comments provided by Matthew Green, Schuyler Livingston, Ashley Mihalik, Arthur Murton, and Munsell St. Clair.

[1] Federal Deposit Insurance Corporation, *A Brief History of Deposit Insurance in the United States* (Washington, D.C.:FDIC, 1998), 21.

problems as they arise and avoid delays in closing failed banks. U.S. experience has been that delays in closing failing banks increase the ultimate cost of failure. These arrangements will determine how much the industry will pay for the costs of deposit insurance and the degree of taxpayer exposure.[2]

Also, a well-designed deposit insurance funding arrangement that includes a risk-based pricing system can serve to minimize the moral hazard issue that too often accompanies even the most carefully designed insurance scheme. This is the risk that excessive risk-taking can arise because creditors do not suffer the full consequences of a bank's failure and, therefore, are less likely to monitor its condition.

Ex Ante Funding

As an insurer, the FDIC has always had an explicit, ex ante fund paid for by the banking industry to satisfy claims as they arise. Alternative arrangements, such as pay-as-you-go or ex post assessments, increase the risk of costly delays and can undermine confidence in the banking system more generally.

Prefunding for future losses is a fairer method to cover depositor losses when they occur. With a pay-as-you-go or ex post system, survivors pay the costs generated by those that fail, which does not restrain moral hazard, but promotes it. It also allows the deposit insurer to smooth the cost of deposit insurance over time. Most bankers indicate they prefer steady, predictable premiums rather than rates that fluctuate and increase sharply in times of economic stress when banks can least afford it. Finally, as with any insurance arrangement, an ex ante fund is reassuring to depositors and taxpayers, thereby promoting confidence and enhancing financial stability.

Optimal Fund Size

The question of whether to have an ex ante fund is easier to address than the question of fund size, which involves balancing significant trade-offs. An insurance company, for example, must have sufficient funds to pay claims but at the same time it cannot afford to charge premiums that are more volatile or higher than those of its competitors.

A deposit insurer faces a similar trade-off. The FDIC wants a fund that is sufficient at all times to pay depositor claims. But, even though not faced with the same competitive pressures, the FDIC works to charge steady premiums and avoid raising rates in bad times, when banks most need resources to lend and promote economic growth. Moreover, as a general matter, the FDIC does not want to hold funds that are not needed and that could be better used by banks for lending.

Over its history, the FDIC has experienced mixed success with various approaches to determining an optimal fund size. For the first 54 years, until 1989, there was no target fund size. Effective premium rates were set by law, and the fund was allowed to grow to the extent that revenue exceeded expenses. This period coincided with great economic stability and few bank failures, so deposit insurance fund adequacy was not a pressing concern.[3]

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[2] Federal Deposit Insurance Corporation, *Options Paper* (Washington, D.C.:FDIC, August 2000), 22.
[3] Ibid., 43.

However, that changed during the late 1980s as the U.S. experienced a series of rolling recessions that resulted in a large number of bank failures. There were more than 2,900 bank and thrift failures from 1980 through 1994, resulting in a total cost of almost $200 billion.[4] The deposit insurance fund that insured thrifts, institutions that typically specialize in mortgage lending, went bankrupt and, ultimately, the U.S. taxpayers incurred costs of roughly $125 billion to deal with hundreds of failed thrifts.[5] While the deposit insurance fund for commercial bank deposits did not require taxpayer support, it did report a negative fund balance for five quarters.

To address concerns about the viability of the deposit insurance fund in the aftermath of these losses Congress, in 1989, instituted for the first time a target fund size, in the form of a Designated Reserve Ratio, or DRR, equal to at least 1.25 percent of estimated insured deposits.[6] In 1991, Congress passed comprehensive legislation responding to that crisis that required that, if the fund fell below that level, the FDIC must bring it back within one year or charge at least 23 basis points annually against banks' domestic deposits.[7]

The 1.25 percent DRR became a harder target in 1996, shortly after the reserve ratio reached its statutory requirement. Congress prohibited the FDIC from charging well-capitalized and well-managed banks anything when the fund was above that target.[8] As a result, the FDIC at the time had almost no ability to let the size of the fund materially increase or decrease.

This framework created a number of problems including:

- a decade where at least 90 percent of the industry paid nothing for deposit insurance,
- a free-rider problem where new entrants and fast growers diluted the fund but paid nothing, and
- potentially volatile and pro-cyclical premiums.

Just prior to the outset of this most recent crisis, in 2006, Congress removed the hard target and allowed the FDIC to manage the fund within a range of 1.15 and 1.50 percent.[9] While this change corrected for some of the weaknesses associated with a hard target, it still mandated that the FDIC return to the industry all amounts - including interest income - that would cause the reserve ratio to exceed 1.50 percent, even if risks to the system warranted a higher fund balance.

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[4] Federal Deposit Insurance Corporation, *Historical Statistics on Banking,* http://www2.fdic.gov/hsob/index.asp, and *Managing the Crisis: The FDIC and RTC Experience:1980-1994* (Washington, D.C.:FDIC, 1998), 809.

[5] Curry and Shibut, "The Cost of the Savings and Loan Crisis: The Truth and Consequences" *FDIC Banking Review* Vol. 13, No. 2 (2000).

[6] Financial Institutions Reform, Recovery, and Enforcement Act of 1989, Pub. L. No. 101-73, 103 Stat. 183 (1989).

[7] Federal Deposit Insurance Corporation Improvement Act of 1991, Pub. L. No. , 102-242, 105 Stat. 2236 (1991).

[8] Deposit Insurance Funds Act of 1996, Pub. L. 104-208, 60 Stat. 446 (1996).

[9] Federal Deposit Insurance Reform Act of 2005, Pub. L. No. 109–171, 120 Stat. 9 (2006).

This last restraint was eliminated following the most recent crisis, after the deposit insurance fund, again, went negative. The Dodd-Frank law in 2010 increased the minimum reserve ratio to 1.35 percent and removed the hard cap.[10]

Current Funding Arrangements

Following this history, the FDIC is now vested with important authorities for determining optimal fund size and for charging premiums to meet fund needs. There are a number of ways to determine a deposit insurance fund's optimal size, from simple to complex.

The FDIC has explored various and sometimes sophisticated approaches for estimating an optimal size for its fund. For example, drawing upon the portfolio management techniques and best practices used by other financial institutions that have to manage capital and financial risks, FDIC developed a loss distribution model.

In developing the model, the deposit insurance fund was viewed as a portfolio of credit risks, representing exposure to different banks. For each bank, probability of failure, loss given failure, and exposure upon failure were estimated to arrive at an expected loss for that bank. Then, an economic model determined the statistical relationships among these elements of expected loss and economic variables such as interest rates, stock price indices, and housing prices. Finally, a simulation model was incorporated to determine a wide range of economic events and to produce a distribution of possible future failures and losses to the deposit insurance fund.[11]

The appeal of such an approach is that it offers greater rigor and could increase precision in determining potential losses and calibrating an optimal fund size tied to a desired solvency standard. For example, it could suggest what balance would assure solvency at a 95 or 99 percent degree of confidence given a wide range of potential outcomes. As Chart 1 shows, the FDIC's distribution of losses is skewed far to the left, with a larger probability of small losses and a small probability of very large losses.

While conceptually appealing, this approach remains experimental and involves a host of practical challenges. It is difficult, for example, to accurately determine relationships between economic variables and the variables affecting a bank's failure. It obviously also is difficult to project economic events. And the presence of very large banks in the industry produces results that are both volatile and heavily skewed.

In the end, therefore, when given much greater authority in 2010 to manage the size of its deposit insurance fund, the FDIC took a different, simpler approach to determine the most appropriate fund size. Having experienced two recent banking crises, it looked at this experience to address two related questions. First, how high did the fund need to grow to prevent it from ever going negative? And, second, what steady premium rate would have been required to achieve the desired balance?

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[10] Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, 124 Stat. 1376 (2010).

[11] Federal Deposit Insurance Corporation, *FYI: An Update on Emerging Issues in Banking: A Portfolio Perspective for Evaluating the Adequacy of the Insurance Funds* (Washington D.C.: FDIC, December 10, 2003).

The analysis revealed that if the deposit insurance fund had been allowed to grow to at least 2 percent of insured deposits prior to each of the two preceding banking crises, a steady average premium rate of a little over 8 basis points charged on domestic deposits could have been required to meet these goals. As Chart 2 shows, the fund balance went negative twice but, in each instance, a pre-crisis balance of at least 2 percent would have avoided it going negative. Next, Chart 3 illustrates that actual premium rates were volatile and necessarily increased during periods of bank failures compared to the alternative steady rate suggested in the analysis.

This straightforward approach remains the underpinning of FDIC's current fund management strategy. It was used to set a long-term reserve ratio goal (a DRR) of 2 percent in 2011, which continues today. In moving toward this goal, the law requires the reserve ratio to reach the minimum requirement of 1.35 percent by 2020. Thereafter, the FDIC's plan is to systematically increase the fund toward the 2 percent target. Currently, the reserve ratio is only 0.63 percent.

An important point to note about the 2 percent target is that it is viewed as a soft, rather than a hard, target. There is an explicit plan to reduce rates to produce the long-term average rate when the reserve ratio reaches 1.15 percent. Once the reserve ratio reaches 2 percent, the plan provides for rates to be reduced gradually, but not to zero, as the reserve ratio grows.

Pricing

A related topic to that of optimal fund size is deposit insurance pricing -- who should pay what to achieve the target fund size? While this topic could be the subject of a much more thorough discussion, it is mentioned here briefly since it is only recently that the FDIC has introduced a more granular risk-based pricing methodology into the U.S. deposit insurance framework.

As previously mentioned, from the FDIC's founding in 1933 through 1991, Congress set premium rates and all banks paid the same rate. The result was that better run banks subsidized those banks with a much higher risk profile. However, as with the laws governing insurance fund adequacy, the rules governing pricing also were modified in response to the banking crisis of the late 1980s to resemble those of private insurers more closely and to reduce this subsidy. In 1991, Congress required the FDIC to adopt a risk-based premium system, which the FDIC did beginning in 1993.

The FDIC's initial risk-based pricing system was simple and relied on two factors: supervisory ratings and capital ratios. In 2006, restrictions on the FDIC's ability to assess premiums when the fund exceeded a certain level were eliminated. With greater flexibility to price, separate methodologies were adopted for large and small banks, and further metrics were incorporated into the system to provide for more granular distinctions in risk.

For smaller banks, the FDIC relied upon a rich data set of supervisory rating changes and statistical methods to identify financial ratios that are good predictors of supervisory rating downgrades. A methodology using five financial ratios plus supervisory ratings was adopted. Shortly thereafter, a sixth financial ratio was added and, with other minor modifications, this remains the basis of the small bank risk-based pricing system today, as summarized in Chart 5.

The FDIC did not have the same rich data on supervisory rating changes for large banks. As a result, it initially adopted a system based upon capital levels, supervisory ratings and debt issuer ratings to reflect these views of relative risk. At the onset of the most recent crisis, this

approach proved unsatisfactory as neither supervisory ratings nor debt issuer ratings adequately reflected the increasing differences in risk profiles among these banks.

Eventually, an entirely new scorecard approach was introduced to assess premiums for the largest banks. This approach more closely resembles those that large financial institutions use to evaluate the risk of their counterparties and is conceptually designed around the concepts of probability of failure and loss given failure. It contains about a dozen financial ratios that proved, pre-crisis, to be useful predictors of a relative risk ranking post-crisis. The scorecard uses supervisory ratings and these financial ratios to determine a bank's ability to withstand asset- and funding-related stress, and it combines these with a measure of the bank's loss severity in the event it does fail, as summarized in Chart 6. The goal is to identify forward-looking indicators that differentiate risk and suggest how large institutions will fare during periods of economic stress.

Emergency Funding

A final issue with regard to deposit insurance funding is the topic of emergency funding. Like any financial institution, the FDIC has backup lines of credit, and they are with the U.S. Treasury.[12] Use of these lines comes with borrowing limits and interest requirements. Furthermore, the FDIC views the lines of credit as a means to deal with severe financial shocks resulting in *unanticipated* liquidity needs.

In 1990, the FDIC was authorized to borrow money for working capital and found it necessary to draw on that line for the first time. Cash in the fund had been replaced by illiquid assets from failed banks. Working capital borrowings, which amounted to about $10 billion, were repaid in full after a couple of years from the proceeds of asset sales.

In 2009, the FDIC was faced with a similar situation but elected not to draw on its borrowing lines this time.

As mentioned earlier, the FDIC's primary source of funding is the banking industry, even during a financial emergency. During the most recent crisis, the banking industry had been beneficiaries of extraordinary government assistance, and the industry and public were suffering from what was termed bailout fatigue. It was believed that drawing on a borrowing line with the Treasury, which is backed by the U.S. taxpayer, would exacerbate matters, even though the borrowing would be only for liquidity purposes and would be repaid with interest.

Furthermore, due to highly accommodative monetary stimulus and low loan demand, banks were flush with cash and other liquid assets, even if bank earnings and capital were weak.

Under these circumstances and with industry support, the FDIC implemented a prepaid assessment requirement, an approach not previously considered, to boost the Deposit

[12] The FDIC is authorized to borrow for working capital from the Federal Financing Bank, a government entity under the supervision of the Secretary of the Treasury. The FDIC also has authority to borrow up to $100 billion for insurance losses from the U.S. Treasury. The law requires the banking industry to repay any FDIC funds borrowed from the Treasury over a period of several years.

Insurance Fund's liquidity. FDIC required all banks to prepay an estimated three years of deposit insurance premiums.[13]

This approach provided important liquidity to the fund and was a successful means of meeting emergency funding needs without requiring government support.

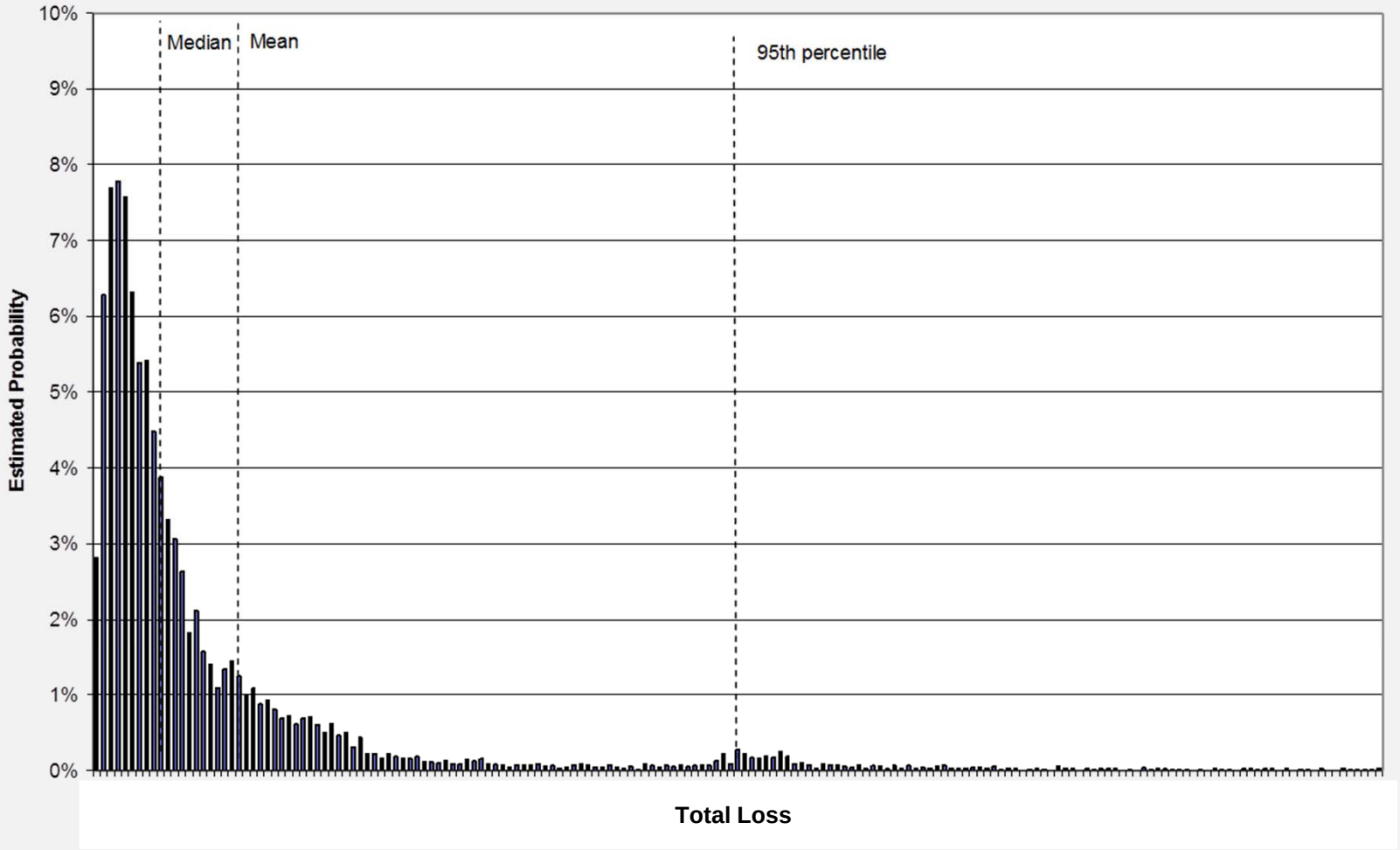
Conclusion

As deposit insurer, the FDIC has an interest in structuring its system to best achieve the goals of depositor confidence and financial stability, and each banking crisis confirms the important role that deposit insurance plays in this regard. In the U.S., each banking crisis also has come with the mandate for the FDIC to operate in ways that achieves these goals while, at the same time, mitigating the hazards associated with deposit insurance and protecting the interests of taxpayers. These competing interests can be observed in all aspects of a deposit insurer's operations, including funding arrangements.

[13] The prepayment increased the FDIC's cash balances by $46 billion but not its income, since the prepayment was booked as deferred revenue, a credit in favor of the banks. For banks, it required a cash payment but no reduction in earnings or capital since banks booked the prepayment as an asset. As the FDIC invoiced banks each quarter for deposit insurance, rather than requiring a cash payment from banks, the payment was offset against their prepaid credit. Also, each quarter, the FDIC recognized the total amount invoiced as revenue, and banks expensed their prepaid asset by the amount of the quarterly invoice.

Chart 1:

Hypothetical Loss Distribution for 12 Month Horizon

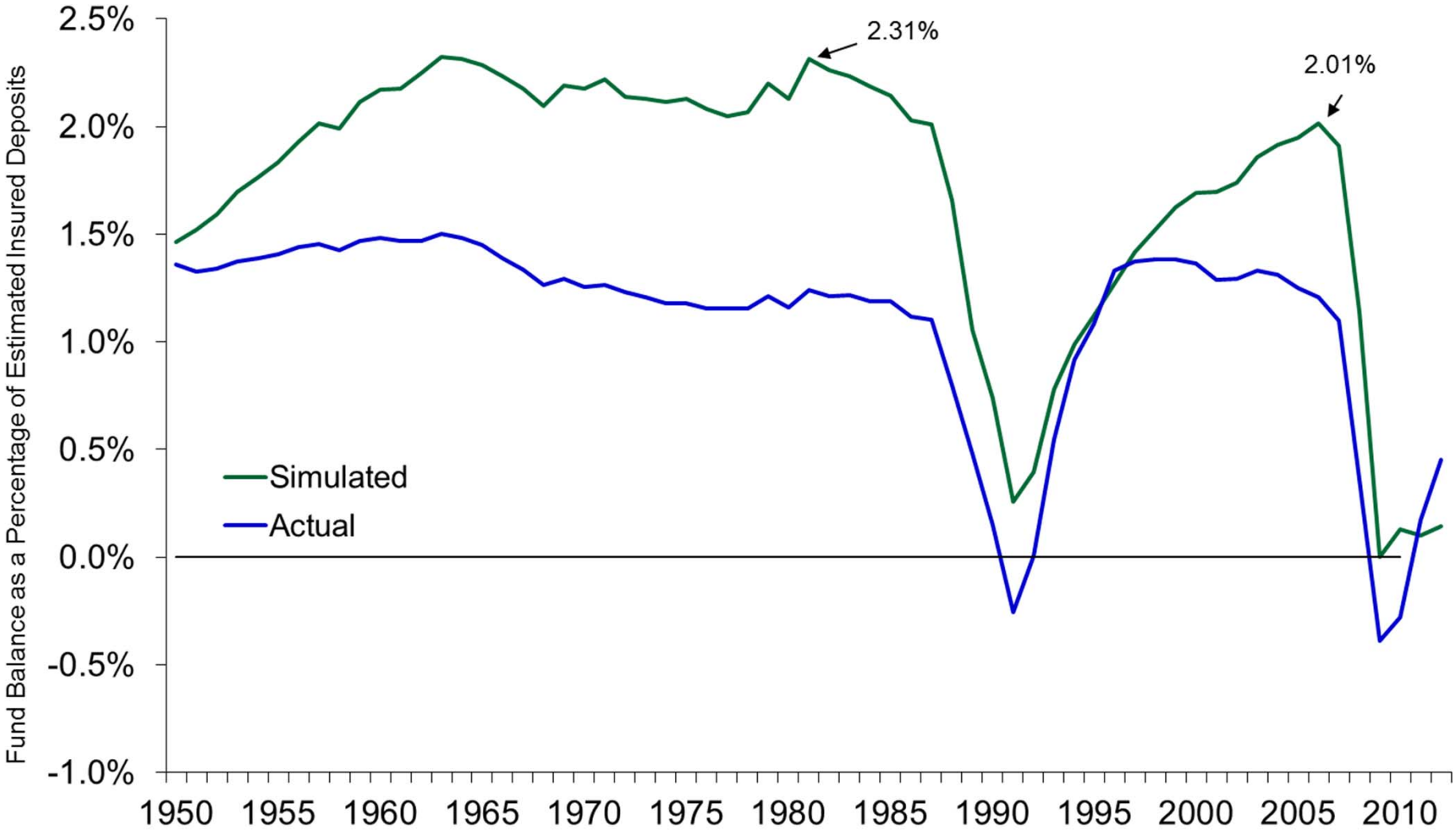


Each bar shows the estimated probability of losses to the FDIC falling in a dollar range.

Source: FDIC

Chart 2:

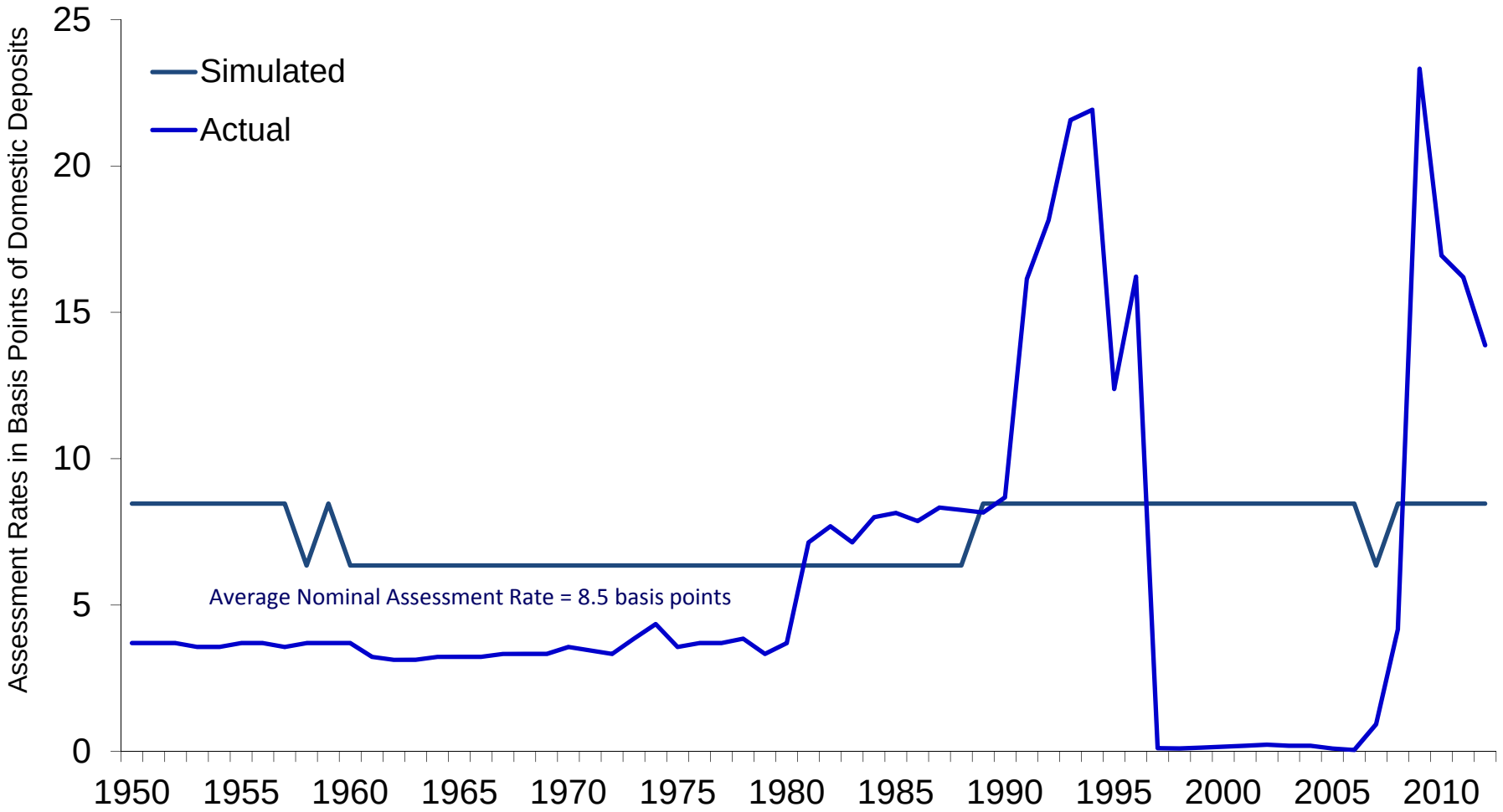
A minimum target of 2 percent would have helped avoid negative fund balances in the early-1990s and late-2000s crisis periods.



Source: FDIC

Chart 3:

A target of 2 percent will help allow rates to remain steady under good and bad conditions while maintaining a positive fund balance.



Source: FDIC

Chart 4:

Risk Measures Used to Determine Risk-Based Premium Rates for Banks with Assets Less than $10 Billion

- Risk measures include:
  - Tier 1 Leverage Ratio
  - Loans Past Due 30-89 Days / Gross Assets
  - Nonperforming Assets / Gross Assets
  - Net Loan Charge-Offs / Gross Assets
  - Net Income before Taxes / Risk Weighted Assets
  - Rapid Asset Growth Funded by Brokered Deposits
  - Weighted Average Examination Component Ratings

- Additional adjustments for:
  - High reliance on brokered deposits (only applies to higher risk small institutions)
  - Reliance on long term unsecured debt

Source: FDIC

Chart 5:

Risk Measures Used to Determine Risk-Based Premium Rates for Banks with Assets Greater than $10 Billion

- Tier 1 Leverage Ratio
- Higher Risk Assets / Tier 1 Capital & Reserves
- Level of, and Growth in, Risk Concentrations
- Core Earnings / Average Assets
- Past Due Assets / Tier 1 Capital & Reserves
- Criticized and Classified Assets / Tier 1 Capital & Reserves
- Core Deposits / Total Liabilities
- Highly Liquid Assets / Potential Cash Outflows
- Projected Loss Given Default / Domestic Deposits
- Weighted Average Examination Component Ratings

- Additional risk measures for highly complex institutions:
  - Largest Counterparty Exposure / Tier 1 Capital & Reserves
  - Top 20 Counterparty Exposures / Tier 1 Capital & Reserves
  - Trading Revenue Volatility / Tier 1 Capital
  - Market Risk Capital / Tier 1 Capital
  - Level 3 Trading Assets / Tier 1 Capital
  - Short Term Borrowing / Average Assets

- Additional adjustments for all large banks:
  - High reliance on brokered deposits (only applies to higher risk large institutions)
  - Reliance on long term unsecured debt

Source: FDIC