FEDERAL DEPOSIT INSURANCE CORPORATION

12 CFR Part 337

RIN 3064–AE94

Unsafe and Unsound Banking Practices: Brokered Deposits and Interest Rate Restrictions

AGENCY: Federal Deposit Insurance Corporation.

ACTION: Advance notice of proposed rulemaking and request for comment.

SUMMARY: The Federal Deposit Insurance Corporation (FDIC) is undertaking a comprehensive review of the regulatory approach to brokered deposits and the interest rate caps applicable to banks that are less than well capitalized. Since the statutory brokered deposit restrictions were put in place in 1989, and amended in 1991, the financial services industry has seen significant changes in technology, business models, and products. In addition, changes to the economic environment have raised a number of issues relating to the interest rate restrictions. A key part of the FDIC's review is to seek public comment through this Advance Notice of Proposed Rulemaking (ANPR) on the impact of these changes. The FDIC will carefully consider comments received in response to this ANPR in determining what actions may be warranted.

DATES: Comments must be received by the FDIC no later than May 7, 2019.

ADDRESSES: You may submit comments on the notice of proposed rulemaking using any of the following methods:

- *Agency Website: http://www.fdic.gov/regulations/laws/federal/.* Follow the instructions for submitting comments on the agency website.
- *Email: comments@fdic.gov.* Include RIN 3064–AE94 on the subject line of the message.
- *Mail:* Robert E. Feldman, Executive Secretary, Attention: Comments, Federal Deposit Insurance Corporation, 550 17th Street NW, Washington, DC 20429.
- *Hand Delivery:* Comments may be hand delivered to the guard station at the rear of the 550 17th Street NW Building (located on F Street) on business days between 7 a.m. and 5 p.m.
- *Public Inspection:* All comments received, including any personal information provided, will be posted generally without change to *http://www.fdic.gov/regulations/laws/federal.*

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SUPPLEMENTARY INFORMATION:

I. Policy Objectives

The policy objective of this ANPR is to obtain input from the public as the FDIC comprehensively reviews its brokered deposit and interest rate regulations in light of significant changes in technology, business models, the economic environment, and products since the regulations were adopted. The FDIC is inviting comment on all aspects of the brokered deposit and interest rate regulations.

To facilitate comment, the remainder of this ANPR has been structured in the following manner: (II) Brokered Deposits and Interest Rate Restrictions, addressing (A) Current Law and Regulations, (B) History and Research, (C) Brokered Deposit Issues, (D) Interest Rate Issues; (III) Requests for Comment; and Appendices with additional background and descriptive statistics.

II. Brokered Deposits and Interest Rate Restrictions

Brokered and high-rate deposits became a concern among bank regulators and Congress before any statutory restrictions were put in place. This concern arose because: (1) Such deposits could facilitate a bank's rapid growth in risky assets without adequate controls; (2) once problems arose, a problem bank could use such deposits to fund additional risky assets to attempt to ''grow out'' of its problems, a strategy that ultimately increased the losses to the deposit insurance fund when the institution failed; and (3) brokered and high-rate deposits were sometimes volatile because deposit brokers (on behalf of customers), or the customers themselves, were often drawn to high rates and were prone to leave the bank when they found a better rate or they became aware of problems at the bank.

Before proceeding further, it should be noted that, historically, most institutions that use brokered and higher-rate deposits have done so in a prudent manner and appropriately measure, monitor, and control risks associated with brokered deposits. Moreover, well-capitalized institutions are not subject to restrictions on accepting brokered deposits or setting interest rates. Nonetheless, the FDIC also recognizes that institutions sometimes are concerned that the use of brokered deposits can have other regulatory consequences, such as implications for deposit insurance pricing in certain circumstances, or may be viewed negatively by investors or other stakeholders.

A. Current Law and Regulations

Section 29 of the Federal Deposit Insurance Act (FDI Act), titled ''Brokered Deposits,'' was originally added to the FDI Act by the Financial Institutions Reform, Recovery, and Enforcement Act of 1989 (FIRREA). The law originally restricted troubled institutions (not meeting their minimum capital requirements at the time) from (1) accepting deposits from a deposit broker without a waiver and (2) soliciting deposits by offering rates of interest on deposits that were significantly higher than the prevailing rates of interest on deposits offered by other insured depository institutions (or ''IDIs'') having the same type of charter in such depository institution's normal market area.[1]

Two years later, Congress enacted the Federal Deposit Insurance Corporation Improvement Act of 1991 (FDICIA), which added the Prompt Corrective Action (PCA) capital regime to the FDI Act and also amended the threshold for the brokered deposit and interest rate restrictions from a troubled institution to a bank falling below the ''well capitalized'' PCA level. At the same time, the FDIC was authorized to waive the brokered deposit restrictions for a bank that is adequately capitalized upon a finding that the acceptance of such deposits does not constitute an unsafe or unsound practice with respect to the institution.[2] FDICIA did not authorize the FDIC to waive the brokered deposit restrictions for less than adequately capitalized institutions. Most recently, earlier this year, Section 29 of the FDI Act was amended as part of the Economic Growth, Regulatory Relief, and Consumer Protection Act, to except a capped amount of certain reciprocal deposits from treatment as brokered deposits.[3]

[1] *See* Public Law 101–73, August 9, 1989, 103 Stat. 183.

[2] *See* Public Law 102–242, December 19, 1991, 105 Stat. 2236.

[3] The statute was amended 1994 as part of the Riegle Community Development and Regulatory Improvement Act of 1994. The changes were generally technical to ensure that the interest rate restrictions under Section 29(g)(3) were consistent with the PCA framework, among other things. *See* Public Law 103–325, September 23, 1994, 108 Stat. 2160.

Section 337.6 of the FDIC's Rules and Regulations implements and closely tracks the statutory text of Section 29, particularly with respect to the definition of ''deposit broker'' and its exceptions.[4] Section 29 of the FDI Act does not directly define a ''brokered deposit,'' rather, it defines a ''deposit broker'' for purposes of the restrictions.[5] Thus, the meaning of the term ''brokered deposit'' turns upon the definition of ''deposit broker.''

Section 29 and the FDIC's implementing regulation define the term ''deposit broker'' to include:

(1) Any person engaged in the business of placing deposits, or facilitating the placement of deposits, of third parties with insured depository institutions or the business of placing deposits with insured depository institutions for the purpose of selling interests in those deposits to third parties; and

(2) An agent or trustee who establishes a deposit account to facilitate a business arrangement with an insured depository institution to use the proceeds of the account to fund a prearranged loan.

This definition is subject to the following nine statutory exceptions:

(1) An insured depository institution, with respect to funds placed with that depository institution;

(2) An employee of an insured depository institution, with respect to funds placed with the employing depository institution;[6]

(3) A trust department of an insured depository institution, if the trust in question has not been established for the primary purpose of placing funds with insured depository institutions;

(4) The trustee of a pension or other employee benefit plan, with respect to funds of the plan;

(5) A person acting as a plan administrator or an investment adviser in connection with a pension plan or other employee benefit plan provided that that person is performing managerial functions with respect to the plan;

(6) The trustee of a testamentary account;

(7) The trustee of an irrevocable trust (other than one described in paragraph (1)(B)), as long as the trust in question has not been established for the primary purpose of placing funds with insured depository institutions;

(8) A trustee or custodian of a pension or profit sharing plan qualified under section 401(d) or 430(a) of the Internal Revenue Code of 1986; or

(9) An agent or nominee whose primary purpose is not the placement of funds with depository institutions.

As listed above, the statute includes nine exceptions to the definition of ''deposit broker.'' The FDIC's regulations include the following tenth exception: ''An insured depository institution acting as an intermediary or agent of a U.S. government department or agency for a government sponsored minority or women-owned depository institution program (''MWODI'').[7]

In addition to restricting the acceptance of brokered deposits by less than well-capitalized IDIs, Section 29 of the FDI Act also prohibits such IDIs from paying rates that significantly exceed their normal market area or the national rate as established by the FDIC by regulation. This provision was intended to prohibit ''the solicitation of deposits by in-house salaried employees through so-called money-desk operations.'' [8] More specifically, the provision addressed a concern that emerged during various legislative hearings that brokered deposit restrictions could easily be circumvented by in-house solicitation of high-rates.[9] In implementing this legislative restriction, from 1989 to 2009, the FDIC pegged the national rate to comparable Treasury rates in its regulation. However, the national rate calculation was changed in 2009, pursuant to a notice-and-comment rulemaking, when yields on Treasuries fell dramatically during the crisis, compressing the rate caps. The FDIC moved to a simple average of rates paid by all banks and branches that offer a specific product. This national rate data is provided to the FDIC by a data-gathering company and is published weekly on the FDIC's website. The history of the interest rate restrictions and its associated issues are discussed more fully in Section D.

B. History and Research

As described in the FDIC's 1997 study of the banking and thrift crises of the 1980s and early 1990s, brokered CDs became increasingly used as funding sources, first by money center banks and then by regional and smaller institutions.[10] Even as early as the 1970s, the FDIC noted concerns about brokered deposits, as stated in the FDIC's Division of Bank Supervision Manual—''The use of brokered deposits has been responsible for abuses in banking and has contributed to some bank failures, with consequent losses to the larger depositors, other creditors, and shareholders.'' [11]

However, the potential abuses associated with brokered deposits received relatively little attention until the failure of Penn Square Bank in 1982. This failure resulted in the largest bank payout of insured deposits in the history of the FDIC up until that time.[12] Brokered deposits allowed the bank to grow rapidly from $30 million in assets in 1977 to $436 million in assets when it failed in 1982, with much of the growth in high risk loans to small oil and gas producers.[13] In response to the rising use of brokered deposits and data suggesting negative consequences, in April 1984 the FDIC and the Federal Home Loan Bank Board (FHLBB) adopted a joint final rule restricting pass through deposit insurance for deposits obtained through a deposit broker.[14] The agencies indicated that data showed that institutions used brokered deposits to pursue rapid growth in risky real estate-related lending without adequate controls and to increase risky lending after problems arose. In January 1985, the Court of Appeals for the District of Columbia Circuit ruled that the FDI Act did not permit the FDIC to eliminate pass-through deposit insurance for deposit brokers.[15]

[4] *See* 12 CFR 337.6. The FDIC issued two rulemakings related to the interest rate restrictions under this section. A discussion of those rulemakings, and the interest rate restrictions, is provided in Section (II)(B) of this ANPR.

[5] *See* 12 U.S.C. 1831f.

[6] The term ''employee'' is defined as ''any employee (A) who is employed exclusively by the insured depository institution; (B) whose compensation is primarily in the form of salary; (C) who does not share such employee's compensation with a deposit broker; and (D) whose office space or place of business is used exclusively for the benefit of the insured depository institution which employs such individual.''

[7] *See* 12 CFR 337.6(a)(5)(J). The exception was adopted by the FDIC shortly after FDICIA was enacted in 1991, and the FDIC indicated in the preamble for the final rule that implemented the FDICIA revisions to section 29 that those revisions were not intended to apply to deposits placed by insured depository institutions assisting government departments and agencies in administration of MWODI deposit programs. *See* 57 FR 23933, 23040 (1992).

[8] *See* H.R. Conf. Rep. No. 101–222, 101st Cong., 1st Sess. 402 (1989).

[9] *See* ''Problems of the Federal Savings and Loan Insurance Corporation: Hearings Before the Committee on Banking, Housing, and Urban Affairs of the United States Senate,'' (part II) 101st Cong., 1st Sess. 230–231 (1989).

[10] *History of the Eighties—Lessons for the Future,* p. 119, Federal Deposit Insurance Corporation December 1997 *https://www.fdic.gov/bank/historical/history/.*

[11] FDIC, ''Division of Bank Supervision Manual,'' Section L, page 3, November 1, 1973.

[12] *History of the Eighties—Lessons for the Future,* p. 119, Federal Deposit Insurance Corporation December 1997 *https://www.fdic.gov/bank/historical/history/.*

[13] *See id; see also, Belly Up: The Collapse of the Penn Square Bank* (1985), Chapter 9, Phillip L. Zweig.

[14] *See* 49 FR 13003 (April 2, 1984).

[15] *FAIC Securities, Inc.* v. *United States,* 768 F.2d 352 (D.C. Cir. 1985).

While the case was pending, and after the decision, Congressional hearings regarding brokered deposits were held between 1984 and 1988 and, in 1989, as noted earlier, as part of FIRREA. Pursuant to these hearings, Congress imposed restrictions on brokered deposits for institutions that did not meet their minimum capital requirements and later tied the restrictions to the PCA framework in 1991 through FDICIA. Congress also imposed rate restrictions on institutions that were less than well capitalized out of concern that institutions would be able to circumvent brokered deposit restrictions by merely advertising or otherwise offering very high rates. Since enactment of Section 29, the FDIC has continued to study the role of brokered deposits in the performance of banks, their impact on safety and soundness, and the loss they impose on the Deposit Insurance Fund (DIF) when a bank fails.

Brokered Deposit Usage and Relevant Data

From the 1960s up until 2000, brokered retail CDs and wholesale CDs were the main type of brokered deposits used in the banking system. Starting in the 1980s deposit listing services began generating deposits for IDIs by advertising CD rates on behalf of institutions. Beginning in 1999, broker-dealers first started to offer brokerage customers an automatic sweep of their customers' idle funds to IDIs.

Beginning in 2003, a network was established through which banks could place customer funds in time deposits at other banks and receive time deposits in an equal amount of funds in return, such deposits being referred to as ''reciprocal deposits.'' Similar services evolved for money market deposit accounts (MMDAs).

As of September 30, 2018, insured depository institutions held $986 billion in brokered deposits, which amounted to 8.0 percent of the $12.3 trillion in industry domestic deposits. These brokered deposits were held by 2,221 insured depository institutions, representing 40.6 percent of the 5,477 total number of insured depository institutions.

Although 2,221 institutions held brokered deposits as of September 30, 2018, a significant portion of these deposits are concentrated in a small number of institutions. One hundred institutions held 89.4 percent, or $881 billion, of the $986 billion brokered deposits in the banking system, with five institutions accounting for 39.4 percent, or $389 billion, of all brokered deposits. The remaining 2,121 institutions using brokered deposits account for the remaining $104 billion in brokered deposits.

Consistent with this concentration, among the 2,221 institutions holding brokered deposits as of September 30, 2018, the median holding was 4.7 percent of total domestic deposits, but 6 institutions held brokered deposits in excess of 90 percent of total domestic deposits; 25 institutions held brokered deposits between 50 percent and 90 percent of total domestic deposits; and 79 institutions held brokered deposits between 25 percent and 50 percent of total domestic deposits.

BROKERED DEPOSITS HELD BY INSURED DEPOSITORY INSTITUTIONS AS OF SEPTEMBER 30, 2018 [16]

Asset size group	Total number of banks	Number of banks with brokered deposits	Total brokered deposits (billions)	Share of total brokered deposits (%)	Total domestic deposits	Share of total domestic deposits (%)
Under $1 Billion	4,704	1,656	$31.92	3.2	$988.05	8.0
$1–10 Billion	635	439	90.16	9.1	1,349.56	11.0
$10–50 Billion	97	89	171.87	17.4	1,605.40	13.0
Over $50 Billion	41	37	691.78	70.2	8,378.84	68.0
All Banks	5,477	2,221	985.73	.....	12,321.84	.....

The largest concentrations of brokered deposits can be characterized as 3 types of deposits: (1) Master Certificates of Deposits; (2) sweep deposits that are viewed as brokered; and (3) reciprocal deposits. Listing service deposits are also discussed below, but typically, are not reported as brokered.

Master Certificate of Deposits

Information about brokered deposits that the FDIC collects from banks through the Call Report does not reflect certain elements of the structure of the brokered deposit market. However, industry participants have informed the FDIC that a sizable portion of reported brokered deposits are wholesale Master Certificate of Deposits. These instruments are held on the books of the issuing bank in the name of a subsidiary of Depository Trust Corporation (DTC) as custodian for deposit brokers who are often broker dealers. These broker dealers, in turn, issue retail CDs, typically in denominations of $1,000, under the Master Certificate of Deposit to their retail clients.

The retail customers' ownership interests in the brokered retail CDs are reflected on the books of the deposit broker that issued them. These Master Certificates of Deposits are reported by banks on Call Report Schedule RC–E, Memoranda Item 1.c as deposits of $250,000 or less even though issued in the name of DTC for more than $250,000 to reflect the substance of the retail CDs issued under them. The FDIC, however, has no Call Report information about what portion of reported brokered deposits of $250,000 or less are Master Certificates of Deposits as described above. In the event of a failure, the deposit broker maintains records of the retail CDs held by its customers, and these records would be submitted to the FDIC in order to make payments on deposit insurance to the retail CD holders.

Sweep Deposits

Third parties (including investment companies acting on behalf their clients) that sweep client funds into deposit accounts at IDIs are deposit brokers. As a result, the sweep deposits placed by these third parties are brokered deposits unless the third party meets one of the exceptions to the definition of ''deposit broker''. In 2005, FDIC staff issued an advisory opinion that took the view that a brokerage firm placing idle client funds into deposit accounts at its affiliate IDI, under certain circumstances, meets the ''primary

[16] Descriptive statistics detailing the historical holdings of brokered deposits by bank size and PCA capital classification status can be found in Appendix 1.

purpose'' exception.[17] Thus, the deposits placed on behalf of their clients would not be brokered deposits.

As of September 30, 2018, 28 insured depository institutions have indicated to the FDIC that they receive funds swept from an affiliated broker dealer under conditions that FDIC staff have indicated would support the affiliate being viewed as meeting the ''primary purpose'' exception to the ''deposit broker'' definition. Each of these insured depository institutions provides monthly reports to the FDIC of the monthly average of the swept funds as of month end. As of September 30, 2018, these 28 insured depository institutions reported $724 billion as the average amount of funds swept from the institutions' affiliated broker dealers for September 2018.

Thus, as of September 30, 2018, the reported brokered deposits of $986 billion, which includes brokered CDs and broker dealer sweeps to unaffiliated insured depository institutions, when combined with the average monthly balance of funds that broker dealers sweep to affiliated institutions for September of $724 billion result in a combined amount of $1.710 trillion, which represents 14 percent of the $12.3 trillion in industry domestic deposits for that date.

Reciprocal Deposits

Reciprocal deposit arrangements are based upon a network of IDIs that place funds at other participating banks in order for depositors to receive insurance coverage for the entire amount of their deposits. Because reciprocal arrangements can be complex, and involve numerous banks, they are often managed by a third-party sponsor. As a result, all deposits placed through this arrangement have historically been viewed as brokered deposits.

On May 24, 2018, the Economic Growth, Regulatory Reform, and Consumer Protection Act took effect, allowing certain banks to except a limited amount of reciprocal deposits (as defined by the Act) from brokered deposits. Under the reciprocal deposit exception, well-capitalized and well-rated institutions are not required to treat such reciprocal deposits as brokered deposits up to the lesser of 20 percent of its total liabilities, or $5 billion. Institutions that are not both well capitalized and well rated may also exclude reciprocal deposits from their brokered deposits under certain circumstances.

The immediate result of this Act has significantly reduced the percentage of reciprocal deposits that are classified as brokered deposits. As of March 30, 2018, the last reporting quarter before the Act took effect, reciprocal deposits of $48.5 billion were reported. As of June 30, 2018, the first quarter end after the Act took effect, brokered reciprocal deposits had fallen to $17.1 billion. As of September 30, 2018, brokered reciprocal deposits had fallen to $13.7 billion. For banks with assets less than $1 billion, their percentage of reciprocal deposits as a percent of brokered deposits declined from 33.7 percent on March 31, 2018, to 15.4 percent on June 30, 2018 and, 11.5 percent on September 30, 2018.

Listing Service Deposits

Deposits whose placement at insured depository institutions are facilitated, in a passive manner, by deposit listing services have not been reported as brokered deposits. However, since 2011, such deposits have been reported on banks' Call Reports. As of September 30, 2018, insured depository institutions reported holding $69.6 billion in listing service deposits that are not reported as brokered deposits, which amounted to 0.6 percent of industry domestic deposits. One quarter of insured depository institutions held non-brokered listing service deposits as of September 30, 2018.

As of September 30, 2018, 22 institutions were not well capitalized for PCA purposes. Of these institutions, 13 institutions held non-brokered listing service deposits, for which the ratio of non-brokered listing service deposits to domestic deposits was 3.6 percent, while the ratio for the 1,356 well-rated institutions holding such deposits was 2.9 percent. Among insured depository institutions with non-brokered listing service deposits, the share of non-brokered listing service deposits to domestic deposits has declined from a median of 4.6 percent on September 30, 2011 to 2.9 percent as of September 30, 2018.

FDIC Studies That Discuss Brokered Deposits

In the wake of the recent financial crisis, the Dodd-Frank Act directed the FDIC to conduct a study of core and brokered deposits, which the FDIC completed in July 2011. Recently the FDIC updated its analysis with data through the end of 2017. The results of that analysis confirm the previous findings of the 2011 study and can be found in Appendix 2.

The research provided in the study shows that higher brokered deposit use is associated with higher probability of bank failure and higher insurance fund loss rates. Banks with higher levels of brokered deposits are also, in general, more costly to the DIF when they fail. The study also found that, on average, brokered deposits are correlated with higher levels of asset growth, higher levels of nonperforming loans, and a lower proportion of core deposit funding. FDIC's study also describes the three characteristics of brokered deposits that have posed risk to the DIF:

1. Rapid growth—the extent to which deposits can be gathered quickly and used imprudently to expand risky assets or investments.

2. Volatility—the extent to which deposits might flee if the institution becomes troubled or the customer finds a more appealing interest rate or terms elsewhere. Volatility tends to be also be mitigated somewhat by deposit insurance, as insured depositors have less incentive to flee a problem situation.

3. Franchise Value—the extent to which deposits will be attractive to the purchasers of failed banks, and therefore not contribute to losses to the DIF.

In December 2017, the FDIC published *Crisis and Response: An FDIC History, 2008–2013*.[18] The history shows that failures and downgrades were highly correlated with reliance on brokered deposits and other wholesale funding sources.[19] Generally speaking, failures were more concentrated among banks that made relatively greater use of brokered deposits and other wholesale funding sources.

The history noted that, although the use of brokered deposits and other wholesale funding sources within a sound liquidity management program is not in itself a risky practice, significant reliance on wholesale funds may reflect a decision that an institution has made to grow its business more aggressively. On the liability side, the history indicated that if the institution comes under stress, wholesale counterparties may be more apt to withdraw funding or demand additional collateral.

In addition to these publications, the following reports prepared by the Inspectors General of the federal banking agencies have detailed how brokered deposits were sometimes used by failed banks in the most recent crisis. These reports include the following:

- *Safety and Soundness: Analysis of Bank Failures Reviewed by the*

[17] *See* FDIC Advisory Opinion No. 05–02 (2005).

[18] Federal Deposit Insurance Corp., *Crisis and Response: An FDIC History, 2008–2013 (2017),* available at: *https://www.fdic.gov/bank/historical/crisis/crisis-complete.pdf.*

[19] In addition to brokered deposits, wholesale funding includes federal funds purchased, securities sold under repurchase agreements, and other borrowed money.

Department of the Treasury Office of Inspector General, OIG–16–052, August 15, 2016

- *Summary Analysis of Failed Bank Reviews,* Board of Governors of the Federal Reserve System, Office of Inspector General, September 2011
- *Follow Up Audit of FDIC Supervision Program Enhancements,* FDIC Office of Inspector General, Report No. MLR–11–010, December 2011

In these reports, brokered deposits were most commonly cited as a contributor to problems at troubled and failed institutions, largely by allowing institutions with concentrations in poorly underwritten and administered commercial real estate loans, including acquisition, construction, and development loans (ADC) or other risky assets, to grow rapidly. Institutions that failed were typically subject to the brokered deposit restrictions and interest rate restrictions before failure because their capital levels deteriorated to below well capitalized. However, for those institutions that failed and still had brokered deposits at the time of failure, either the acquirer did not want the brokered deposits or did not pay a premium for them, either of which increases the cost to the DIF.

Brokered Deposits in Bank Failures 2007–2017

The FDIC and the DIF were significantly affected by the previous financial crisis between 2007 and 2017. During this time, excluding Washington Mutual, 530 banks failed and were placed in FDIC receivership and, as of December 31, 2017, the estimated loss to the DIF for these institutions is $74.4 billion.

Based upon regulatory reporting data, 47 institutions that failed relied heavily on brokered deposits and caused losses to the DIF that triggered material loss reviews. These 47 institutions held total assets representing 13 percent of the $703.9 billion in aggregate total assets of the 530 failed institutions, but accounted for $28.4 billion in estimated losses to the DIF, representing 38 percent of the $74.4 billion in all DIF estimated losses for that same period.[20]

For example, the largest of these 47 institutions was IndyMac Bank, F.S.B., which failed on July 11, 2008. As of December 31, 2017, the estimated loss to the DIF for IndyMac, is $12.3 billion, representing 40 percent of IndyMac's $30.7 billion in total assets at failure and approximately 16.5 percent of the total $74.4 billion in estimated losses to the DIF from bank failures between 2007 and 2017. In its last Thrift Financial Report (''TFR'') filed prior to failure, as of March 30, 2008, IndyMac reported brokered deposits of $5.5 billion, which represented 28.98 percent of the institution's $18.9 billion in total deposits.[21] In its TFR filed for the 4th quarter of 2005, approximately 12 quarters before the institution failed, IndyMac reported $1.4 billion in brokered deposits, representing 18.4 percent of its then $7.4 billion in total deposits. This data suggests that IndyMac accelerated its use of brokered deposits as its problems mounted.[22]

Another, more pronounced, example is ANB Financial National Association (ANB Financial), which failed on May 9, 2008. As of November 26, 2018, the estimated loss to the DIF for ANB Financial is $1.029 billion, representing 54 percent of the institution's $1.89 billion in total assets at failure. In its Call Report filed prior to failure, *i.e.,* as of March 30, 2008, ANB Financial reported brokered deposits of $1.578 billion, which represented 86.96 percent of the institution's $1.815 billion in total deposits. In the Call Report filed for the 4th quarter of 2005, approximately 12 quarters before the institution failed, ANB Financial reported $256.8 million in brokered deposits, representing 50.46 percent of its then $508 million in total deposits.[23] The brokered deposits remaining at failure for both IndyMac and ANB's brokered deposits were master CDs issued in the name of DTC as sub-custodian for deposit brokers, which were the primary source for the remaining brokered deposits at failure for most of the other 34 institutions referenced above.

Brokered Deposits and Assessments

The FDIC has amended its assessment regulations to address the risks to the DIF associated with brokered deposits. For small banks (generally, IDIs with less than $10 billion in total assets), brokered deposits can increase a bank's assessment rate if the bank's ratio of brokered deposits to total assets exceeds 10 percent.[24] The brokered deposit ratio is one of several financial measures used to determine assessment rates for small banks. For new small banks in Risk Categories II, III and IV, and large and highly complex institutions that are not well capitalized, or that are not CAMELS composite 1- or 2-rated, brokered deposits can increase a bank's assessment rate through the brokered deposit adjustment.[25] Under the adjustment, a bank's assessment will increase if its ratio of brokered deposits to domestic deposits is greater than 10 percent.

C. Brokered Deposit Issues

As noted above, Section 29 does not explicitly define the term ''brokered deposit.'' Restrictions on brokered deposits are tied to the statutory definition of ''deposit broker'' that Congress adopted in 1989 as part of the legislative response to the bank and thrift crisis. That definition includes dealers in the brokered CD market, and broker dealers that sweep customer funds to unaffiliated insured depository institutions which, when combined, represent over 90% of reported brokered deposits according to industry sources as discussed more fully above. Therefore, based on those same sources, the interpretive issues tend to relate to a small segment of reported brokered deposits.

Determining what constitutes a deposit broker, and thus a brokered deposit, is very fact-specific and requires a close review of the arrangement, the documents governing the arrangement, and the third party's remuneration, among other things. Given the wide, and evolving, variety of third-party arrangements, FDIC staff review them on a case-by-case basis, applying the statutory provisions to the facts and circumstances presented. Staff interpretations are typically documented in Advisory Opinions.[26] In addition, on June 30, 2016, the FDIC issued, after soliciting comment, an updated set of Frequently Asked Questions,[27] that compiles information

[20] The estimated loss data is as of November 26, 2018, available at: *https://www5.fdic.gov/hsob/hsobRpt.asp.*

[21] Of the $5.4 billion in brokered deposits that IndyMac reported on it Call Report for March 31, 2008, 98.42 percent were in brokered certificates of deposits documented as master certificates of deposits issued in the name of CEDE & Co, a subsidiary of DTC, as sub-custodian for deposit brokers.

[22] *See Safety and Soundness: Material Loss Review of IndyMac Bank, FSB,* United States Department of Treasury, Office of Inspector General, February 26, 2009 *https://www.treasury.gov/about/organizational-structure/ig/Documents/oig09032.pdf.*

[23] *See Safety and Soundness: Material Loss Review of ANB Financial National Association,* United States Department of Treasury, Office of Inspector General, November 28, 2008 *https://www.treasury.gov/about/organizational-structure/ig/Documents/oig09013.pdf*

[24] For banks that are well capitalized and well rated, reciprocal deposits that are treated as brokered deposits are deducted from brokered deposits for purposes of the brokered deposit ratio. *See* 12 CFR 327.16(a).

[25] *See* 12 CFR 327.16(e)(3).

[26] FDIC Staff Advisory Opinions are available at: *https://www.fdic.gov/regulations/laws/rules/index.html.*

[27] *See Identifying, Accepting, and Reporting Brokered Deposits: Frequently Asked Questions* (rev. Jul 14, 2016). An initial set of Frequently Asked Questions was issued in January 2015, but without notice and comment at that time.

about the law, regulation, and FDIC staff interpretations in a single online location.

The FDIC continues to receive inquiries, and in recent years, FDIC staff has been asked about the application of the ''deposit broker'' definition, and its statutory and regulatory exceptions, to new types of third parties that are involved in placing or facilitating the placement of third-party funds at IDIs. Many of these questions relate to advancements in technology, and new business practices and products that IDIs might utilize to offer services to customers and also to gather deposits. The inherent challenge often is to distinguish between third party service providers to the IDI and third parties that are engaged in the business of placing or facilitating the placement of deposits, albeit using updated technology.

Generally, in determining whether deposits placed through these new deposit placement arrangements are brokered, staff has looked to precedents involving the definition of ''deposit broker'' and has attempted to consistently apply that analysis to these new products. If a third party is placing funds on behalf of itself, the funds are not brokered. If a third party is in the business of either (1) placing funds, or (2) facilitating the placement of funds—of another third-party (such as its customers)—then it meets the definition of ''deposit broker'' and the deposits are brokered, unless an exception applies.

Below is a discussion of a few of the most typical issues for which questions have arisen, organized in the context of the definitions and exceptions.

The FDI Act defines ''deposit broker'' to mean:

(A) any person engaged in the business of placing deposits, or facilitating the placement of deposits, of third parties with insured depository institutions or the business of placing deposits with insured depository institutions for the purpose of selling interests in those deposits to third parties; [28] and

(B) an agent or trustee who establishes a deposit account to facilitate a business arrangement with an insured depository institution to use the proceeds of the account to fund a prearranged loan.'' [29]

1. Engaged in the Business of Placing Deposits or Facilitating the Placement of Deposits

The first phrase of FDI Act section 29(g)(1)(A), defines a deposit broker as, ''any person engaged in the business of placing deposits, or facilitating the placement of deposits, of third parties with insured depository institutions.'' [30] In evaluating whether certain third parties comport with the statutory definition of ''deposit broker,'' and being ''engaged in the business of placing deposits, or facilitating the placement of deposits,'' staff at the FDIC reviews every arrangement on a case-by-case basis considering the following factors:

- Whether the third party receives fees from the insured depository institution that are based (in whole or in part) on the amount of deposits or the number of deposit accounts.
- Whether the fees can be justified as compensation for administrative services (such as recordkeeping) or other work performed by the third party for the insured depository institution (as opposed to compensation for bringing deposits to the insured depository institution).
- Whether the third party's deposit placement activities, if any, is directed at the general public as opposed to being directed at members (or ''affinity groups'') or clients.
- Whether there is a formal or contractual agreement between the insured depository institution and the third party (*e.g.,* referring or marketing entity) to place or steer deposits to certain insured depository institutions.
- Whether the third party is given access to the depositor's account, or will continue to be involved in the relationship between the depositor and the insured depository institution.

2. Exclusions From the ''Deposit Broker'' Definition

The statutory ''deposit broker'' definition excludes the following:

(A) An insured depository institution, with respect to funds placed with that depository institution;

(B) An employee of an insured depository institution, with respect to funds placed with the employing depository institution;

(C) A trust department of an insured depository institution, if the trust in question has not been established for the primary purpose of placing funds with insured depository institutions;

(D) The trustee of a pension or other employee benefit plan, with respect to funds of the plan;

(E) A person acting as a plan administrator or an investment adviser in connection with a pension plan or other employee benefit plan provided that that person is performing managerial functions with respect to the plan;

(F) The trustee of a testamentary account;

(G) The trustee of an irrevocable trust (other than one described in paragraph (1)(B)), as long as the trust in question has not been established for the primary purpose of placing funds with insured depository institutions;

(H) A trustee or custodian of a pension or profit-sharing plan qualified under section 401(d) or 403(a) of Title 26; or

(I) An agent or nominee whose primary purpose is not the placement of funds with depository institutions.[31]

In 1992, the FDIC incorporated in its regulations the list of statutory exceptions to the ''deposit broker''

[28] The second phrase in FDI Act section 29(g)(1)(A) provides that a ''deposit broker'' includes, ''any person engaged in . . . the business of placing deposits with insured depository institutions for the purpose of selling interests in those deposits to third parties.'' This clause appears to reference the practice involving master certificates of deposits issued to deposit brokers who, in turn, issue retail CDs in denominations of $1,000 to their retail customers. Industry participants have previously informed the FDIC that the practice of issuing master certificates of deposit from which smaller retail CDs are issued dates back to the early 1980s. 12 U.S.C. 1831f(g)(1)(A).

In a 1983 advanced notice of proposed rulemaking that preceded the 1984 final rule, the FDIC and FHLBB described the underlying market practice:

CD Participations. Some brokers engage in the practice of ''participating certificates of deposit to their customers. Under this arrangement a broker-dealer purchases a certificate of deposit issued by an insured institution and sells interests in it to customers. Upon sale of the participations in the deposit to its customer, the broker so informs the issuing institution and requests that the deposits be registered in its own name as nominee for others. The broker's records, in turn, reflect the ownership interest of each customer in the deposit. A CD participation program results in a ''flow-through'' of insurance coverage to each owner of the deposit. The ownership interest of each participant in the deposit is added to the individually owned deposits held by the participant at the same institution and the total is insured to a maximum of $100,000, provided the proper recordkeeping requirements are maintained.

48 FR 50339 (November 1, 1983).

[29] 12 U.S.C. 1831f(g)(1); 12 CFR 337.6(a)(5(i). As stated above, section 29(g)(1)(B) provides that ''deposit broker'' includes: ''An agent or trustee who establishes a deposit account to facilitate a business arrangement with an insured depository institution to use the proceeds of the account to fund a prearranged loan.'' The preamble to the 1984 FDIC/FHLBB final rule, provided background as to what this language was intended to address:

Certificates of deposit held in trust for bondholders under ''loans-to-lenders'' or industrial development bond (''IDB'') programs are covered by the final rule. These programs entail a transaction where the proceeds of an IDB issuance are placed with an insured institution, in exchange for a certificate of deposit, to fund a designated project. Because of the trust arrangement involved, under the Agencies' current insurance coverage rules each bondholder owns an insured interest in the deposit up to $100,000 and the deposit, therefore, may be fully insured by either the FDIC or the FSLIC.

49 FR 13003, 13010 (April 2, 1984).

[30] 12 U.S.C. 1831f(g)(1)(A).

[31] 12 U.S.C. 1831f(g)(2).

definition and added as an additional exception, ''an insured depository institution acting as an intermediary or agent of a U.S. government department or agency for a government sponsored minority or women-owned depository institution.'' [32]

(a) IDI Exception

The statute provides an exception for an IDI with respect to funds placed with that IDI. Staff notes that based on the plain language of the statute, staff has consistently applied this exception strictly to the IDI itself and not to separately incorporated legal entities such as subsidiaries or other affiliates. One challenging issue relates to wholly-owned subsidiaries that place deposits under an exclusive relationship with the parent IDI. With regard to wholly-owned subsidiaries, for some purposes the subsidiary is treated as part of the parent IDI (*e.g.,* certain financial reporting); whereas for other purposes—such as under the Bank Merger Act and for receivership purposes—they are treated separately.

(b) Employee Exception

Section 29(g)(2)(B) of the FDI Act provides that ''deposit broker'' does not include ''an employee of an insured depository institution, with respect to funds placed with the employing depository institution'' (employee exception). The employee exception recognizes that banks are corporate entities that operate through the natural persons they employ.

To address concerns that the employee exception could be used to evade the deposit broker definition, the term ''employee'' is defined for purposes of section 29, as any employee:

1. Who is employed exclusively by the insured depository institution;
2. Whose compensation is primarily in the form of a salary;
3. Who does not share such employee's compensation with a deposit broker;
4. Whose office space or place of business is used exclusively for the benefit of the insured depository institution which employs such individual.[33]

Particularly after the passage of the Gramm-Leach-Bliley Act and the permissibility of additional relationships among affiliated entities, FDIC staff has dealt with an increase in questions about IDI employees who also have some form of contractual relationship with a third party, usually an affiliate of the IDI. In addition, FDIC staff has informally addressed questions related to the use of premises that are shared by the IDI and an affiliate.

(c) Pension or Other Employee Benefit Plans

Section 29(g)(2)(D) and (E) exclude from the deposit broker definition, trustees of pension and other employee benefit plans with respect to funds in the plan, and administrators or investment advisors provided that the person is performing managerial functions with respect to the plan.[34] Section 29(g)(2)(H) excludes a trustee or custodian of a pension or profit-sharing plan under sections 401(d) or 403(a) of the Internal Revenue Code.[35]

Individual retirement accounts (IRAs) are retirement accounts set up outside of a pension plan or employee benefit plan and thus are not expressly covered by these exceptions. Certain non-retirement savings plans are also granted tax-favored status under the Internal Revenue Code, such as 529 savings plans for higher education tuition and health savings accounts but are not expressly covered by the exception. If a bank's trust department serves as the trustee or custodian of such plans, and the trust has not been established for the primary purpose of placing funds with IDIs, the plans' deposits would not be treated as brokered deposits because of the exception for trust departments. FDIC staff has received a number of questions about this exception.

(d) Primary Purpose Exception

The primary purpose exception applies to ''an agent or nominee whose primary purpose is not the placement of funds with depository institutions.'' [36] In particular, the primary purpose exception applies to a third party when that third party is acting as agent/nominee for the depositor. Staff's evaluation of a third party's primary purpose in placing deposits has been in the context of that particular agent/principal relationship.

In interpreting what it means for a third-party agent to act pursuant to a ''primary purpose,'' staff has generally analyzed whether placing—or facilitating the placement—of deposits of its customers/clients when acting as agent for those customers/clients, is for a substantial purpose other than to provide (1) deposit insurance, or (2) a deposit-placement service. In analyzing this principle, staff has considered whether the deposit-placement activity is incidental to some other purpose.

In determining whether a deposit-placement activity is incidental to some other purpose, staff reviews the reason or intent of the third party when acting as agent or nominee in placing the deposits, as well as other factors which might indicate whether the third party agent is incentivized to place deposits at the IDI. Factors that staff has considered include the existence and structure of fee arrangements and of any programmatic relationship between the third party and the insured depository institution.

- Fees:
  - Whether the entity placing deposits receives fees from the insured depository institution that are based (directly or indirectly) on the amount of deposits or the number of deposit accounts opened.
  - Whether the fees can be justified as compensation for recordkeeping or other work performed by the third party for the IDI (as opposed to compensation for bringing deposits to the IDI).
- Programmatic relationship:
  - Whether there is a formal or contractual agreement between IDIs and the placing/referring entity to place or steer deposits to certain IDIs.

Importantly, when interpreting the applicability of the primary purpose exception, staff analyzes the deposit placement arrangement, including the underlying agreements, between the third party agent, the depositor, and the IDI to determine the primary purpose of the agent. The exception applies to agents or nominees, which by definition, act on behalf of principals. When acting in that capacity, the third party agent/nominee is limited to the principal's goals and objectives. Staff does not solely rely upon the business purpose of the third party involved. Staff has not considered the size of the third party or the amount or percentage of revenue that the deposit-placement activity generates.

Primary Purpose Exception for Affiliated Sweeps

Beginning in 1999, the FDIC became aware of broker dealers offering their brokerage customers an automatic sweep program by which customers' idle funds were swept to affiliated insured depository institutions.

In 2005, the FDIC's General Counsel issued a staff opinion indicating FDIC staff view that, when certain conditions are observed, the primary purpose of a broker dealer in sweeping customer funds into deposit accounts at its affiliated IDI is to facilitate the

[32] 12 CFR 337.6(a)(5)(ii)(J). As provided earlier, the FDIC added this exception in response to comments submitted in response to a 1992 notice of proposed regulation.

[33] 12 U.S.C. 1831f(g)(4).

[34] 12 U.S.C. 1831f(g)(2)(D) and (E).

[35] 12 U.S.C. 1831f(g)(2)(H).

[36] 12 U.S.C. 1831f(g)(2)(I).

customers' purchase and sale of securities. Among the conditions are that funds are not swept to a time deposit account and do not exceed 10 percent of the total assets handled by the affiliated broker dealer. The insured depository institution is permitted to pay fees to the affiliated broker dealer but the fees must be flat fees (*i.e.,* per account or per customer fees) representing payment for recordkeeping or administrative services and not for the placement of deposits. The fee arrangements must satisfy Section 23B of the Federal Reserve Act.[37]

(e) Other Issues

Deposit Listing Services. Deposit listing services come in different forms, but all connect those seeking to place a deposit with those seeking a deposit by listing the deposit rates of IDIs. Depositors use listing services to find the best rate available for a given deposit type and, in the case of a CD, a term. Since the statute was first enacted, staff has distinguished between a company that compiles information about interest rates in passive manner versus a deposit broker that is in the business of placing or facilitating the placement of deposits. A particular company can advertise itself as a listing service as well as meet the definition of a ''deposit broker.'' In recognition of this possibility, staff at the FDIC developed criteria for analyzing whether a ''listing service'' acts as a ''deposit broker.'' [38]

In 2004 FDIC staff provided criteria to assist the industry in analyzing whether a deposit listing services would be viewed as a deposit broker. In particular, staff advisory opinions indicate that a listing service is not viewed as a deposit broker if it meets the following criteria:

(1) The person or entity providing the listing service is compensated solely by means of subscription fees (*i.e.,* the fees paid by subscribers as payment for their opportunity to see the rates gathered by the listing service) and/or listing fees (*i.e.,* the fees paid by depository institutions as payment for their opportunity to list or ''post'' their rates). The listing service does not require a depository institution to pay for other services offered by the listing service or its affiliates as a condition precedent to being listed;

(2) The fees paid by depository institutions are flat fees: They are not calculated on the basis of the number or dollar amount of deposits accepted by the depository institution as a result of the listing or ''posting'' of the depository institution's rates;

(3) In exchange for these fees, the listing service performs no services except: (A) The gathering and transmission of information concerning the availability of deposits; and/or (B) the transmission of messages between depositors and depository institutions (including purchase orders and trade confirmations). In publishing or displaying information about depository institutions, the listing service must not attempt to steer funds toward particular institutions (except that the listing service may rank institutions according to interest rates and also may exclude institutions that do not pay the listing fee). Similarly, in any communications with depositors or potential depositors, the listing service must not attempt to steer funds toward particular institutions; and

(4) The listing service is not involved in placing deposits. Any funds to be invested in deposit accounts are remitted directly by the depositor to the insured depository institution and not, directly or indirectly, by or through the listing service.[39]

In 2004, when staff last provided its views on listing services, listing services had already evolved into internet exchange platforms with automated order entry and confirmation services. At the time, however, listing service sites did not provide any advice to prospective depositors, and there was only a flat subscription fee paid by both the banks and those seeking to view the posted rates. Today, the FDIC has observed that certain listing service websites provide additional services. For example, based upon information gathered from bankers interested in participating in listing services, the FDIC notes that some listing services appear to:

- Offer advice to banks on liability and funds management and regulatory compliance screening for subscribing banks.
- Send customer information (on behalf of the prospective depositors) directly to the banks that are listing rates.
- Charge a fee to banks based upon the asset size of the bank, rather than a flat subscription fee.
- Post rates of ''featured'' or ''preferred'' vendors at the very top of its rate board.

The FDIC notes the ambiguity over how these new listing service features could be applied in light of the 2004 criteria. The features above seem to indicate that some listing services are no longer acting in a passive capacity but are instead steering deposits to particular institutions or are otherwise providing services that meet the definition of ''deposit broker.''

Accounting or related software products that contemplate the bank using the same software. Some companies provide accounting and other administrative support via software services to clients. These companies, on behalf of their clients, place deposits at either one or a group of preferred banks. Because the companies place deposits at IDIs, the software companies meet the definition of ''deposit broker'' (unless they meet one of the exceptions). The primary purpose exception applies to an agent or nominee whose primary purpose is not the placement of funds with depository institutions. Banks who receive deposits from software companies argue that the primary purpose of the software companies is to provide accounting services (*e.g.,* bankruptcy management) and the placement of deposits is incidental to this purpose. In analyzing whether a particular arrangement meets the primary purpose arrangement, as noted above, staff currently reviews whether the placement (of third party funds) is for a substantial purpose other than to provide (1) deposit insurance, or (2) a deposit-placement service. In previous cases that staff reviewed relating to accounting software products, staff has not distinguished between providing integrated accounting software and providing access to a deposit account that offers core banking functions (such as daily cash management). Moreover, in the previous arrangements that staff has reviewed, there is typically a contractual volume based fee being paid by the bank to the software company based upon the volume of deposits being placed. As a result, staff has viewed that the software companies are incentivized to place funds of prospective depositors at preferred banks because of the fees that the placement generates.

Prepaid cards. Some companies operate general purpose prepaid card programs, in which prepaid cards are sold to members of the public through the assistance of a prepaid card company or a program manager. After collecting funds from the cardholders, sometimes at retail stores or directly from the card company, funds are placed into a custodial deposit account at an insured depository institution (sometimes with ''pass-through'' deposit insurance coverage). The funds may be accessed by the cardholders through the

[37] *See* 12 U.S.C. 371c–1.

[38] *See generally,* FDIC Staff Adv. Op. Nos. 90–24 (June 12, 1990); 92–50 (July 24, 1992); 02–04 (November 13, 2002).

[39] *See* FDIC Staff Advisory Opinion 04–04.

use of their cards. In regard to this scenario, staff at the FDIC has taken the position that the prepaid card company or the program manager likely qualifies as a ''deposit broker'' because it is a third party that is in the business of facilitating the placement of customer deposits at an insured depository institution. Some have argued that a particular prepaid card arrangement is covered by the ''primary purpose exception''—specifically, that the ''primary purpose'' of a prepaid card company (in establishing deposit accounts at an insured depository institution) is not to provide the cardholders with a deposit-placement service, but to enable the cardholders to make purchases through the interbank payment system. Staff at the FDIC has not distinguished between (1) acting with the purpose of placing deposits for other parties, and (2) acting with the purpose of enabling other parties to use deposits to make purchases. When funds are placed into demand deposit accounts (as in the case of custodial accounts used by prepaid card companies), the deposits will be available for withdrawals or transfers or spending. Thus, prepaid card companies have not been viewed as meeting the ''primary purpose'' exception.

Software applications for personal use that involve funds being placed at an insured depository institution. Some applications provide customers the opportunity to link their existing bank accounts (and other accounts, such as credit cards, and 401k)—with software applications—in an effort to provide efficiencies in budgeting, bill-paying, and opening up a new deposit account. In some cases, the application aggregates customer information based upon available account balances and spending patterns and provides that information to depository institutions to assist in targeting certain customers with financial products. Once the customer is targeted with a financial product, the customer may be transferred to the bank to open up the deposit account or the application may assist in transferring customer information to the bank for purposes of establishing the deposit account. The software provider may receive compensation from the financial institution based upon the referral. FDIC staff has received inquiries about whether various arrangements between software applications and IDIs should be viewed as brokered.

D. Interest Rate Restrictions

As noted earlier, the purpose of Section 29 generally is to limit the acceptance or solicitation of certain deposits by insured depository institutions that are not well capitalized. This purpose is promoted through two means: (1) The prohibition against the acceptance of brokered deposits by depository institutions that are less than well capitalized (as described above); and (2) certain restrictions on the interest rates that may be paid by such institutions. In enacting section 29, Congress added the interest rate restrictions to prevent institutions from avoiding the prohibition against the acceptance of brokered deposits by soliciting deposits internally through ''money desk operations.'' Congress viewed the gathering of deposits by weaker institutions through either third-party brokers or ''money desk operations'' as potentially an unsafe or unsound practice.[40] The FDIC has simplified the application of these restrictions through two rulemakings.

Under Section 29, well-capitalized institutions can pay any rate of interest on any deposit. However, the statute imposes different interest rate restrictions on different categories of insured depository institutions that are less than well capitalized. These categories are (1) adequately-capitalized institutions with waivers to accept brokered deposits (including reciprocal deposits excluded from being considered brokered deposits);[41] (2) adequately-capitalized institutions without waivers to accept brokered deposits;[42] and (3) undercapitalized institutions.[43] The statutory restrictions for each category are described in detail below.

Adequately-capitalized institutions with waivers to accept brokered deposits. Institutions in this category may not pay a rate of interest on deposits that ''significantly exceeds'' the following: ''(1) The rate paid on deposits of similar maturity in such institution's normal market area for deposits accepted in the institution's normal market area; or (2) the national rate paid on deposits of comparable maturity, as established by the [FDIC], for deposits accepted outside the institution's normal market area.''[44]

Adequately capitalized institutions without waivers to accept brokered deposits. In this category, institutions may not offer rates that ''are significantly higher than the prevailing rates of interest on deposits offered by other insured depository institutions in such depository institution's normal market area.''[45] For institutions in this category, the statute restricts interest rates in an indirect manner. Rather than simply setting forth an interest rate restriction for adequately capitalized institutions without waivers, as noted previously, the statute defines the term ''deposit broker'' to include ''any insured depository institution that is not well capitalized . . . which engages, directly or indirectly, in the solicitation of deposits by offering rates of interest which are significantly higher than the prevailing rates of interest on deposits offered by other insured depository institutions in such depository institution's normal market area.''[46] In other words, the depository institution itself is a ''deposit broker'' if it offers rates significantly higher than the prevailing rates in its own ''normal market area.'' Without a waiver, the institution cannot accept deposits from a ''deposit broker.'' Thus, the institution cannot accept these deposits from itself. In this indirect manner, the statute prohibits institutions in this category from offering rates significantly higher than the prevailing rates in the institution's ''normal market area.''

Undercapitalized institutions. In this category, institutions may not offer rates ''that are significantly higher than the prevailing rates of interest on insured deposits (1) in such institution's normal market areas; or (2) in the market area in which such deposits would otherwise be accepted.''[47]

Rulemakings Related to Section 29's Interest Rate Restrictions

The FDIC has implemented the interest rate restrictions under section 29 of the FDI Act through two rulemakings.[48] Although the statute, as noted above, sets forth a basic framework, it does not provide certain key details, such as definitions for the terms—''national rate,'' ''significantly exceeds,'' ''significantly higher,'' and ''market area.'' As a result, in 1992, the FDIC defined these key terms before updating the ''national rate'' and clarifying the rate restrictions again in 2009.

''Significantly Exceeds.'' Through Section 337.6, the FDIC has provided that a rate of interest ''significantly exceeds'' another rate, or is ''significantly higher'' than another rate, if the first rate exceeds the second rate

[40] *See* H.R. Conf. Rep. No. 101–222 at 402–403 (1989), reprinted in 1989 U.S.C.C.A.N. 432, 441–42.

[41] 12 U.S.C. 1831f(e).

[42] 12 U.S.C. 1831f(g)(3).

[43] 12 U.S.C. 1831f(h).

[44] 12 U.S.C. 1831f(e).

[45] 12 U.S.C. 1831f(g)(3).

[46] *Id.*

[47] 12 U.S.C. 1831f(h).

[48] *See* 57 FR 23933 (1992); 74 FR 26516 (2009).

by more than 75 basis points.[49] In adopting this standard, the FDIC offered the following explanation: ''Based upon the FDIC's experience with the brokered deposit prohibitions to date, it is believed that this number will allow insured depository institutions subject to the interest rate ceilings . . . to compete for funds within markets, and yet constrain their ability to attract funds by paying rates significantly higher than prevailing rates.'' [50] This interpretation of the statute has remained unchanged since the 1992 rulemaking.

''Market Area.'' In Section 337.6, prior to the adoption of the 2009 final rule, the term ''market area'' was defined as follows: ''A market area is any readily defined geographical area in which the rates offered by an one insured depository institution soliciting deposits in that area may affect the rates offered by other insured depository institutions in the same area.'' [51] At the time, the FDIC reasoned that the market area will be determined on a case-by-case basis, based on the evident or likely impact of a depository institution's solicitation of deposits in a particular area, taking into account the means and media used and volume and sources of deposits resulting from such solicitation.[52]

The ''National Rate.'' In Section 337.6, as part of the 1992 rulemaking, the ''national rate'' was defined as follows: ''(1) 120 percent of the current yield on similar maturity U.S. Treasury obligations; or (2) In the case of any deposit at least half of which is uninsured, 130 percent of such applicable yield.'' [53] In defining the ''national rate'' in this manner, the FDIC understood that the spread between Treasury securities and depository institution deposits can fluctuate substantially over time but relied upon the fact that such a definition is ''objective and simple to administer.'' [54] By using percentages (120 percent or 130 percent of the yield on U.S. Treasury obligations) instead of a fixed number of basis points, the FDIC hoped to ''allow for greater flexibility should the spread to Treasury securities widen in a rising interest rate environment.'' In deciding not to rely on published deposit rates, the FDIC offered the following explanation: ''The FDIC believes this approach would not be timely because data on market rates must be available on a substantially current basis to achieve the intended purpose of this provision and permit institutions to avoid violations. At this time, the FDIC has determined not to tie the national rate to a private publication. The FDIC has not been able to establish that such published rates sufficiently cover the markets for deposits of different sizes and maturities.'' [55]

2009 Rulemaking on the Interest Rate Restrictions

For many years, the 1992 definition of ''national rate'' functioned well because rates on Treasury obligations tracked closely with rates on deposits. By 2009, however, the rates on certain Treasury obligations were low compared to deposit rates. Consequently, the ''national rate'' as defined in the FDIC's regulations became artificially low. By setting a low rate, the FDIC's regulations required some insured depository institutions to offer unreasonably low rates on some deposits, thereby restricting access even to market-rate funding.

As part of the 2009 rulemaking, the FDIC addressed two issues that developed after the 1992 rulemaking: (1) The obsolescence of the FDIC's 1992 definition of the ''national rate''; and (2) the difficulty experienced by insured depository institutions and examiners in determining prevailing rates in its ''market areas.''

In response to the first problem, the FDIC redefined the ''national rate'' as ''a simple average of rates paid by all insured depository institutions and branches for which data are available.'' As noted in the 2009 rulemaking, the updated ''national rate'' methodology represented an objective average and the exclusion of certain branches or offices was viewed by the FDIC, at the time, as contrary to providing a meaningful restriction on insured depository institutions that are not well capitalized.[56]

In response to the second problem, the FDIC created a presumption that the prevailing rate in any market would be the national rate (as defined above). An insured depository institution could rebut this presumption by presenting evidence to the FDIC that the prevailing rate in a particular market is higher than the national rate. If the FDIC agreed with this evidence, the institution would be permitted to pay as much as 75 basis points above the local prevailing rate. In evaluating this evidence, the FDIC may use segmented market rate information (for example, evidence by State, county or MSA). Also, the FDIC may consider evidence as to the rates offered by credit unions but only if the insured depository institution competes directly with the credit unions in the particular market. Finally, the FDIC may consider evidence that the rates on certain deposit products differ from the rates on other products. For example, in a particular market, the rates on NOW accounts might differ from the rates on MMDAs. NOW accounts might be distinguished from MMDAs because the two types of accounts are subject to different legal requirements.[57]

Ultimately, the 2009 rulemaking simplified the approach of applying the rate restrictions and, importantly, has provided community banking institutions, that may not compete in the national deposit marketplace (*e.g.,* listing services), the ability to offer competitive deposit rates in its local market area.

Additional Interest Rate Issues

Since the FDIC's adoption of the 2009 rulemaking, federal funds rates stayed at historically low levels and only recently have begun to rise. In addition, institutions also have created new products that do not fit into the posted national rates and rate caps.

Calculation of rates. Since the crisis that began in 2008, the ''national rate'' has been relatively low due to the low interest rate environment. Moreover, because the national rate is an average for all banks and branches, the largest banks with large numbers of branches have had a disproportional effect on average interest rates. Even as other interest rates have begun to rise, the average has stayed low as the largest banks have been slow to increase interest rates on deposits.

[49] See 12 CFR 337.6(b)(2)(ii), (b)(3)(ii) and (b)(4). *See also,* 55 FR 39135 (1990) (FDIC's final rule that took the view that ''significantly exceeds'' means more than 50 basis points. At the time, this was believed to be a reasonable compromise between the need to permit troubled institutions to compete on a reasonable basis in their market area and yet prevent such institutions from bidding excessively for an increased share of market-area deposits by paying excessive rates).

[50] 57 FR at 23939.

[51] *See* 57 FR 23933 (1992) and 74 FR 26516 (2009).

[52] *Id.*

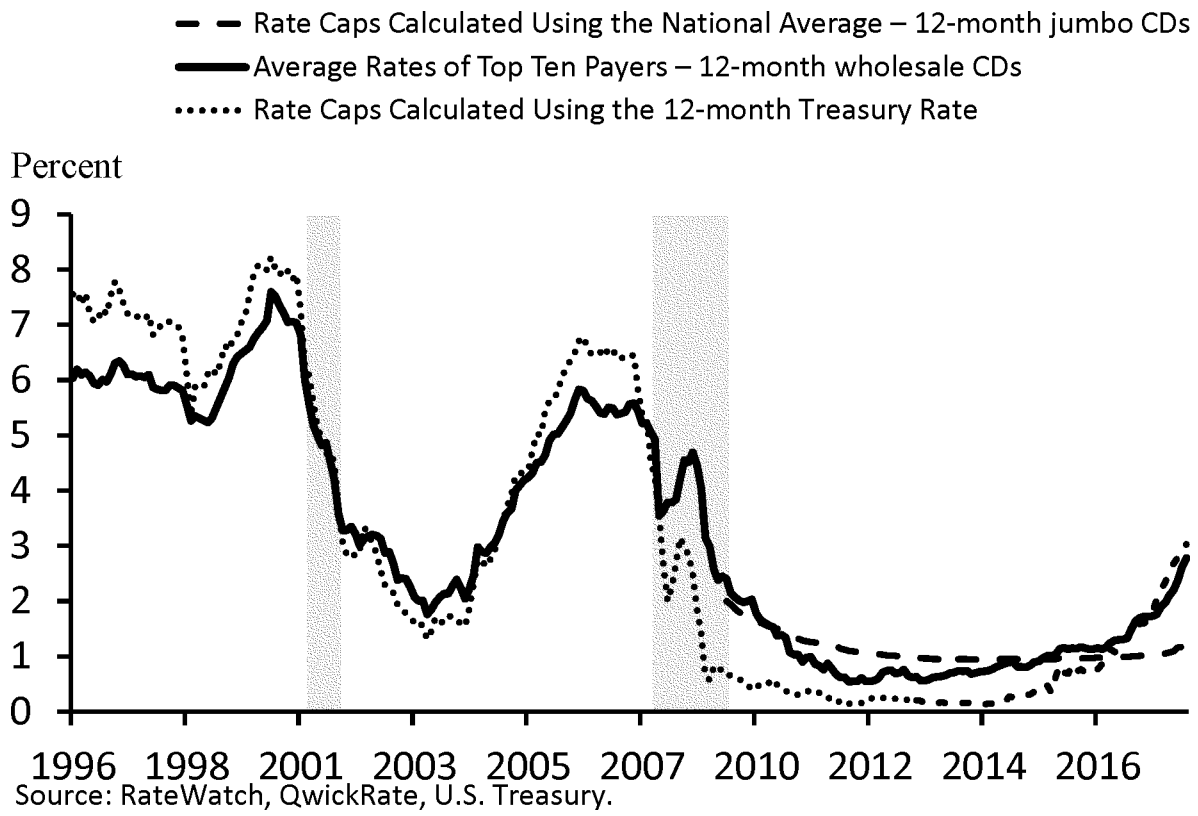
[53] 12 CFR 337.6(b)(2)(ii)(B).

[54] 57 FR 23933, 23938 (June 5, 1992).

[55] *Id.* at 23939.

[56] *See* 74 FR 26516 (2009).

[57] 12 CFR 337.6(f).



New products. The FDIC has recently seen an increase in promotional deposit products and products with special features. These products and promotions are generally not compatible with the standard products included in the FDIC's published weekly national rate caps. An example of a product with a special feature is one that provides a one-time cash payment for opening up a deposit account or provides airline miles or other bonuses with specific deposit products. Such deposit products may have common maturities (or be demand accounts) and as a result they may be included as part of the ''national rate'' calculation without acknowledgement of the up-front payment or other bonus received in place of interest paid on the deposit.

Special features. Some institutions are also offering deposit products with special features that may raise questions about how the rate cap should apply. Below are examples of three types of deposit products with special features:

○ Step up rates. Certain deposit products have variable rate features that allow the interest rate to increase before the deposit matures. With these products, particularly time deposits with longer maturities, the institution could fall to less than well capitalized during the term of the deposit. As a result, and as the FDIC has seen in the past, an institution could pay a rate that exceeds the interest rate restrictions after the downgrade.

○ Atypical maturities. Unusual maturity periods (for example, 13 or 15 months instead of 12 or 18 months) make it difficult to compare with either national rates or prevailing local rates.

○ Exceptionally long maturities for time deposits combined with penalty-free early withdrawal. In some cases, institutions have structured deposit products with exceptionally long maturities in order to extrapolate exceptionally high interest rates for the deposits coupled with withdrawal rights that are significantly shorter than the term of the deposit maturity (*e.g.,* 7 day penalty period on a 5 year certificate of deposit).

III. Request for Comments

The FDIC seeks comment on all aspects of its regulatory approach to brokered deposits and interest rate restrictions, and in particular the following:

○ Are there ways the FDIC can improve its implementation of Section 29 of the FDI Act while continuing to protect the safety and soundness of the banking system? If so, how?

Brokered Deposits

○ Are there types of deposits that are currently considered brokered that should not be considered brokered? If so, please explain why.

○ Are there types of deposits that are currently not considered brokered that should be considered brokered? If so, please explain why.

○ Are there specific changes that have occurred in the financial services industry since the brokered deposits regulation was adopted that the FDIC should be cognizant of as it reviews the regulation? If so, please explain.

○ Do institutions currently have sufficient clarity regarding who is or is not a deposit broker and what is or is not a brokered deposit? Are there ways the FDIC can provide additional clarity through updates to the brokered deposits regulation, consistent with the statute and the policy considerations described above?

○ Are there areas where changes might be warranted but could not be effectuated under the current statute? Are there any statutory changes that warrant consideration from Congress?

○ Should the FDIC make changes to the Call Report instructions so that the agency can gather more granular information about types of brokered deposits?

○ In general, the FDIC welcomes any additional data or market information related to brokered deposits, particularly related to those types of brokered deposits that are not specifically reported by institutions in their Call Reports (*e.g.,* Master Certificates of Deposits held in the name

of DTC and deposits placed through unaffiliated sweep programs).

Interest Rate Restrictions

○ Are there alternatives that the FDIC should consider in addressing Section 29's interest rate restrictions for less than well capitalized institutions?

○ Should the methodology used to calculate the ''national rate'' be changed? If so, how?

○ Should there remain a presumption that the prevailing rate in any ''market area'' is the national rate? If not, how should the FDIC define the ''normal market area''?

○ Should the amount of the rate cap, currently 75 basis points over either the national rate or the prevailing market rate, be revised? If so, how?

○ How should deposits with promotional or special features be treated with respect to the national rate or the prevailing market rate?

○ How should the rates offered by internet-based or electronic commerce-based institutions be calculated?

Appendix 1

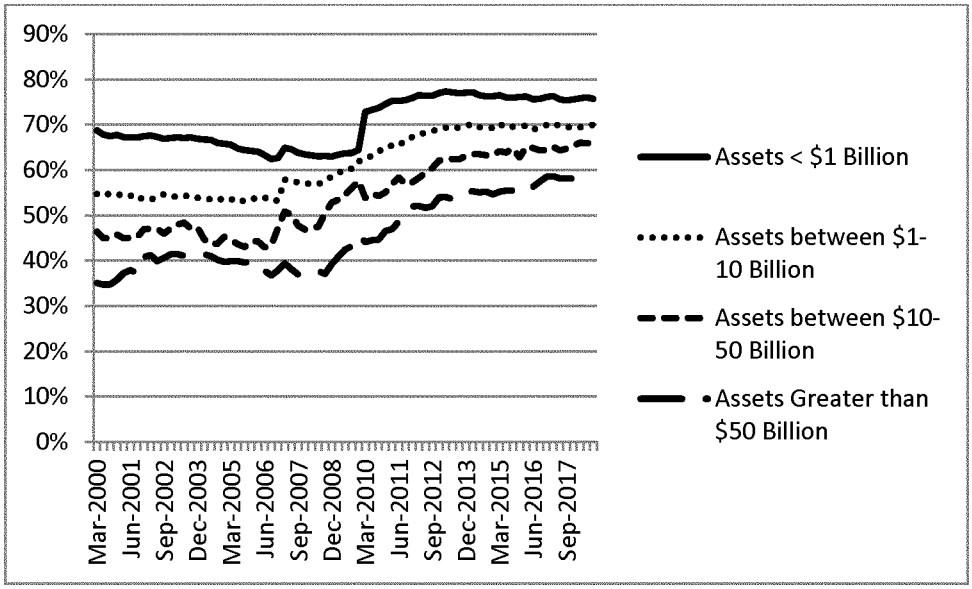
Descriptive Statistics on Core and Brokered Deposits

Core Deposits

Core deposits are not defined by statute. Rather, they are defined for analytical and examination purposes in the Uniform Bank Performance Report (UBPR). Through 2010, the Federal Financial Institutions Examination Council (FFIEC) defined ''core deposits'' to include all demand and savings deposits, including money market deposit, NOW and ATS accounts, other savings deposits, and time deposits in amounts under $100,000.[58] Under this definition, core deposits were equivalent to total domestic deposits less time deposits over $100,000 and included insured brokered deposits. As of March 31, 2011, the definition was revised to reflect the permanent increase to FDIC deposit insurance coverage from $100,000 to $250,000 and to exclude insured brokered deposits from core deposits. This revision defines core deposits as the sum of demand deposits, all NOW and ATS accounts, MMDAs, other savings deposits and time deposits under $250,000, minus all brokered deposits under $250,000. For periods before March 2011, the definition was revised to the sum of demand deposits, all NOW and ATS accounts, MMDAs, other savings deposits and time deposits under $100,000, minus all brokered deposits under $100,000.

Historically, reliance on core deposits has varied by bank size. Banks with less than $1 billion in total assets generally have had the heaviest reliance on core deposits, and banks with $50 billion or more in total assets have had the least reliance on core deposits. Since 2010, the ratio of core deposits to total assets has changed less for smaller banks than it has for larger banks. At year-end 2010, core deposits equaled 75 percent of total assets at banks with less than $1 billion in assets, but only 47 percent for banks with $50 billion or more in total assets. By the third quarter of 2018, core deposits equaled 76 percent of total assets at banks with less than $1 billion in assets and 58 percent of at banks with $50 billion or more in total assets (See Chart 1.)

Chart 1[59]
"Core" Deposits as a Percentage of Total Assets, 1st Qtr 2000 – 3rd Qtr 2018



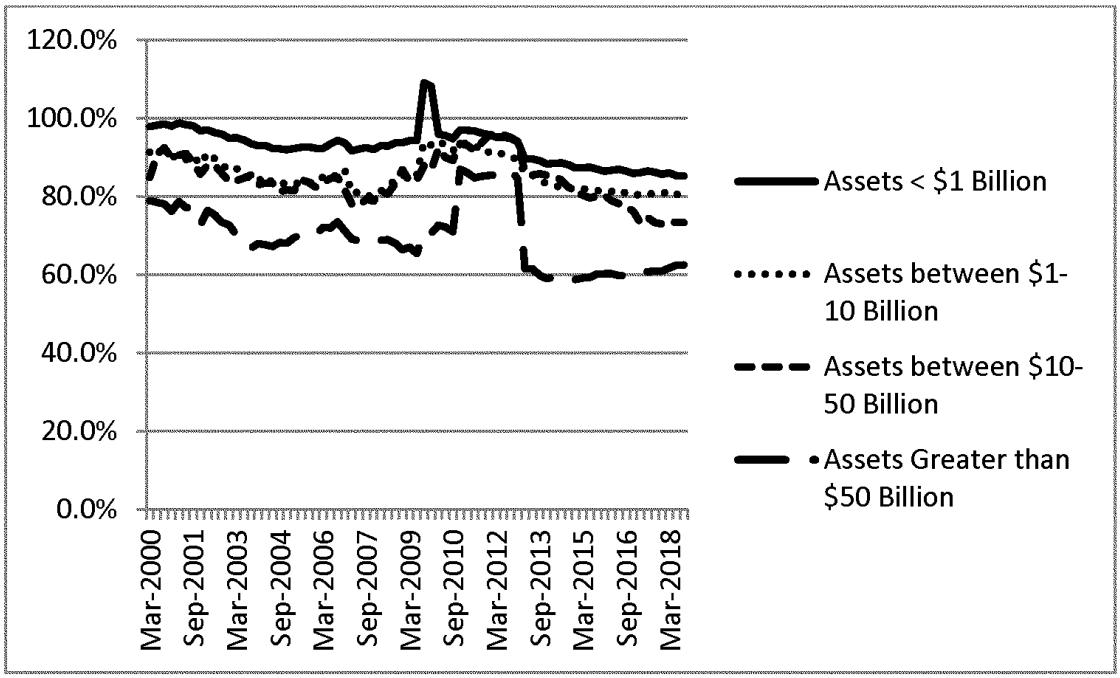
Through mid-year 2009, almost all core deposits at community banks were estimated to be insured, but, at the end of third quarter 2009, when banks began reporting insured deposits at the then temporary insurance limit of $250,000, estimated insured deposits were greater than core deposits. Estimated insured deposits represented a smaller share of core deposits at the largest banks, as a result of their holdings of large uninsured demand deposits. At

[58] An automatic transfer service account is a deposit or account of an individual or sole proprietorship on which the depository bank has reserved the right to require at least seven days' written notice prior to withdrawal or transfer of any funds in the account and from which, pursuant to written agreement arranged in advance between the reporting bank and the depositor, withdrawals may be made automatically through payment to the depository bank itself or through transfer of credit to a demand deposit or other account in order to cover checks or drafts drawn upon the bank or to maintain a specified balance in, or to make periodic transfers to, such other accounts.

[59] Through 2010 core deposits include insured brokered deposits. Beginning in 2011, brokered deposits are excluded from core deposits.

September 30, 2010, for banks with assets over $50 billion, estimated insured deposits represented only 69 percent of core deposits, but, at March 31, 2011, after the coverage of all noninterest bearing transaction accounts over $250,000 was established temporarily under the Dodd-Frank Act, estimated insured deposits rose to 84 percent. (See Chart 2.)

Chart 2[60]
Estimated Insured Deposits as a Share of "Core" Deposits, 1st Qtr 2000 – 3rd Qtr 2018



Note: From October 14, 2008 to December 31, 2010, domestic non-interest bearing transaction accounts were guaranteed in full under the Transaction Account Guarantee Program (TAG), part of the FDIC's Temporary Liquidity Guarantee Program (TLGP). From December 31, 2010 to December 31, 2012, the Dodd-Frank Act provided temporary unlimited deposit insurance coverage for non-interest bearing transaction accounts. These programs account for the observed shifts up and down in the Estimated Insured Deposits as a Share of "Core" Deposits shown in the chart during these periods.

Note: From October 14, 2008 to December 31, 2010, domestic non-interest bearing transaction accounts were guaranteed in full under the Transaction Account Guarantee Program (TAG), part of the FDIC's Temporary Liquidity Guarantee Program (TLGP). From December 31, 2010 to December 31, 2012, the Dodd-Frank Act provided temporary unlimited deposit insurance coverage for non-interest bearing transaction accounts. These programs account for the observed shifts up and down in the Estimated Insured Deposits as a Share of ''Core'' Deposits shown in the chart during these periods.

Effective with the March 31, 2011, UBPR, the FFIEC revised the definition of core deposits to take into account the increase in the deposit insurance limit to $250,000 under Dodd-Frank. The new definition includes time deposits up to $250,000 but excludes brokered deposits of any denomination. Using Call Report and Thrift Financial Report (TFR) data as of March 31, 2011, the new definition of core deposits added $24.9 billion (or 0.3 percent) to core deposits. However, the increase in core deposits, as the result of the new definition, occurred almost exclusively at smaller banks and thrifts, since the decrease in core deposits due to exclusion of brokered deposits tended to be less than the increase in core deposits due to inclusion of time deposits within the new threshold of up to $250,000. Core deposits at banks and thrifts with assets under $10 billion increased by $143.2 billion under the new definition, but core deposits at banks with assets of at least $10 billion declined by $118.3 billion. Large credit card banks and specialty lenders with affiliated brokerage firms were among those banks with the largest decline in core deposits as a result of the revised definition.

Brokered Deposits

FDIC-insured banks report total brokered deposits and the amount of brokered deposits under the insurance limit on their Call Reports and TFRs.

[60] Through 2010 core deposits include insured brokered deposits. Beginning in 2011, brokered deposits are excluded from core deposits.

Before 2010, brokered deposits were reported as insured, as any deposits, up to the $100,000 threshold. Beginning March 31, 2010, the threshold for reporting insured brokered deposits on Call Reports and TFRs was increased to $250,000.[61] Insured depository institutions also began reporting total reciprocal brokered deposits in their June 30, 2009, Call Reports and TFRs. The Economic Growth, Regulatory Reform, and Consumer Protection Act, enacted on May 24, 2018, allows certain banks to except a limited amount of reciprocal deposits from brokered deposits.

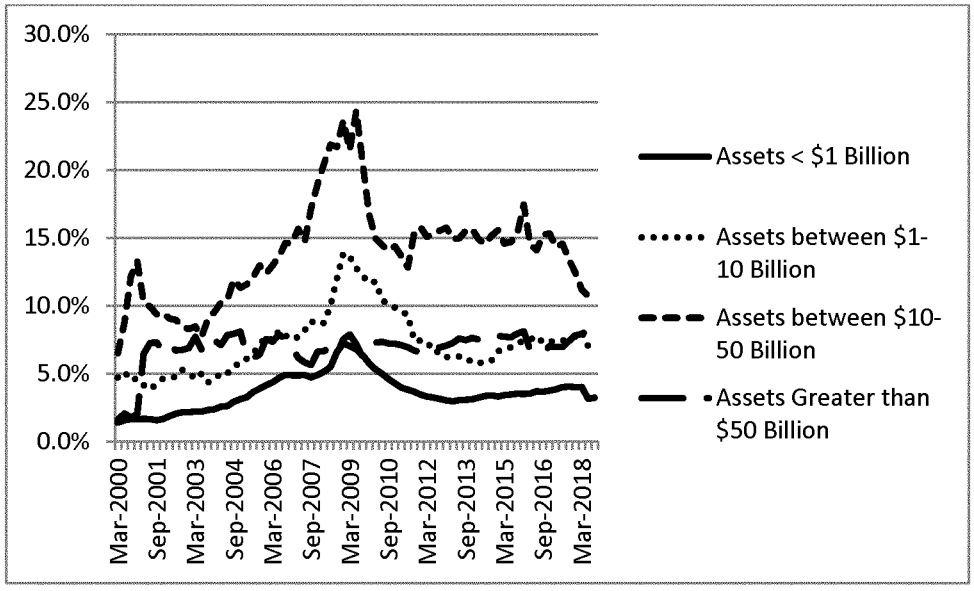
As of September 30, 2018, brokered deposits totaled $985.7 billion. Fewer than half of all FDIC-insured banks (2,221 banks, or 40.6 percent) reported brokered deposits on their September 30, 2018, Call Reports. As of this date, brokered deposits made up 8.0 percent of industry domestic deposits, in contrast to second quarter 2009 when banks began reporting total reciprocal brokered deposits, brokered deposits accounted for 10.1 percent of industry domestic deposits.

BROKERED DEPOSITS HELD BY INSURED DEPOSITORY BANKS AS OF SEPTEMBER 30, 2018

Asset size group	Total number of banks	Number of banks with brokered deposits	Total brokered deposits (billions)	Share of total brokered deposits (%)	Total domestic deposits	Share of total domestic deposits (%)
Under $1 Billion	4,704	1,656	$31.92	3.2	$988.05	8.0
$1–10 Billion	635	439	90.16	9.1	1,349.56	11.0
$10–50 Billion	97	89	171.87	17.4	1,605.40	13.0
Over $50 Billion	41	37	691.78	70.2	8,378.84	68.0
All Banks	5,477	2,221	985.73		12,321.84	

Brokered deposits typically make up a lower share of deposit funding for small banks compared to banks with $10 billion or more in assets. In aggregate, banks with assets between $10 billion and $50 billion reported brokered deposits equal to 10.7 percent of their domestic deposits as of September 30, 2018, the highest of any asset cohort group, while banks with assets under $1 billion reported brokered deposits equal to just 3.2 percent of domestic deposits. (See Chart 3.)

Chart 3
Brokered Deposits as a Share of Domestic Deposits, 1st Qtr 2000 – 3rd Qtr 2018



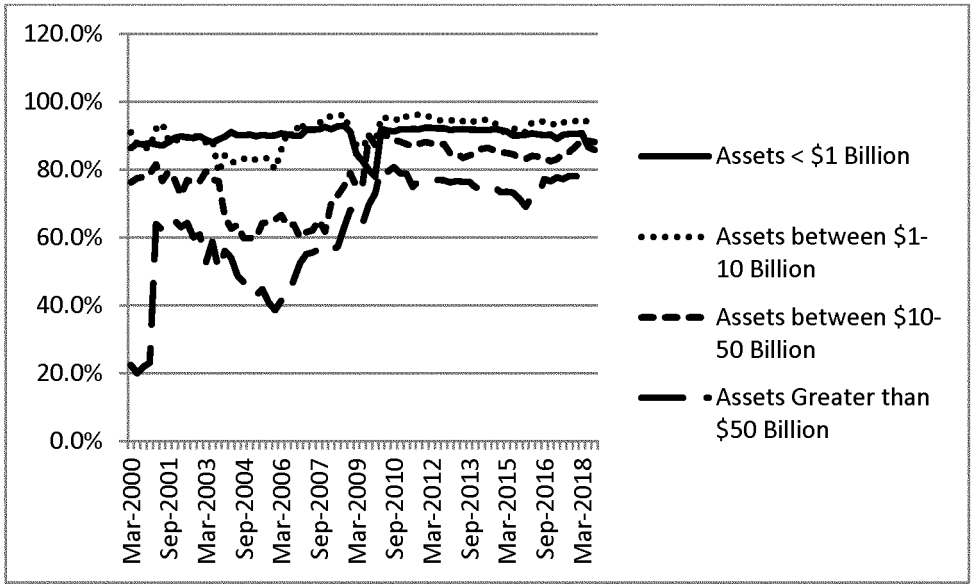
Note: The reversal of growth in the use of brokered deposits occurring between 2009 and 2012 is likely the joint result of the dramatic decline in interest rates occurring over that period, coupled with significant new restrictions on the use of brokered deposits by banks classified as adequately and undercapitalized.

[61] Certain brokered retirement accounts are included in insured brokered deposits.

Note: The reversal of growth in the use of brokered deposits occurring between 2009 and 2012 is likely the joint result of the dramatic decline in interest rates occurring over that period, coupled with significant new restrictions on the use of brokered deposits by banks classified as adequately and undercapitalized.

At the end of the third quarter of 2018, insured brokered deposits made up more than 82.5 percent of total brokered deposits at all banks. Insured brokered deposits as a percent of all brokered deposits was highest at banks with assets of $50 billion or less. In aggregate, insured brokered deposits made up 93.7 percent of total brokered deposits at banks with assets between $1–10 billion, as compared to 79.5 percent at banks with assets greater than $50 billion. (See Chart 4.)

Chart 4
Insured Brokered Deposit Share of All Brokered Deposits, 1st Qtr 2000 – 3rd Qtr 2018

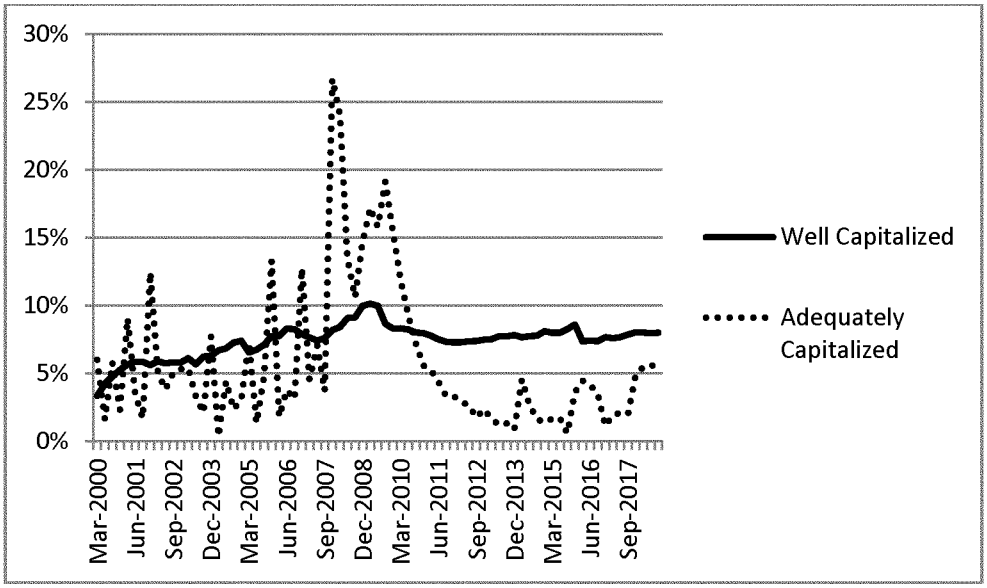


Section 29 of the Federal Deposit Insurance Act (FDI Act) sets forth restrictions on the acceptance of brokered deposits that also appear in the FDIC's regulations.[62] Under Section 29, banks are restricted from accepting, renewing, or rolling over brokered deposits if they are less than well capitalized. This restriction may be waived for adequately capitalized banks. Undercapitalized institutions are not allowed to receive new brokered deposits and must follow an FDIC-approved plan to remove them from their books over time. After rising to a peak in mid-2009, the use of brokered deposits as a share of domestic deposits declined for both adequately capitalized banks and well capitalized banks. As of September 30, 2018, of the 5,477 insured depository institutions, 99.6 percent were well capitalized, while 0.2 percent were rated as adequately capitalized. Of those rated as adequately capitalized, roughly half held brokered deposits. (See Chart 5.)[63]

[62] *See* 12 U.S.C. 1831f; 12 CFR 337.6.

[63] Please note that the data and chart are based only on capital ratio thresholds used for PCA. However, an IDI that otherwise meets the ratio threshold requirements for the well capitalized PCA category: (1) Will be classified as an adequately capitalized if it is subject to a written agreement, order, capital directive, or prompt corrective action directive to meet and maintain a specific capital level for any capital measure; and (2) may be reclassified as adequately capitalized, if, following notice and an opportunity for hearing, the bank is determined to be unsafe or unsound or has failed to correct a less-than-satisfactory rating for asset quality, management, earnings, or liquidity. See 12 CFR 6.4(c)(1)(v) and (e), 12 CFR 208.43(b)(1)(v) and (c), and 12 CFR 324.403(b)(1)(v) and (d).

Chart 5
Brokered Deposits as a Share of Domestic Deposits by PCA Capitalization Category, 1st Qtr 2000 – 3rd Qtr 2018



Brokered Deposits during the 2007–2017 Financial Crisis

During the financial crisis and the years that followed, from the beginning of 2007 through the end of 2017, the Deposit Insurance Fund (DIF) incurred $74.4 billion in losses as of December 31, 2016. During this period, excluding Washington Mutual, 530 banks failed and were placed in FDIC receivership.

Typically, as institutions get closer to failure, their capital level declines and they are no longer able to accept, renew, or roll over brokered deposits, so levels of brokered deposits at failure are usually low. Nevertheless, of the 530 failed banks, twelve, approximately 2.3 percent, held a majority (50% or greater) as brokered deposits; 280 or approximately 52.8 percent, held less than 1% of their total deposits as brokered deposits.[64] (See Chart 6.)

CHART 6

Brokered Deposits at 530 Failed Institutions, 2007–2017

Brokered deposits as % of total deposits	Number failed institutions w/DTC-titled brokered CDs	% of Institutions	Number failed institutions w/non-DTC titled brokered deposits[65]	% of institutions	Number failed institutions w/internet deposits
90–100	1	0.19	0	0.00	1
80–89	2	0.38	0	0.00	1
70–79	3	0.57	0	0.00	2
60–69	0	0.00	0	0.00	8
50–59	6	1.13	1	0.19	8
40–49	8	1.51	1	0.19	16
30–39	17	3.21	0	0.00	31
20–29	30	5.66	3	0.57	46
10–19	53	10.00	20	3.77	57
5–9	56	10.57	33	6.23	47
1–4	74	13.96	77	14.53	55
0–1	8	1.51	184	34.72	27
0	272	51.32	211	39.81	231

[64] The largest concentrations of brokered deposits can be characterized as 3 types of deposits: 1) Master Certificates of Deposits; 2) sweep deposits that are viewed as brokered; and 3) reciprocal deposits. Listing service deposits are also discussed below, but typically, are not reported as brokered. Master Certificates of Deposits are held on the books of the issuing bank in the name of a subsidiary of Depository Trust Corporation (DTC) as custodian for deposit brokers who are often broker dealers. These broker dealers, in turn, issue retail CDs, typically in denominations of $1,000, under the Master Certificate of Deposit to their retail clients.

[65] Banks that used reciprocal deposits are not included in Non-DTC CD Brokered Deposits unless they also held other non-DTC CD brokered deposits. While all reciprocal deposits were brokered deposits between 2007 and 2017, since May 24, 2018, a significant portion of reciprocal deposits are excepted from brokered deposits.

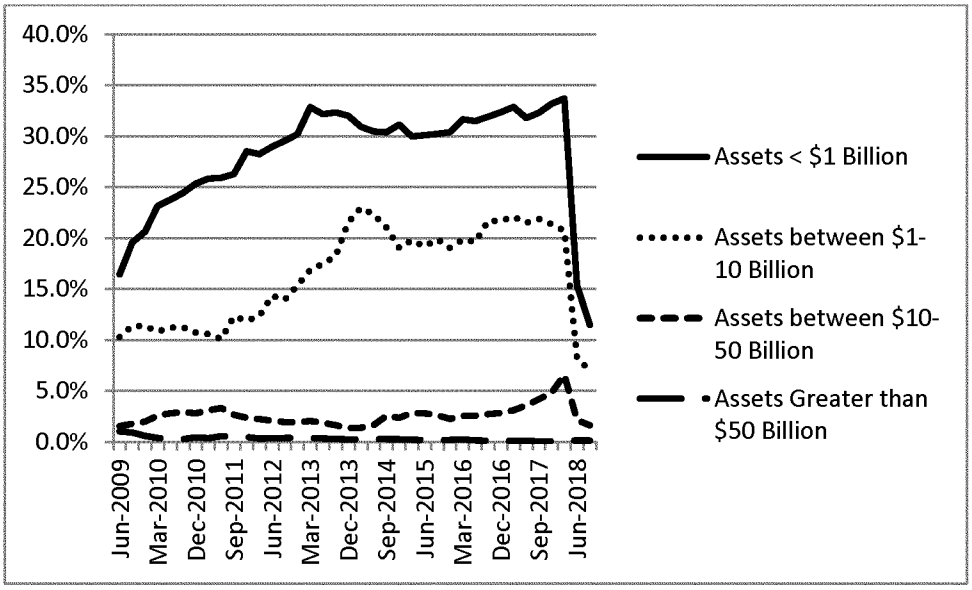
Reciprocal Deposits

A reciprocal deposit is an arrangement based upon a network of banks that place funds at other participating banks in order for depositors to receive insurance coverage for the entire amount of their deposits. In these arrangements, institutions within the network are both sending and receiving identical amounts of deposits simultaneously. As a result of this arrangement, the institutions themselves (along with the network sponsors) are ''in the business of placing deposits, or facilitating the placement of deposits, of third parties with insured depository institutions,'' and the involvement of deposit brokers within the reciprocal network means the deposits are brokered deposits. Since banks first reported reciprocal deposits on the Call Report in June 2009, reciprocal deposits as a share of total brokered deposits increased greatly, primarily among small banks. For banks with assets less than $1 billion, reciprocal deposits as a percent of total brokered deposits rose from 16.4 percent on June 30, 2009, to a peak of 33.7 percent on March 31, 2018.

The Economic Growth, Regulatory Reform, and Consumer Protection Act, enacted on May 24, 2018, allows certain banks to except a limited amount of reciprocal deposits from brokered deposits. The immediate result of this Act has been to dramatically reduce the percent of reciprocal deposits that are classified as brokered deposits. For example, for banks with assets less than $1 billion, reciprocal deposits as a share of brokered deposits declined from 33.7 percent on March 31, 2018, to 11.5 percent on September 30, 2018. (See Chart 7.)

For the largest banks, those with assets greater than $50 billion, reciprocal deposits as a share of total brokered deposits has remained relatively low, accounting for 0.1 percent of total brokered deposits as of June 30, 2018.

Chart 7
Reciprocal Brokered Deposits as a Share of Total Brokered Deposits, 2nd Qtr 2009- 3rd Qtr 2018



Listing Services

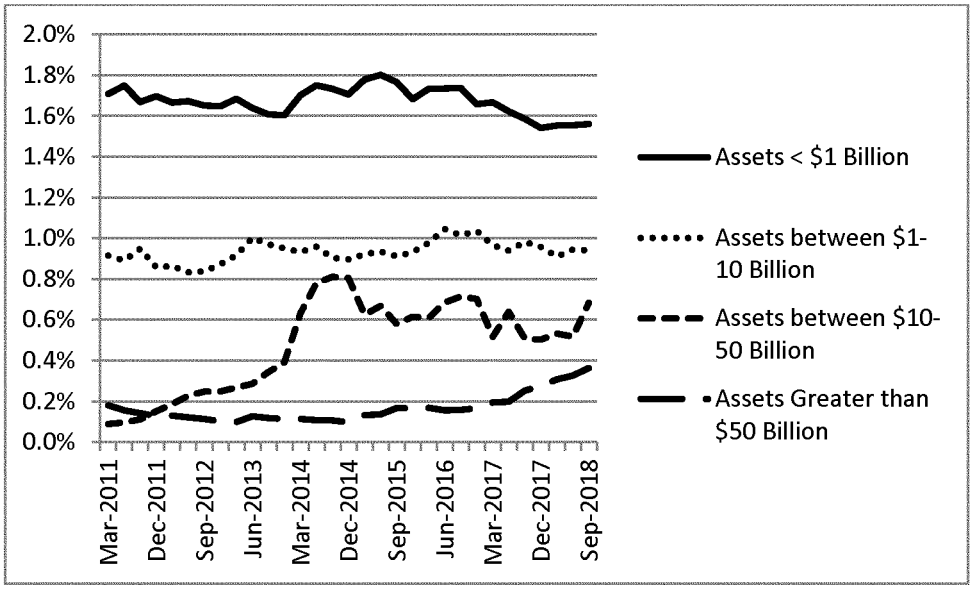
A ''listing service'' is a company that compiles information about the interest rates offered by banks on deposit products, especially CDs. A particular company can be a ''listing service'' (compiling information about deposits) as well as a ''deposit broker'' (facilitating the placement of deposits). In recognition of this possibility, the FDIC has set forth specific criteria to determine when a listing service qualifies as a deposit broker.[66]

The FDIC began collecting data on non-brokered, or ''passive,'' listing service deposits in the first quarter of 2011. As of September 30, 2018, a total of 1,369 banks reported a positive balance for non-brokered listing service deposits. In aggregate, these banks held approximately $69.6 billion in listing service deposits, which represented 0.6 percent of total domestic deposits. (See Chart 8.)

Listing service deposits made up a higher share of domestic deposits at smaller banks. On average from 2011 to the third quarter of 2018, non-brokered listing service deposits represented 1.3 percent of domestic deposits at banks with less than $10 billion in total assets, compared to 0.9 percent of domestic deposits at banks with $10 billion to $50 billion in total assets. (See Chart 8.)

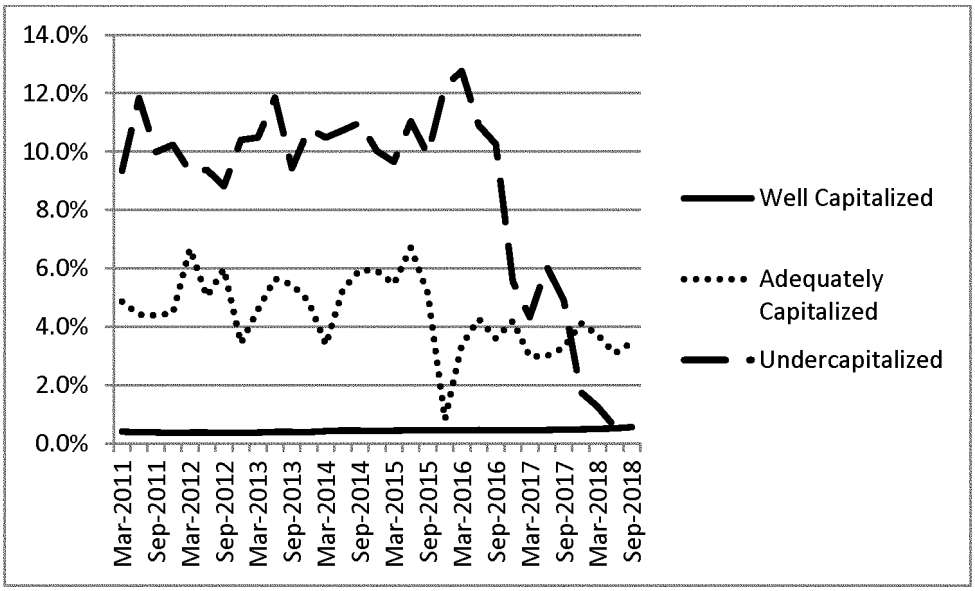
[66] For the specific criteria to determine when a listing service qualifies as a deposit broker see Advisory Opinion No. 90–24 (June 12, 1990). Advisory Opinion No. 92–50 (July 24, 1992). The criteria were subsequently updated in Advisory Opinion No. 02–04 (November 13, 2002) and Advisory Opinion No. 04–04 (July 28, 2004). Assuming these criteria are satisfied, the FDIC takes the position that a company is not ''facilitating the placement of deposits,'' and is therefore not a deposit broker, even if the company provides a platform for the execution of trades. Consequently, the deposits themselves are not classified as brokered deposits.

Chart 8
Listing Service Deposits as a Share of Total Domestic Deposits, 1st Qtr 2011- 3rd Qtr 2018



Banks that are less than well capitalized are subject to restrictions on accepting, renewing, or rolling over brokered deposits, and historically some of these banks have turned to listing service deposits as an alternate source of founding. (See Chart 9.)

Chart 9
Listing Service Deposits as a Share of Domestic Deposits by PCA Capitalization Category, 1st Qtr 2011 – 2nd Qtr 2018



Listing service deposits, however, may only provide funding to less than well capitalized banks to the extent that such a bank can offer rates high enough to attract deposits. A low interest rate environment, such as the one during and after the financial crisis, enabled less than well-capitalized banks to list high rate deposits and attracts funding. As interest rates have been rising in recent years, these banks are less likely to be able to use listing service deposits as an alternate source of funding to brokered deposits. From 2010 through most of 2015, rates were low enough

that weekly average rates on 1-year CDs fell below the FDIC rate cap. Thus, for most banks during that time, the FDIC rate cap was not a binding constraint in attracting funding and banks were more likely to be able to offer high rates via listing services to attract deposits. Since 2016, average market rates have exceeded the FDIC rate cap.

Appendix 2

Statistical Analysis

The analysis summarized in this appendix uses data from FDIC's Failure Transaction Database, Call Reports/TFRs, and supervisory CAMELS ratings.

Failure Probability Models

The sample used for analysis includes banks and thrifts that failed between 1988 and 2017. These banks were insured by the Bank Insurance Fund (BIF), Savings Association Insurance Fund (SAIF), and DIF. The data exclude thrifts resolved by FSLIC or the Resolution Trust Corporation (RTC). It is well documented that FHLBB supervised thrifts (insured by FSLIC) received regulatory forbearance and were allowed to operate with lower net worth and were closed under procedures that differ significantly from the 1991 FDICIA prompt corrective action rules that apply over much of the sample period. Moreover, the analysis excludes any bank or thrift that received open bank assistance. The sample includes 1,403 failures which consist of 1,267 bank failures between 1988 and 2017 and 136 thrift failures between 1989 and 2017.[67] In the remaining sections, ''banks'' is used to refer to both banks and thrifts.

The failure prediction models have a three-year failure prediction horizon. The models use bank data at year-end to predict the probability of the bank failing in the next three years. The models use year-end Call Reports from 1987 to 2014 to predict bank failures from 1988 to 2017.[68] The models are estimated as a pooled time-series cross section. The standard errors are clustered at the bank level.

Bank failures are modeled as a function of banks' income statement and balance sheet information, supervisory composite CAMELS ratings, and time fixed effects to capture differences in economy-wide unconditional average bank default rates. The model uses the total equity-to-assets ratio rather than the Tier 1 capital ratio because the Tier 1 capital ratio was not used in the 1980s. Core deposits are defined as: total domestic deposits net of large time deposits[69] and fully insured brokered deposits.

A bank's nonperforming loans and other real estate owned are used to measure a bank's asset quality. Nonperforming loans are defined as a sum of loans past due 90+ days and non-accruing loans. We also include a bank's concentration in CRE, C&D, C&I, and consumer loans. A bank's asset growth rate measures percent change in bank's total assets from one year ago.

Bank earnings are measured as a ratio—income before taxes to assets. A bank's interest expense is also included as an explanatory variable. A bank's composite CAMELS ratings are represented as separate binary (0,1) variables to allow for non-linear ratings effects on the probability of default. ''CAMELS 3'' is a binary variable that indicates a bank's composite CAMELS rating is 3. ''CAMELS 4 or 5'' is a binary variable that indicates a bank's composite CAMELS rating is 4 or 5. All financial variables are normalized by total assets with the exception of CAMELS 3, CAMELS 4 or 5, and Asset Growth.

Time fixed effects are included to capture any difference in the unconditional probability of bank failure across years. The unconditional likelihood of a bank failing differs by period in part because macroeconomic conditions and regulation vary. In the probability of failure models, time fixed effect coefficients estimate the unconditional failure probability for 3-year periods.[70]

Loss Rate Models

Failed bank loss rates are computed as a ratio of the most recent estimate of the failure expense and the bank's total assets as of the quarter before its failure. For the most part, the loss rates for recent bank failures are estimates and not final costs as a receivership process can take many years to conclude. The sample used for the analysis includes banks that failed between April 13, 1984 and December 15, 2017.[71] The banks in the sample were insured by the BIF, SAIF, and DIF. The analysis excludes any banks that received open bank assistance.

Failed bank loss rates are modeled as a function of the income and balance sheet characteristics of the failed bank. The model explains loss rates using a failed bank's equity, nonperforming loans, other real estate owned, core deposits, brokered deposits, income earned but not collected, and total loans to executives as explanatory variables. These variables are scaled by a bank's asset size. The model allows loss rates to differ for small (asset size $500 million or less), medium (asset size between $500 million to $1 billion), and large (asset size $1 billion and higher) banks. Call Report/TFR data are from the last quarter before the bank failure date.[72]

Reciprocal Deposit Data

Banks began reporting their reciprocal brokered deposit funds separated from non-reciprocal brokered deposits beginning in June 2009. In analyzing the effects of reciprocal deposits, we use Call Reports/TFRs and CAMELS rating data from June 2009 through December 2017. The analysis examines reciprocal deposit data through December 2017. During this time period, all reciprocal deposits were considered brokered deposits. The Economic Growth, Regulatory Reform, and Consumer Protection Act, which was signed into law on May 24, 2018, allows certain banks to except a limited amount of reciprocal deposits from brokered deposits.

Listing Service Deposit Data

Banks began reporting deposits obtained through the use of deposit listing services that are not brokered deposits beginning in March 2011. In analyzing the effects of reciprocal deposits, we use Call Reports and CAMELS rating data from March 2011 through December 2017.

Estimation Results

Core Deposits and Bank Failure Probability

In this section, we examine the relationship between core deposits and bank failure probabilities. Core deposits provide a bank with a stable and

[67] Thrift institutions refer to those with institution classes of Stock and Mutual Savings Banks, Savings Banks and Savings and Loans, and State Stock Savings and Loans.

[68] We use non-overlapping three year intervals. For example, 1987 Call Report data is used to predict banks failures that occurring in 1988, 1989, and 1990; 1990 Call report data is used to predict bank failures in 1991, 1992, and 1993. This timing pattern is continued through the end of the sample.

[69] To reflect a change in insured deposits limit, large time deposits are time deposits over $100,000 up to December 2009. Starting in March 2010, large time deposits refer to time deposits over $250,000. Because the last year-end Call Reports data used is 2017, the core deposit variable reflects the prevailing definition through 2017.

[70] For example, when Call Report and CAMELS ratings data from December 1987 are used to predict failures in 1988, 1989, and 1990, the time fixed effect coefficient measures the unconditional probability of failure for 1988, 1989, and 1990.

[71] The loss rate data for more recent bank failures is updated through 2017.

[72] There are some banks in the sample that have not filed Call Reports or TFRs on the quarter prior to its failure. For those banks, we use Call Reports as of two quarters prior to failure.

relatively cost effective source of funds. Core deposits, moreover, are an important component of customer-bank relationships. Many core depositors have long-term financial relationships with a bank that involve deposits, lending, and other financial services that generate bank profits. A bank's core deposit base is a measure of the size of a bank's opportunity set for relationship lending. Academic studies as well as FDIC resolutions experience suggest that core deposits are a significant source of bank franchise value.

Table 1 reports the results of a failure probability model that includes equity and the core deposits to assets ratio as predictive variables. The estimated coefficient on equity is negative, statistically significant, and very large in magnitude, suggesting that adequate equity buffers are among the most important factors lowering a bank's risk of default. The coefficient estimate on core deposits is also negative and statistically significant. Controlling for bank equity, the core deposits ratio is negative and statistically significant, suggesting that banks with higher core deposits have lower failure probability.[73]

TABLE 1—CORE DEPOSITS AND BANK FAILURE PROBABILITIES

Variable	Coefficient estimates
Intercept	*** −2.331
	[0.000]
Equity	*** −0.284
	[0.000]
Core deposits	*** −0.027
	[0.000]
Nonperforming loans	*** 0.132
	[0.000]
Other real estate owned	*** 0.124
	[0.000]
Income before taxes	*** −0.145
	[0.000]
Interest expense	*** 0.172
	[0.000]
CAMELS rating 3	*** 0.867
	[0.000]
CAMELS rating 4 or 5	*** 1.687
	[0.000]
Asset growth	*** 0.012
	[0.000]
CRE loans	*** 0.019
	[0.000]
C&D loans	*** 0.061
	[0.000]
C&I loans	*** 0.024
	[0.000]
Consumer loans	*** 0.013
	[0.000]
Pseudo R2	0.515
Wald Chi2	*** 3,224
N	98,237

Notes:
[1] Uses December Call Report data from 1987, 1990, 1993, 1996, 1999, 2002, 2005, 2008, 2011, and 2014 to predict failures from 1988–2017.
[2] Core deposits are defined as domestic deposits minus time deposits over the insurance limit and fully insured brokered deposits.
[3] All financial variables are normalized by total assets with the exception of CAMELS rating 3, CAMELS rating 4 or 5, and Asset Growth. CAMELS rating 3 and CAMELS rating 4 or 5 are dummy variables indicating that the institution is CAMELS 3-rated and the institution is CAMELS 4 or 5-rated, respectively. Asset Growth is the institution's one-year asset growth rate.
[4] Year fixed effects are included but not reported.
[5] Standard errors are clustered by bank.
*** Indicates statistical significance at the 1 percent level. ** Indicates statistical significance at the 5 percent level. * Indicates statistical significance at the 10 percent level. P-values are reported in brackets.

Brokered Deposits and the Probability of Bank Failure

In this section, we examine the relationship between brokered deposits and bank failure probability and loss rates to the insurance fund. To summarize the results in this section, we find that brokered deposit use is associated with higher probability of bank failure and higher insurance fund loss rates. Brokered deposits may elevate a bank's risk profile in part because brokered deposits are frequently used as a substitute for bank core deposits and, less frequently, for equity, and so from the FDIC's perspective, banks that use brokered deposits operate with a higher risk liability structure relative to banks that do not use brokered deposits.

Bank failure probability model estimates are reported in Table 2. Column (1) of Table 2 reports that brokered deposits have a positive, statistically significant effect on a bank's estimated probability of failure over a three-year horizon. In this logistic regression specification, the income

[73] The regression includes time fixed effects, but the coefficient estimates are not reported in Table 1.

before tax ratio is negatively correlated with bank failures, implying that banks with higher earnings ratios are less likely to fail. Banks with higher nonperforming loan and other real estate owned ratios are more likely to fail. All of these effects are statistically significant at the 1 percent level. There is a positive and statistically significant relationship between lagged asset growth rate and bank failures. The estimated coefficient for the growth rate is positive and statistically significant suggesting that, other things equal, banks experiencing rapid growth are more likely to fail within the next 3 years. Estimates also suggest that CRE, C&D, C&I, and consumer loan concentrations increase failure probability estimates. Banks with a composite CAMELS rating of 3 and those with a rating of 4 or 5, are more likely to fail compared to CAMELS 1 or 2 rated banks. This model specification shows a statistically significant relationship between interest expense and bank failures. The model also includes time fixed effects, but these estimates are not reported.[74]

In the estimates reported in Table 2, Column (1), brokered deposits are the only funding variable included in the regression (equity and core deposits are excluded from the regression). In this specification, brokered deposits are clearly associated with an increase in bank failure probability, but the reason for the increase is unclear. When a bank increases its brokered deposit-to-asset ratio, there must be an offsetting change in at least one of the bank's other funding sources. That is, the bank must change its equity-to-asset ratio, its core deposit-to-asset ratio, or its other non-core deposits and other liabilities to asset ratio to offset the increase in its brokered deposit ratio. This implicit shift in a bank's liability structure is one possible source of the increase in bank fragility that is identified by the positive coefficient on brokered deposits reported in Column (1). For example, if the bank's equity-to-asset ratio declines to offset an increase in a bank's brokered deposit ratio, then the bank is using brokered deposits to increase its leverage which would increase its probability of failure. We investigate these potential capital structure effects on bank failure probability using a series of regressions reported in Columns (2) and (3) of Table 2.

To control for bank leverage, we include a bank's equity-to-asset ratio in the failure model. The results are reported in Table 2, Column (2). By controlling for the equity ratio, the estimated coefficient on brokered deposits measures the effect of increasing a bank's reliance on brokered deposits and decreasing its reliance on other liabilities (such as core deposits, federal funds purchased, and FHLB advances), holding a bank's equity-to-asset ratio unchanged. The negative and statistically significant coefficient estimate on the equity ratio implies that greater equity lowers a bank's probability of default. The positive and statistically significant coefficient on the brokered deposits ratio (unchanged from previous) suggests that, holding bank leverage constant, a higher brokered deposits ratio (with decreased reliance on other funding sources) unambiguously increases the probability that a bank will fail in the subsequent three years. These results show that the use of brokered deposits increases a bank's failure probability even when they are not used as a substitute for bank equity.

Controlling for a bank's leverage ratio, the use of brokered deposits raises the estimated probability of bank failure. Why? As we have demonstrated in the prior section, core deposits are an important category of bank liabilities. Core deposits are associated with a lower probability of bank failure. Other things held constant, should a bank with a large core deposit franchise become distressed, long-standing FDIC resolution experience suggests that it is much more likely to be recapitalized through a purchase or a merger and not through an FDIC resolution. Thus, one possible avenue through which failure probability might be affected by the use of brokered deposits is if brokered deposits are used as a substitute for core deposit funding.

In Table 2, Column (3), we estimate the effects of brokered deposits on the probability of bank failure holding constant a bank's core deposit ratio. In this specification, core deposits are negative and statistically significant whereas brokered deposits are positive and statistically significant. The interpretation is that, holding constant the asset risk characteristics of a bank, provided a bank's share of funding from core deposits remains unchanged, on average, the use of brokered deposits increases a bank's probability of failure.

In Table 2, Column (4), we include three bank funding categories as controls: brokered deposits, equity, and core deposits. The coefficients of equity and core deposits are both negative and statistically significant, indicating that higher equity and core deposit funding shares both reduce the probability of bank failure. In this specification, the estimated coefficient on the brokered deposits ratio measures the effect of increasing brokered deposits, holding constant equity and core deposits, and reducing reliance on other bank liabilities. The estimated coefficient on brokered deposits is not statistically significant. These results suggest that brokered deposits can be substituted for other bank liabilities without any statistically measureable effect on a bank's failure probability, provided that a bank's share of equity and core deposit funding and its asset risk characteristics remain unchanged.

TABLE 2—BROKERED DEPOSITS AND FAILURE PROBABILITY OVER A THREE-YEAR HORIZON

Variable	Coefficient estimates (1)	Coefficient estimates (2)	Coefficient estimates (3)	Coefficient estimates (4)
Intercept	*** −6.447	*** −4.674	*** −5.119	*** −2.312
	[0.000]	[0.000]	[0.000]	[0.000]
Brokered deposits	*** 0.026	*** 0.022	*** 0.013	−0.001
	[0.000]	[0.000]	[0.014]	[0.790]
Equity	.....	*** −0.273	.....	*** −0.284
	.....	[0.000]	.....	[0.000]
Core deposits	.....	.....	*** −0.016	*** −0.027

[74] The omitted period, the period without an estimate of time fixed effect, is 1988–1990 and so time fixed effects estimates the unconditional probability of a 3 year period relative to the unconditional probability for 1988–1990. The time fixed effect coefficients estimates are negative and statistically significant indicating that the unconditional probability of failure was lower in the periods 1991–1993, 1994–1996, 1997–1999, 2000–2002, 2003–2005, 2006–2008, 2012–2014 and 2015–2017 (relative to 1988–1990). The time fixed effect coefficient for 2009–2011 is negative but statistically insignificant indicating no average default rate difference relative to 1988–1990.

TABLE 2—BROKERED DEPOSITS AND FAILURE PROBABILITY OVER A THREE-YEAR HORIZON—Continued

Variable	Coefficient estimates (1)	Coefficient estimates (2)	Coefficient estimates (3)	Coefficient estimates (4)
	.....	.....	[0.000]	[0.000]
Nonperforming loans	*** 0.164	*** 0.138	*** 0.164	*** 0.132
	[0.000]	[0.000]	[0.000]	[0.000]
Other real estate owned	*** 0.142	*** 0.117	*** 0.147	*** 0.124
	[0.000]	[0.000]	[0.000]	[0.000]
Income before taxes	*** −0.148	*** −0.149	*** −0.140	*** −0.145
	[0.000]	[0.000]	[0.000]	[0.000]
Interest expense	*** 0.114	*** 0.199	*** 0.097	*** 0.172
	[0.000]	[0.000]	[0.000]	[0.000]
CAMELS rating 3	*** 0.992	*** 0.862	*** 1.002	*** 0.867
	[0.000]	[0.000]	[0.000]	[0.000]
CAMELS rating 4 or 5	*** 2.280	*** 1.596	*** 2.347	*** 1.688
	[0.000]	[0.000]	[0.000]	[0.000]
Asset growth	*** 0.009	*** 0.014	*** 0.007	*** 0.012
	[0.000]	[0.000]	[0.000]	[0.000]
CRE loans	*** 0.022	*** 0.020	*** 0.021	*** 0.019
	[0.000]	[0.000]	[0.000]	[0.000]
C&D loans	*** 0.065	*** 0.066	*** 0.062	*** 0.061
	[0.000]	[0.000]	[0.000]	[0.000]
C&I loans	*** 0.031	*** 0.030	*** 0.028	*** 0.024
	[0.000]	[0.000]	[0.000]	[0.000]
Consumer loans	*** 0.021	*** 0.015	*** 0.018	*** 0.013
	[0.000]	[0.000]	[0.000]	[0.000]
Pseudo R^2	0.471	0.509	0.473	0.515
Wald Chi2	*** 3,678	*** 3,193	*** 3,763	*** 3,228
No. of observations	98,237	98,237	98,237	98,237

Notes:
[1] Uses December Call Report data from 1987, 1990, 1993, 1996, 1999, 2002, 2005, 2008, 2011, and 2014 to predict failures from 1988–2017.
[2] Core deposits is defined as domestic deposits minus time deposits over the insurance limit and fully insured brokered deposits.
[3] All financial variables are normalized by total assets with the exception of CAMELS rating 3, CAMELS rating 4 or 5, and Asset Growth. CAMELS rating 3 and CAMELS rating 4 or 5 are dummy variables indicating that the institution is CAMELS 3-rated and the institution is CAMELS 4 or 5-rated, respectively. Asset Growth is the institution's one-year asset growth rate.
[4] Year fixed effects are included but not reported.
[5] Standard errors are clustered by bank.
*** Indicates statistical significance at the 1 percent level. ** Indicates statistical significance at the 5 percent level. * Indicates statistical significance at the 10 percent level. P-values are reported in brackets.

To summarize, these series of regression model estimates show that the use of brokered deposits is associated with a higher probability of bank failure. The higher probability owes to a core deposit or equity effect: When banks substitute brokered deposits for core deposits or equity, this can increase their probability of failure. It is also possible that the use of brokered deposits is a general indicator of a higher risk appetite on the part of bank management which, may be reflected in the riskiness of the assets that a bank purchases. We turn to this issue in the next section.

Brokered Deposits and Bank Asset Growth and Quality

To determine whether the use of brokered deposits may also be a general indicator of a higher risk appetite on the part of bank management, as reflected in the bank's asset growth or nonperforming loans, the FDIC examined the relationship between brokered deposits and asset growth, and between brokered deposits and nonperforming loans.

To assess whether the use of brokered deposits helps to explain the variation in observed bank growth rates, we estimate alternative models in which a bank's 3-year growth rate is in part determined by its 3-year average use of brokered deposits. Overall, the regression analysis suggests that banks using brokered deposits often exhibit higher 3-year growth rates compared to banks that do not use brokered deposits. This positive relationship is likely to be the result of a complex series of choices made by bank management that drive both a bank's growth rate and its use of brokered deposits. The underlying structural choice models are undoubtedly much more complex than the models estimated in this analysis. For example, we would expect that aggregate and local market lending conditions, interest rates and employment all to be factors included in the simultaneous determination of a bank's growth rate and brokered deposit usage.

To analyze the relationship between brokered deposits and asset quality, we estimated various models that explain the level of non-performing bank loans at the end of three years using macroeconomic controls and bank-specific measures of risk, including variables that measure their use of brokered deposit funding. Nonperforming loans are defined as a sum of loans past due 90+ days, non-accruing loans, and other real estate owned. Banks that are willing to undertake riskier funding structures may also be willing to invest in higher risk loan portfolios. If this is true, banks that fund themselves with brokered deposits would also tend to be banks with higher non-performing loans.

The results of the regression analysis include an estimated coefficient for the brokered deposits to assets ratio that is positive and statistically significant, implying that an increase in the brokered deposit ratio is associated with an increase in the nonperforming loans ratio three years into the future. In contrast, higher core deposits are

associated with more conservative lending practices. Banks with high reserves, liquid assets, and consumer loans tend to have a lower nonperforming loan-to-asset ratio three years later. In contrast, banks with high interest expenses, income before taxes, C&I loans, C&D loans, and CRE loans are more likely to have a higher nonperforming loan ratio three years later. An increase in bank size, on average, is associated with a lower nonperforming loan ratio.

The FDIC also tested an alternative definition of a nonperforming loans ratio (the sum of loans past due 90+ days and non-accruing loans), and the results are qualitatively similar to those in the initial regression analysis. Brokered deposits continue to be positively correlated with nonperforming loan ratios.

Loss Rate Models

In this section, we investigate whether banks' use of brokered deposit funding is associated with higher DIF loss rates when a bank fails. Banks with heavy reliance on brokered deposits may have a low franchise value because they lack a large core deposit customer base. In addition, banks that fund themselves with brokered deposits tend to have higher non-performing loans which may contribute to higher DIF losses.

Table 3 reports the results of the loss rate regression analysis. Column (1) of Table 3 suggests that higher nonperforming loans, other real estate owned, income earned but not collected, loans to executives to asset ratios are associated with higher loss rates. Banks with higher C&D, C&I, and consumer loans also tend to have higher loss rates. Medium-sized (asset size between $500 million to $1 billion) and large failed banks (asset size $1 billion and higher) tend to have lower loss rates compared to small banks (asset size $500 million or less). The year fixed-effects (not reported) are added to capture any difference in unconditional loss rates across years. These fixed effects capture loss rate differences that may be driven by year-to-year differences in the strength of the economy or supervision and regulation.[75]

In the failure loss rate model specification reported in Table 3, Column (1), only brokered deposits are included as a funding variable. The estimated coefficient for brokered deposits measures the effect of an increase in brokered deposits and an offsetting reduction in other funding sources on the loss rate. The positive and statistically significant coefficient on brokered deposits in Column (1) suggests that an increase in a bank's reliance on brokered deposits (and an offsetting decrease in other funds either equity or other liabilities) increases the DIF loss rate.

In Table 3 Column (2), the failed bank's equity ratio is also included as an explanatory variable. The positive and statistically significant coefficient on brokered deposits suggests that increasing reliance on brokered deposits, holding bank equity constant and reducing other liabilities (such as core deposits, fed funds purchased, FHLB advances), there is an increase in the DIF loss rate. The negative and statistically significant coefficient on the equity ratio suggests that increasing equity and decreasing a bank's reliance on other liabilities with no change in brokered deposits reduces the loss rate.

In Table 3, Column (3), the failed bank's core deposit ratio and brokered deposit ratio are included as explanatory variables. The positive and statistically significant coefficient on brokered deposits suggests that, increasing reliance on brokered deposits, holding core deposits constant and reducing other liabilities (such as federal funds purchased, FHLB advances) and possibly equity, there is an increase in the DIF loss rate. The negative and statistically significant coefficient on the core deposit ratio suggests that increasing core deposits and decreasing a bank's reliance on other liabilities while holding brokered deposits constant reduces the DIF loss rate.

The model specification reported in Table 3, Column (4) includes brokered deposits, equity, and core deposits as funding measures. In this specification, the estimated coefficient on brokered deposits is negative and statistically insignificant suggesting that, other control variables held constant, when equity and core deposits are unchanged, increasing brokered deposits and decreasing other bank liabilities has no statistically measurable effect on loss rates. In contrast, replacing other liabilities with equity or core deposits with no change in brokered deposits decreases a bank's failure loss rate.

To summarize these results, we find that the use of brokered deposits results in higher loss rates to the DIF. These higher losses can be linked to two causes, a leverage effect and a core deposit effect. The leverage effect arises because brokered deposits are often used as a substitute for bank equity and so when brokered deposits are in use there is less capital to cushion the DIF's loss. The core deposit effect is the substitution of brokered for core deposits. This lowers bank franchise value which also increases the DIF loss rate.

TABLE 3—BANK FAILURE LOSS RATE MODELS

Variable	Coefficient estimates (1)	Coefficient estimates (2)	Coefficient estimates (3)	Coefficient estimates (4)
Intercept	*** 6.350	*** 9.324	*** 9.680	*** 17.465
	[0.000]	[0.000]	[0.000]	[0.000]
Brokered deposits	*** 0.104	*** 0.082	* 0.063	− 0.015
	[0.000]	[0.003]	[0.061]	[0.665]
Equity	.....	*** − 0.470	.....	*** − 0.550
	.....	[0.000]	.....	[0.000]
Core deposits	.....	.....	** − 0.044	*** − 0.102
	.....	.....	[0.030]	[0.000]
Nonperforming loans	*** 0.431	*** 0.327	*** 0.441	*** 0.333
	[0.000]	[0.000]	[0.000]	[0.000]
Other real estate owned	*** 0.835	*** 0.738	*** 0.845	*** 0.746

[75] For example, legislative changes such as the cross guarantee provision in FIRREA of 1989 and the least cost resolution requirement in FDICIA of 1991. Unconditional loss rates of banks that failed in 1998, 2007, 2008, and 2009 are higher compared to loss rates in 1984 (the base year) with statistical significance. Compared to loss rates in 1984, loss rates are substantially lower in 1985, 1990, 1991, 1992, 1993, 1994, 2000, and 2004 with statistical significance.

TABLE 3—BANK FAILURE LOSS RATE MODELS—Continued

Variable	Coefficient estimates (1)	Coefficient estimates (2)	Coefficient estimates (3)	Coefficient estimates (4)
	[0.000]	[0.000]	[0.000]	[0.000]
Income earned but not collected	*** 3.620	*** 3.888	*** 3.690	*** 4.095
	[0.000]	[0.000]	[0.000]	[0.000]
Loan to executive officers	*** 0.334	** 0.302	** 0.323	** 0.272
	[0.008]	[0.015]	[0.010]	[0.027]
Bank size between $500 mil–$1 bil	*** −5.517	*** −5.118	*** −5.882	*** −5.886
	[0.000]	[0.000]	[0.000]	[0.000]
Bank size >$1 billion	*** −9.064	*** −9.015	*** −9.567	*** −10.158
	[0.000]	[0.000]	[0.000]	[0.000]
CRE loans	−0.002	−0.014	−0.001	−0.013
	[0.940]	[0.650]	[0.974]	[0.674]
C&D loans	*** 0.140	*** 0.163	*** 0.134	*** 0.151
	[0.001]	[0.000]	[0.001]	[0.000]
C&I loans	*** 0.243	*** 0.216	*** 0.237	*** 0.199
	[0.000]	[0.000]	[0.000]	[0.000]
Consumer loans	*** 0.128	*** 0.117	*** 0.125	*** 0.108
	[0.000]	[0.000]	[0.000]	[0.000]
Adjusted R^2	0.350	0.373	0.351	0.381
No. of observations	1,943	1,943	1,943	1,943

Notes:
[1] Estimates use data from 1984 to 2017 to predict failure loss rates in 1984 to 2017.
[2] Core deposits is defined as domestic deposits minus time deposits over the insurance limit and fully insured brokered deposits.
[3] All financial variables are normalized by total assets with the exception of *Bank size between $500 mil–$1 bil* and *Bank size >$1billion. Bank size between $500 mil–$1 bil* is a dummy variable indicating that the institution's asset size is between $500 million and $1 billion. *Bank size >$1billion* is a dummy variable indicating that the institution's asset size is over $1 billion.
[4] The regressions include year fixed effects, but not reported.
*** Indicates statistical significance at the 1 percent level. ** Indicates statistical significance at the 5 percent level. * Indicates statistical significance at the 10 percent level. P-values are reported in brackets.

Analysis of Reciprocal Deposits

In this section we use the available data to analyze reciprocal deposit use patterns and the effects of reciprocal deposits on the probability of bank failure and DIF loss rates. Banks began reporting reciprocal brokered deposit funds separately from non-reciprocal brokered deposits beginning June 2009. This analysis examines reciprocal deposit data through December 2017. During this time period, all reciprocal deposits were considered brokered deposits. The Economic Growth, Regulatory Reform, and Consumer Protection Act, which was signed into law on May 24, 2018, allows certain banks to except a limited amount of reciprocal deposits from brokered deposits.

The data show that while a minority of banks use reciprocal deposits, those that use this source of funding tend to raise a large percentage of their brokered deposits using reciprocal deposits. From June 2009 through December 2010, the use of reciprocal deposits became more widespread, but was still uncommon. Over this period, on average, the use of brokered deposits declined from December 2011, then increased starting in December 2015. The relative importance of reciprocal deposits as a component of brokered deposits increased from December 2011 to December 2013 and has since fallen. Table 4 reports the distribution of different brokered deposit ratios by Call Report date.[76] The first panel of Table 4 reports the distribution of different brokered deposit ratios (total brokered, reciprocal brokered, and non-reciprocal brokered deposits to assets ratios) for December 2011. The median values for each of these ratios are zero; in December 2011, out of 7,366 banks, 3,015 banks had non-zero brokered deposits.

In December 2011, an average bank's reliance on brokered deposits (2.43%) was split between reciprocal brokered deposits (0.58%) and non-reciprocal brokered deposits (1.85%). Only a very small share of banks has a heavy reliance on reciprocal brokered deposits. The 99th percentile of the reciprocal brokered deposit ratio is 11.61% and the maximum observed ratio is 49.55%.

Rows (4) and (5) of Table 4 report the distributions of the ratios of reciprocal deposits and non-reciprocal brokered deposits to total brokered deposits for banks that report positive brokered deposits. The median reciprocal to total brokered deposits ratio is 0.[77] Among banks using brokered deposits, on average 31.44% of brokered deposits are reciprocal deposits. Fourteen percent of banks using brokered deposits use *only* reciprocal brokered deposits.

Rows (6) and (7) of Table 4 report the distributions of reciprocal deposits and non-reciprocal brokered deposits to total brokered deposits ratios for the sample of banks that report positive reciprocal brokered deposits. The data show that while reciprocal brokered deposits are not used widely among banks that rely on brokered deposits for funding, when they are used, they frequently are a bank's primary source of brokered funding.

Comparing data from December 2011 and December 2017, fewer banks are using brokered deposits, but among those banks that do, reliance on brokered deposits has been increasing. The mean total brokered deposits to assets ratio in December 2017 was 2.90% which increased from 2.43% in December 2011. The trend for banks' reliance on reciprocal deposits is less clear. In December 2011, 1,348 banks reported positive reciprocal deposit

[76] Banks report a total for brokered deposits and also report the amount of this total that are reciprocal deposits. We exclude observations when a bank reports a positive reciprocal brokered deposit value but reports a zero value for total brokered deposits. We also exclude from the sample banks that report higher values for reciprocal brokered deposits than for total brokered deposits.

[77] Only 1,348 banks reported positive reciprocal brokered deposits out of 3,015 banks that report positive brokered deposits.

balances. This number declined to 1,199 banks in December 2014, and has remained relatively stable, declining somewhat to 1,184 by December 2017. The average usage of reciprocal deposits has increased; the mean reciprocal deposits to assets ratio was 0.80% in December 2017 compared to 0.58% in December 2011. Generally, the share of brokered deposits funded by reciprocal versus non-reciprocal deposits has remained stable.

TABLE 4—DISTRIBUTION OF DIFFERENT BROKERED DEPOSITS RATIOS BY CALL REPORT DATE

	Ratios	N	Max	99th	95th	90th	Med	Mean
				December 2011				
(1)	Total brokered/assets	7,366	90.83	27.28	12.15	7.30	0.00	2.43
(2)	Reciprocal brokered/assets	7,366	49.55	11.61	3.63	1.29	0.00	0.58
(3)	Non-reciprocal brokered/ assets.	7,366	90.83	25.47	9.82	5.40	0.00	1.85
(4)	Reciprocal brokered/total brokered.	3,015	100.00	100.00	100.00	100.00	0.00	31.44
(5)	Non-reciprocal brokered/ total brokered.	3,015	100.00	100.00	100.00	100.00	100.00	68.56
(6)	Reciprocal brokered/total brokered.	1,348	100.00	100.00	100.00	100.00	97.13	70.31
(7)	Non-reciprocal brokered/ total brokered.	1,348	99.99	99.70	96.67	90.91	2.87	29.69
				December 2017				
(1)	Total brokered/assets	5,678	87.66	29.92	13.69	9.00	0.00	2.90
(2)	Reciprocal brokered/assets	5,678	41.37	13.09	5.52	2.25	0.00	0.80
(3)	Non-reciprocal brokered/ assets.	5,678	87.66	25.32	10.27	6.62	0.00	2.10
(4)	Reciprocal brokered/total brokered.	2,526	100.00	100.00	100.00	100.00	0.00	31.79
(5)	Non-reciprocal brokered/ total brokered.	2,526	100.00	100.00	100.00	100.00	100.00	68.21
(6)	Reciprocal brokered/total brokered.	1,184	100.00	100.00	100.00	100.00	86.76	67.81
(7)	Non-reciprocal brokered/ total brokered.	1,184	99.99	99.65	96.81	91.86	13.24	32.19

Reciprocal Deposit Usage at Failed Banks

In this section, we examine the extent to which failed banks relied on reciprocal brokered deposits. The analysis includes banks that failed between July 2009 and December 15, 2017. During this period, 458 banks failed.

Table 5 reports number (percentage in parenthesis) of failed banks that reported positive reciprocal deposits and non-reciprocal brokered deposits on their balance sheet prior to their failure. In this table, data are analyzed according to the Call Report data reported a selected number of quarters before the bank failure date. Reciprocal deposits were first reported on Call Reports in June 2009. Hence, we are limited to 180 failures, which failed between April 2011 and December 2017, to have 8 quarters of Call Report data with reciprocal deposit information. In contrast, there are 458 failures, which failed between July 2009 to December 2017, with 1 quarter of Call Report data with reciprocal deposit information.

The data suggest a number of consistent patterns. Column (3) shows that somewhere between 60 and 70 percent of the failed banks used brokered deposits for at least six quarters before they failed. There is also evidence that suggests that some of these failed banks stop using brokered deposits in the quarter prior to their failure. Of these failed banks, roughly 20 percent used reciprocal deposits for up to seven quarters prior to their failure, but like brokered deposits, some also stopped using reciprocal deposit funding the quarter before they failed.[78]

TABLE 5—BROKERED AND RECIPROCAL DEPOSITS USAGE IN FAILED BANKS

Number of quarters before failure	Number of observations	Number of banks with positive brokered deposits reported (%)	Number of banks with positive non-reciprocal brokered deposits reported (%)	Number of banks with positive reciprocal brokered deposits reported (%)
(1)	(2)	(3)	(4)	(5)
8	180	122 (67.78)	116 (64.44)	39 (21.67)
7	206	140 (67.96)	134 (65.05)	44 (21.36)
6	236	165 (69.92)	159 (67.37)	53 (22.46)
5	277	196 (70.76)	183 (66.06)	64 (23.10)

[78] We have not investigated why these banks stopped using reciprocal deposits.

TABLE 5—BROKERED AND RECIPROCAL DEPOSITS USAGE IN FAILED BANKS—Continued

Number of quarters before failure	Number of observations	Number of banks with positive brokered deposits reported (%)	Number of banks with positive non-reciprocal brokered deposits reported (%)	Number of banks with positive reciprocal brokered deposits reported (%)
(1)	(2)	(3)	(4)	(5)
4	322	224 (69.57)	211 (65.53)	67 (20.81)
3	363	251 (69.15)	235 (64.74)	64 (17.63)
2	408	277 (67.89)	260 (63.73)	70 (17.16)
1	458	295 (64.41)	283 (61.79)	63 (13.76)

Notes:
[1] Based on 458 Failures between July 2, 2009 and December 15, 2017. All failures after June 2009 when the reciprocal deposits were first reported on the Call Reports.

Figure 1 graphs the failing banks' reciprocal deposits to assets ratio prior to failure. The median reciprocal deposits ratio at 5, 4, 3, 2, and 1 quarter(s) before failure is 0%. In other words, the median failed bank did not hold any reciprocal deposits up to 5 quarters prior to failure. The reciprocal deposit ratios at the 90th percentile of the distribution (the failed banks most reliant on reciprocal deposits) for the 5 quarters before failure decline from nearly 1.6% to just over 0.2% of reciprocal deposit usage as banks approach failure.

Figure 2 graphs the failing banks' usage of non-reciprocal brokered deposits (as a percentage of assets) prior to failure. Figure 2 shows that the median bank usage of non-reciprocal brokered deposits also declines as the banks approach failure. In contrast, those banks most reliant on brokered deposits (the 90th percentile of the distribution), do not show any significant run off in non-reciprocal brokered deposits as the banks approach failure.

Given the small sample size involved in this analysis, it is inappropriate to draw strong overall conclusions regarding the behavior of reciprocal deposits balances at failing banks. Moreover, since not all weak banks fail, the behavior of reciprocal deposit funding at weak banks (not analyzed in this memo) could also inform the regulatory debate about safety and soundness issues associated with reciprocal deposit usage.

Figure 1

Distribution of the Ratio of Reciprocal Brokered Deposits to Total Assets in Failed Banks in the Quarters prior to Bank Failure

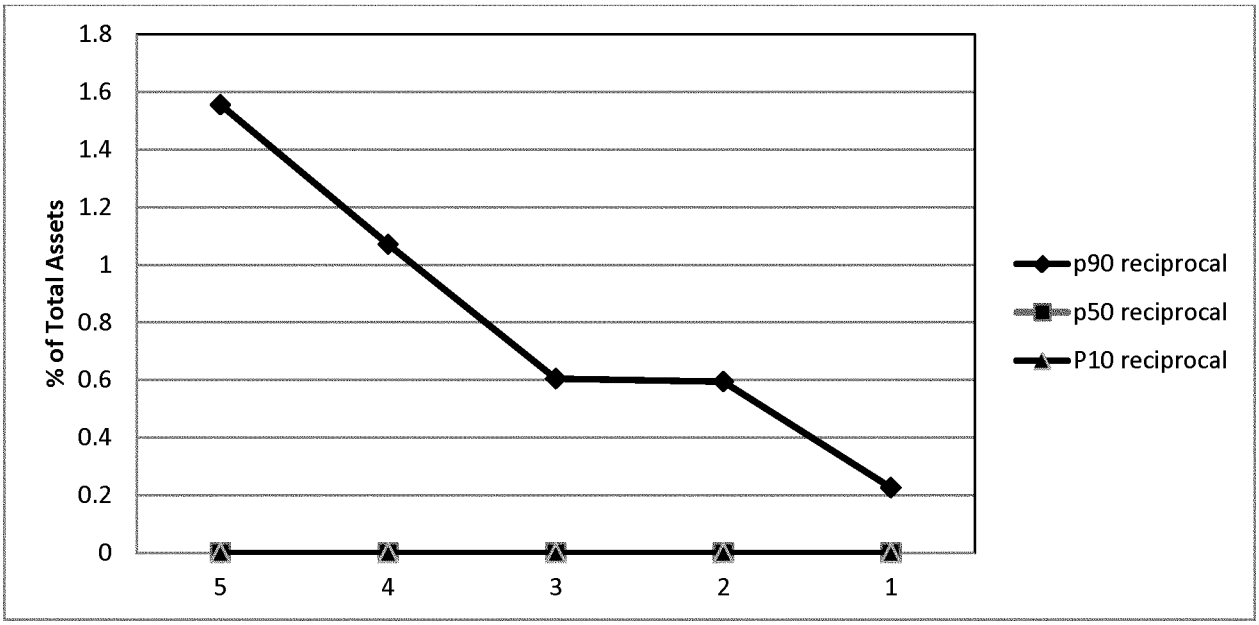
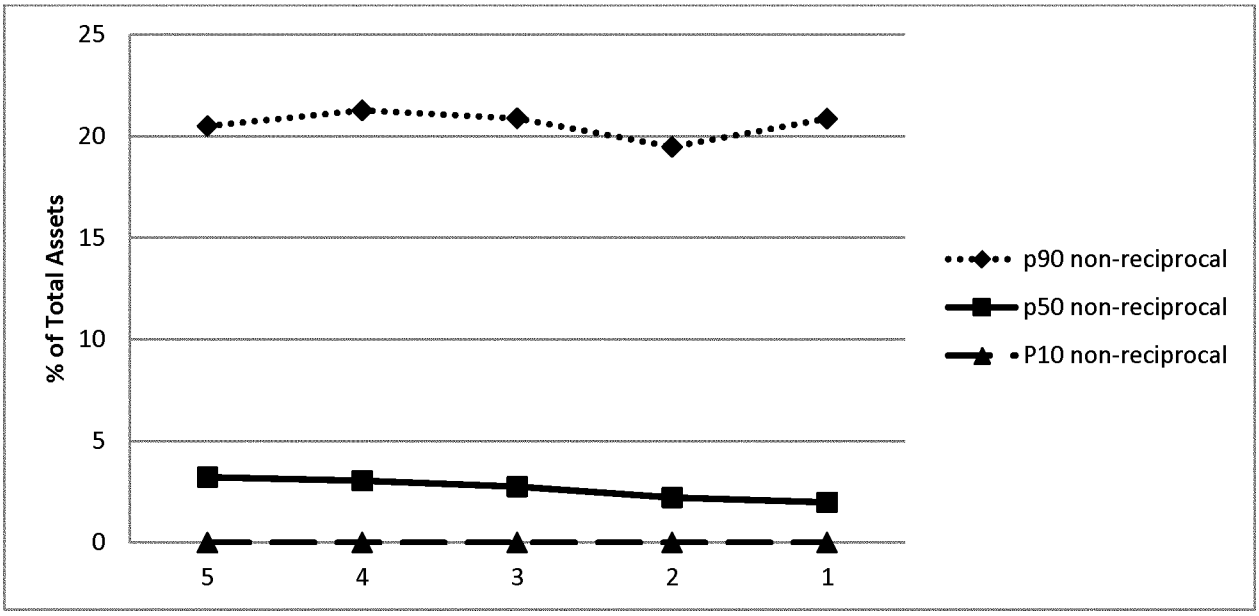


Figure 2

Distribution of the Ratio of Non-Reciprocal Brokered Deposits to Total Assets in Failed Banks in the Quarters Prior to Failure



Failure Prediction and Reciprocal Deposits

We estimate three-year failure prediction models using 2009, 2012, and 2015 data to predict failures from 2010 to 2017. We estimate failure models as a function of reciprocal and non-reciprocal brokered deposits. The results are reported in Table 6. Table 6 reports the estimated coefficients and p-values of the logistic regressions.

In the failure model specification reported in Column (1) of Table 6, two funding ratios, reciprocal deposits and non-reciprocal brokered deposits are included. Table 6 reports that the non-reciprocal brokered deposits ratio has a positive and statistically significant effect on a bank's estimated probability of failure.

Column (1) of Table 6 also shows that higher nonperforming loans and other real estate owned are positively and statistically significant variables in the bank failure probability model.

Because we measure the banks' liability components as ratios, as a bank increases its use of reciprocal deposits and non-reciprocal deposits, there are necessarily offsetting changes in the bank's other funding sources. By including other funding measures in the models, we investigate whether the implicit shift in a bank's liability structure (as a bank increases its dependence on reciprocal and non-reciprocal brokered deposits) is a possible source of the increase in failure probability.

Column (2) of Table 6 reports the results of the failure probability model when we include a bank's equity to asset ratio to control for bank leverage. By including the equity ratio in the model, the coefficient estimates on reciprocal and non-reciprocal brokered deposits measure the effect of increasing a bank's reliance on these deposit sources and decreasing its reliance on other liabilities, holding the bank's equity ratio unchanged. Holding the bank equity ratio constant, the estimated coefficient on non-reciprocal brokered deposits ratio is positive with a p-value of 0.128. The estimated coefficient on reciprocal deposits ratio remains statistically insignificant.

Column (3) of Table 6 reports the failure model estimates when the model includes a bank's reciprocal deposits, non-reciprocal brokered deposits, and core deposits to assets ratios. In this specification, the estimated coefficient on the reciprocal deposits ratio measures the effect of increasing reciprocal deposits, holding constant non-reciprocal brokered deposits and core deposits and reducing other bank liabilities. The coefficient of the reciprocal deposits ratio remains statistically insignificant. The coefficient of non-reciprocal deposits is statistically significant when core deposits are held constant. The coefficient of the core deposits ratio on bank failure probability is statistically insignificant. This result differs from the results in an earlier section as well as long standing FDIC experience where, on average, core deposits reduce the failure probability.

Column (4) of Table 6 reports the failure model estimates when the model includes a bank's reciprocal deposits, non-reciprocal brokered deposits, equity, and core deposits to assets ratios. In this specification, the estimated coefficient on the reciprocal deposits ratio measures the effect of increasing reciprocal deposits, holding constant non-reciprocal brokered deposits, equity, and core deposits and reducing other bank liabilities. The coefficient of reciprocal deposits remains statistically insignificant. The coefficient of non-reciprocal deposits is not statistically significant when the equity and core deposits ratios are both held constant.

The results suggest that, on average, failed banks that used reciprocal brokered deposits did not use them as a substitute for equity or core deposit funding. The regression results show that equity and core deposits both decrease a bank's probability of failure. If banks that used reciprocal deposits used them as a substitute for equity or core deposit funding, the reciprocal deposit coefficient in Column (1) would be positive and significant and mirror the coefficient for non-reciprocal deposits. The fact that the reciprocal deposit coefficient in Column (1) is insignificant is consistent with the

interpretation that banks that used reciprocal brokered deposits in this sample period did not use them to substitute for equity or core deposit funding. At the same time, this analysis is based on a small sample limited to failures between 2010 and 2017. We believe it is inappropriate to place a high degree of confidence in the results of the analysis based on this limited sample.

TABLE 6—THREE YEAR FAILURE PREDICTION MODELS FOR RECIPROCAL DEPOSITS

Variables	Coefficient estimates (1)	Coefficient estimates (2)	Coefficient estimates (3)	Coefficient estimates (4)
Intercept	*** −7.053	*** −2.995	* −9.289	−1.602
	[0.000]	[0.000]	[0.069]	[0.137]
Non-reciprocal brokered deposits	*** 0.023	0.014	*** 0.033	−0.003
	[0.001]	[0.128]	[0.001]	[0.836]
Reciprocal deposits	−0.015	−0.028	0.001	−0.040
	[0.544]	[0.349]	[0.978]	[0.181]
Equity	.....	*** −0.508	.....	*** −0.520
	.....	[0.000]	.....	[0.000]
Core deposits	.....	.....	0.019	** −0.019
	.....	.....	[0.515]	[0.033]
Nonperforming loans	*** 0.190	*** 0.142	*** 0.184	*** 0.142
	[0.000]	[0.000]	[0.000]	[0.000]
Other real estate owned	*** 0.086	0.040	** 0.075	0.042
	[0.001]	[0.210]	[0.030]	[0.182]
Income before taxes	*** −0.090	** −0.097	*** −0.092	** −0.101
	[0.000]	[0.026]	[0.000]	[0.028]
Interest expense	−0.018	*** 0.419	0.561	* 0.359
	[0.499]	[0.000]	[0.746]	[0.078]
Asset growth	** 0.009	*** 0.021	0.014	*** 0.020
	[0.037]	[0.000]	[0.388]	[0.000]
CRE loans	0.0002	0.0007	−0.0007	0.001
	[0.979]	[0.929]	[0.923]	[0.890]
C&D loans	*** 0.035	*** 0.047	*** 0.034	*** 0.046
	[0.004]	[0.001]	[0.007]	[0.001]
C&I loans	0.007	0.022	0.012	0.021
	[0.534]	[0.111]	[0.589]	[0.121]
Consumer loans	−0.014	−0.030	−0.026	−0.025
	[0.484]	[0.599]	[0.506]	[0.632]
CAMELS 3	*** 1.772	*** 1.498	*** 1.772	*** 1.501
	[0.000]	[0.000]	[0.000]	[0.000]
CAMELS 4 or 5	*** 3.730	*** 2.101	*** 3.576	*** 2.087
	[0.000]	[0.000]	[0.000]	[0.000]
Pseudo R2	0.543	0.633	0.545	0.634
Wald Chi2	867	733	838	744
No. of observations	21225	21225	21225	21225

Notes:
[1] Using year-end Call Reports from 2009, 2012, and 2015 to predict 363 failures from 2010 to 2017.
[2] Core deposits is defined as domestic deposits minus time deposits over the insurance limit and fully insured brokered deposits.
[3] All financial variables are normalized by total assets with the exception of CAMELS rating 3, CAMELS rating 4 or 5, and Asset Growth. CAMELS rating 3 and CAMELS rating 4 or 5 are dummy variables indicating that the institution is CAMELS 3-rated and the institution is CAMELS 4 or 5-rated, respectively. Asset Growth is the institution's one-year asset growth rate.
[4] The regressions include time fixed effects, but the coefficient estimates are not reported.
[5] Standard errors are clustered by bank.
*** Indicates statistical significance at the 1 percent level. ** Indicates statistical significance at the 5 percent level. * Indicates statistical significance at the 10 percent level. P-values are reported in brackets.

Failure Loss Rate Models Including Reciprocal Deposits

In this section, we examine whether banks' reliance on reciprocal brokered deposits are associated with differential failure loss rates. Again, data on reciprocal brokered deposits limits the sample to banks that failed between July 2009 and December 2017.[79]

Failed bank loss rates are modeled as a function of the income and balance sheet characteristics of the failed bank. The explanatory variables included in the model are reciprocal deposits, non-reciprocal brokered deposits, equity, core deposits, nonperforming loans, other real estate owned, income earned but not collected, and loans to executive officers. In addition, we include a bank's concentration in CRE (commercial real estate), C&D (construction and development), C&I (commercial and industrial), and consumer loans. The model allows loss rates to differ for small (asset size $500 million or less), medium (asset size between $500 million to $1 billion), and large (asset size $1 billion and higher) banks. The year fixed-effects are added to capture any difference in unconditional loss rates across years. Call Report/TFR data are from the last quarter before the bank failure date.[80]

[79] The Loss rate model is based on 457 failures instead of 458 as reported in Table 5. One institution was excluded from loss rate model estimation because of abnormality in its last Call Report data. Namely, its core deposits to assets ratio was higher than 100%.

[80] There are some banks in the sample that have not filed Call Reports/TFRs on the quarter prior to its failure. For those banks, we use Call Reports/TFRs as of two quarters prior to failure.

TABLE 7—LOSS RATE MODELS INCLUDING RECIPROCAL BROKERED DEPOSITS

Variable	Coefficient estimates (1)	Coefficient estimates (2)	Coefficient estimates (3)	Coefficient estimates (4)
Intercept	*** 11.754	*** 13.479	0.551	5.101
	[0.000]	[0.000]	[0.890]	[0.220]
Non-reciprocal brokered deposits	* 0.092	* 0.095	*** 0.262	*** 0.218
	[0.090]	[0.073]	[0.000]	[0.003]
Reciprocal deposits	− 0.253	− 0.230	− 0.131	− 0.145
	[0.448]	[0.483]	[0.694]	[0.658]
Equity	.....	*** − 0.738	.....	*** − 0.623
	.....	[0.000]	.....	[0.001]
Core deposits	.....	.....	*** 0.168	** 0.121
	.....	.....	[0.001]	[0.016]
Nonperforming loans	*** 0.502	*** 0.415	*** 0.467	*** 0.404
	[0.000]	[0.000]	[0.000]	[0.000]
Other real estate owned	*** 0.827	*** 0.783	*** 0.801	*** 0.771
	[0.000]	[0.000]	[0.000]	[0.000]
Income earned but not collected	*** 6.453	*** 6.361	*** 6.276	*** 6.247
	[0.000]	[0.000]	[0.000]	[0.000]
Loan to executive officers	0.041	− 0.074	0.020	− 0.071
	[0.915]	[0.844]	[0.958]	[0.848]
Bank size between $500 mil–$1 bil	*** − 6.063	*** − 5.905	*** − 5.526	*** − 5.540
	[0.000]	[0.000]	[0.001]	[0.001]
Bank size > $1 billion	*** − 8.686	*** − 8.305	*** − 7.151	*** − 7.253
	[0.000]	[0.000]	[0.000]	[0.000]
CRE loans	0.018	0.027	0.013	0.022
	[0.695]	[0.549]	[0.780]	[0.628]
C&D loans	0.123	* 0.137	* 0.134	* 0.143
	[0.103]	[0.065]	[0.073]	[0.053]
C&I loans	** 0.162	* 0.138	* 0.151	* 0.134
	[0.043]	[0.079]	[0.056]	[0.087]
Consumer loans	** 0.705	*** 0.758	** 0.702	*** 0.747
	[0.013]	[0.007]	[0.012]	[0.007]
Adjusted R^2	0.315	0.341	0.332	0.348
No. of observations	457	457	457	457

Notes:

[1] Estimates use data from 2009 to 2017 to predict 457 failure loss rates from July 2, 2009 to December 15, 2017.

[2] Core deposits are defined as domestic deposits minus time deposits over the insurance limit and fully insured brokered deposits.

[3] All financial variables are normalized by total assets with the exception of *Bank size between $500 mil–$1 bil* and *Bank size > $1billion. Bank size between $500 mil–$1 bil* is a dummy variable indicating that the institution's asset size is between $500 million and $1 billion. *Bank size > $1billion* is a dummy variable indicating that the institution's asset size is over $1 billion.

[4] The regressions include year fixed effects, but not reported.

*** Indicates statistical significance at the 1 percent level. ** Indicates statistical significance at the 5 percent level. * Indicates statistical significance at the 10 percent level. P-values are reported in brackets.

Table 7 reports the results of the failure loss rate model. Column (1) of Table 7 shows that higher nonperforming loans and other real estate owned are associated with higher loss rates. Banks with higher C&I and consumer loans (to assets ratios also tend to have higher loss rates. Medium-sized and large failed banks tend to have lower loss rates compared to small banks.

In the specification reported in Column (1), reciprocal deposits and non-reciprocal brokered deposits ratios are included. The estimated coefficients for reciprocal deposits and non-reciprocal brokered deposits ratios measure the effect of increases in these ratios and an offsetting reduction in other funding sources on the loss rate. The positive and statistically significant coefficient on non-reciprocal brokered deposits suggests that an increase in non-reciprocal brokered deposits (and an offsetting decrease in other funds either equity or other liabilities) increases the DIF loss rate. The coefficient on reciprocal deposits ratio is not statistically significant.

Column (2) of Table 7 reports results when the failed bank's equity ratio is also included as an explanatory variable. The positive and statistically significant coefficient on non-reciprocal brokered deposits ratio suggests that increasing reliance on non-reciprocal brokered deposits, holding bank equity constant and reducing liabilities other than reciprocal deposits, increases the DIF loss rate. The estimated coefficient on reciprocal deposits ratio remains statistically insignificant. The negative and statistically significant coefficient on the equity ratio suggests that increasing equity and decreasing a bank's reliance on other liabilities with no change in non-reciprocal brokered and reciprocal deposits reduces the loss rate.

Column (3) of Table 7 reports results when the reciprocal deposits, non-reciprocal brokered deposits, and core deposits ratios are included as funding measures. The estimated coefficient on non-reciprocal brokered deposits ratio is positive and statistically significant suggesting that, holding the reciprocal deposits and core deposits ratios constant, increasing non-reciprocal deposits and decreasing other bank liabilities and possibly equity, increases the failure loss rate. Reciprocal deposits are statistically insignificant.

Column (4) of Table 7 reports results when the reciprocal deposits, non-reciprocal brokered deposits, equity, and core deposits ratios are included as funding measures. The estimated coefficient on the non-reciprocal

brokered deposits ratio is positive and statistically significant, suggesting that, holding reciprocal deposits, equity, and core deposits ratios constant, increasing non-reciprocal deposits and decreasing other bank liabilities increases the failure loss rate.

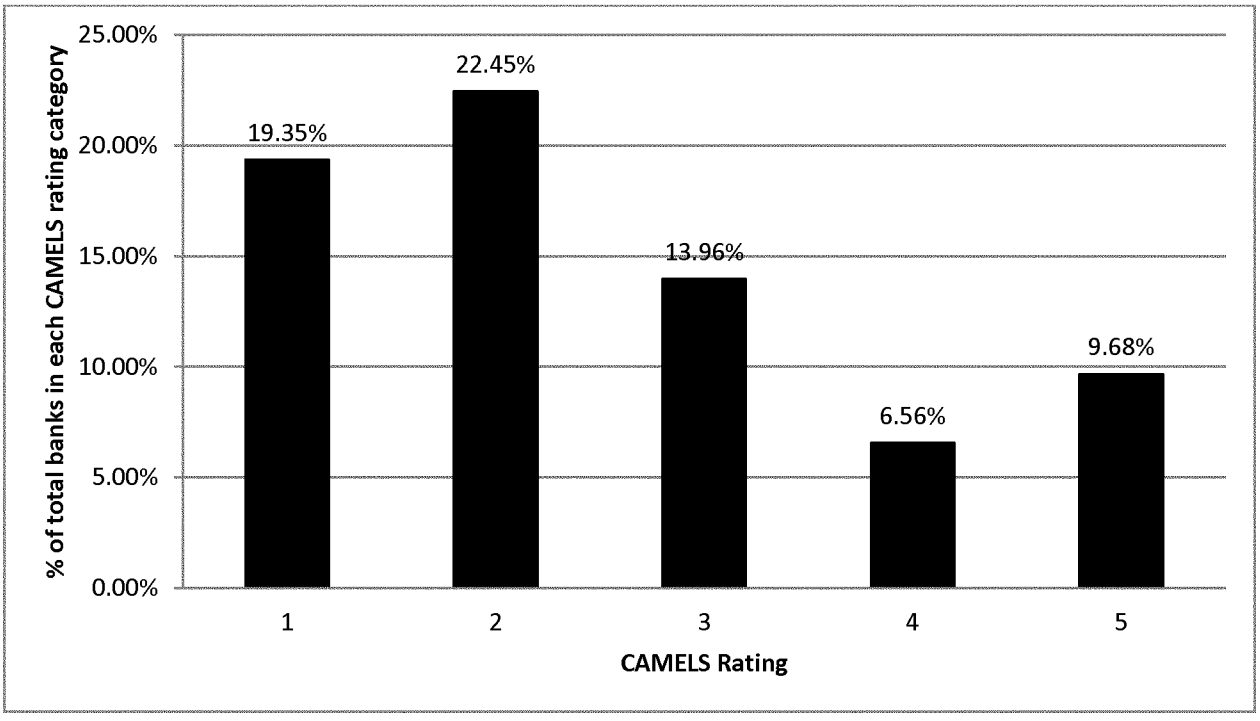
The results reported in Table 7 do not suggest that the use of reciprocal deposits have been associated with higher loss rates on average while non-reciprocal brokered deposits clearly have a strong relationship with FDIC losses. At the same time, the sample size is small and specialized to the crisis. Unlike the full brokered deposit sample results (reported in an early section) and FDIC practical resolution experience, core deposits do not clearly reduce FDIC losses. While the reasons for this difference in findings are beyond the scope of this analysis, it is likely that they owe in part to the intensive FDIC resolution activity in this sample period with heavy reliance on loss sharing agreements. There were an unusually large number of bank franchises available through the FDIC resolution process at a time when franchise values may also have been depressed due to unusually weak opportunities for profitable lending growth. These issues raise concerns that the limited data in reciprocal deposit sample may not be representative of the characteristics of the true failure population. On balance, we believe it is inappropriate to place a high degree of confidence in the results of the analysis of this limited and potentially unrepresentative sample period.

CAMELS Ratings of Banks Using Reciprocal Deposits

In this section, we investigate what type of banks use reciprocal deposits. In particular, we analyze the financial health of these banks by looking at their CAMELS ratings. We identify banks with positive reciprocal deposits on their balance sheet. We investigate the relationship between CAMELS ratings and the use of reciprocal brokered deposits. During the crisis, in 2009 and 2010, banks with reciprocal deposits made up higher percentages of banks with a 3, 4, or 5 composite CAMELS rating. Banks with reciprocal deposits made up a smaller share of banks with a 1 CAMELS rating. By 2011, banks with reciprocal deposits made up higher percentages of banks with a 2 or 3 CAMELS rating, although the share banks with reciprocal deposits and a 4 or 5 CAMELS rating was still higher than the share with a 1 CAMELS rating. In 2017, banks with reciprocal deposits made up higher percentages of banks with a 1 or 2 CAMELS rating.

Figure 3 charts the percentages of banks with positive reciprocal deposits for each rating category as of December 2017. For instance, 19.35% of all banks with CAMELS rating of 1 had reciprocal deposits in December 2017. A substantially lower share, 6.56% of 4 rated banks and 9.68% of 5 rated banks had reciprocal deposits.

Figure 3
Percentage of Banks with Positive Reciprocal Deposits by CAMELS Rating, December 2017



Analysis of Listing Services Deposits

In this section we use the available data to analyze non-brokered listing service deposit use patterns and the effects of listing service deposits on the probability of bank failure and DIF loss rates. Banks began reporting non-brokered listing service deposit funds beginning March 2011.

Table 8 reports the distribution of different listing service deposit ratios by Call Report date. The first panel of Table 8 reports the distribution of different listing service deposit ratios (total listing service deposits relative to total assets, total domestic deposits, and total brokered deposits) for December 2011. Row (3) reports the distribution of the ratios of listing service deposits to total brokered deposits, among banks that reported non-zero brokered deposits.

Across the available Call Report filing dates, the average bank's reliance on

listing service deposits shows a stable trend. The mean total listing service to assets ratio in December 2017 was 1.18% which was similar to 1.36% in December 2011. In December 2017, the average listing service deposit to total brokered deposit ratio was much higher at 1197.21.

TABLE 8—DISTRIBUTION OF LISTING DEPOSITS AS A RATIO OF ASSETS AND DOMESTIC DEPOSITS BY CALL REPORT DATE

		N	Max	99th	95th	90th	Med	Mean
December 2011								
(1)	Listing services deposits/Assets	7366	85.89	23.18	9.57	3.56	0	1.36
(2)	Listing services deposits/Total Domestic Deposits.	7364	100.00	28.11	11.18	4.34	0	1.61
(3)	Listing services deposits/Total Brokered Deposits.	3015	86730	4089.05	514.81	173.12	0	239.09
December 2017								
(1)	Listing services deposits/Assets	5679	45.92	19.69	7.71	3.48	0	1.18
(2)	Listing services deposits/Total Domestic Deposits.	5678	97.71	25.43	9.66	4.35	0	1.49
(3)	Listing services deposits/Total Brokered Deposits.	2527	2550800	1627.28	281.10	122.34	0	1197.21

Listing Service Deposit Usage at Failed Banks

In this section, we examine the extent to which failed banks relied on non-brokered listing service deposits. Because of data limitations on listing service deposits, the analysis includes only banks that failed between April 8, 2011 and December 15, 2017. During this period, 180 banks failed.

Table 9 reports number (percentage in parenthesis) of failed banks that reported positive listing service deposits on their balance sheet prior to their failure. In this table, data are analyzed according to the Call Report data reported a selected number of quarters before the bank failure date. Listing service deposits were first reported on Call Reports in March 2011. We are limited to 63 failures, which failed between January 2013 and December 2017, to have 8 quarters of Call Report data with listing service deposit information. In contrast, there are 180 failures, which failed between April 2011 to December 2017, with 1 quarter of Call Report data with listing service deposit information.

The data suggest a number of consistent patterns. Somewhere between 60 and 65 percent of the failed banks used listing service deposits for at least 8 quarters before they failed. There is also evidence that suggests that some of these failed banks increased use of listing service deposits in the quarters leading up to their failure.

TABLE 9—LISTING DEPOSITS USAGE IN FAILED BANKS BY QUARTER BEFORE FAILURE

Number of quarters before failure	Number of observations	Number of banks with positive listing deposits reported (%)
(1)	(2)	(3)
8	63	40 (63.49)
7	71	44 (61.97)
6	83	51 (61.45)
5	98	62 (63.27)
4	114	72 (63.16)
3	132	85 (64.39)
2	158	108 (68.35)
1	180	116 (64.44)

Notes:
[1] Based on 180 failures between April 8, 2011 and December 15, 2017. All failures are after March 2011 when the listing services deposits were first reported on the Call Reports.

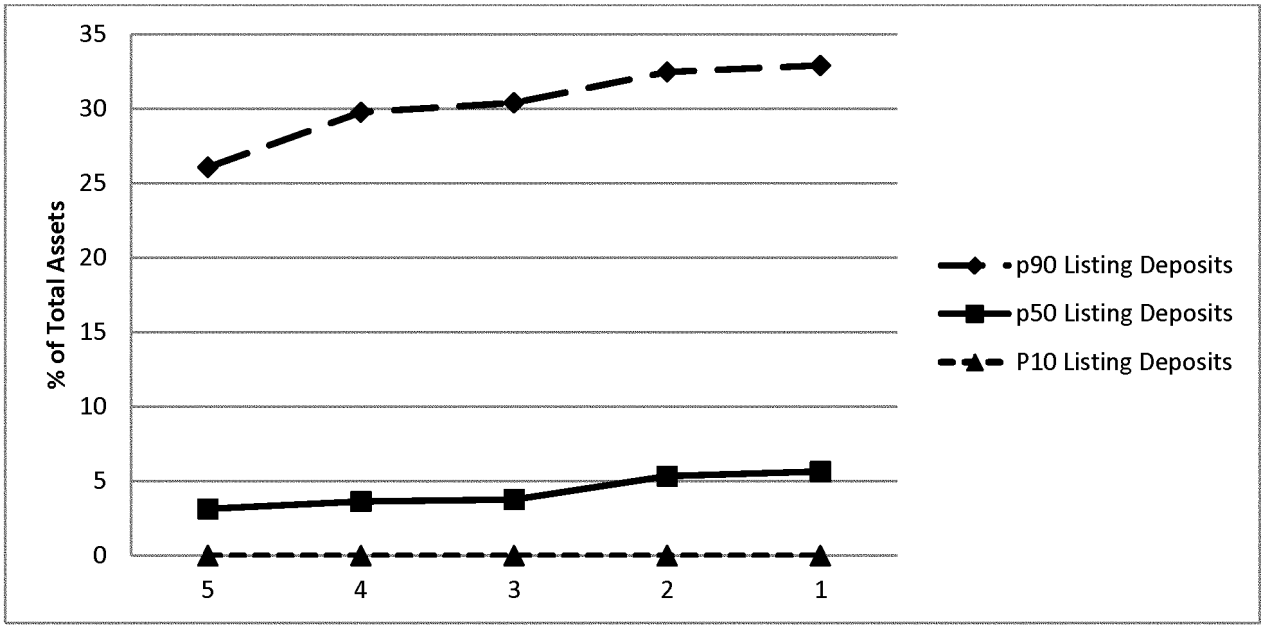
Figure 4 graphs the failing banks' listing service deposits to assets ratio prior to failure, based on 180 failures between April 8, 2011, and December 15, 2017. The median listing service deposits ratio increases from approximately 4% at 5 quarters before failure to just over 5% at 1 quarter before failure. The listing service deposit ratios at the 90th percentile of the distribution (the failed banks most reliant on listing service deposits) increased from about 26% at 5 quarters before failure to 33% at 1 quarter before failure, which shows an increase of listing service deposit usage as banks approach failure.

Figure 5 graphs the failing banks' usage of listing service deposits (as a percentage of assets) prior to failure, based on 63 failures between January 11, 2013 and December 15, 2017. This time frame incorporates banks that failed and had at least 8 quarters of data on listing service deposits. Figure 5 shows that the median bank usage of listing service deposits remains relatively stable as the banks approach failure. In contrast, those banks most reliant on listing service deposits (the 90th percentile of the distribution), show an initial increase in listing service deposits as the banks approach failure.[81]

[81] Given the small sample size involved in this analysis, it is inappropriate to draw strong overall conclusions regarding the behavior of listing service deposits balances at failing banks. Moreover, since all weak banks do not fail, the behavior of listing

Figure 4

Distribution of Listing Services Deposits to Total Assets Ratio in the Quarters Prior to Failure



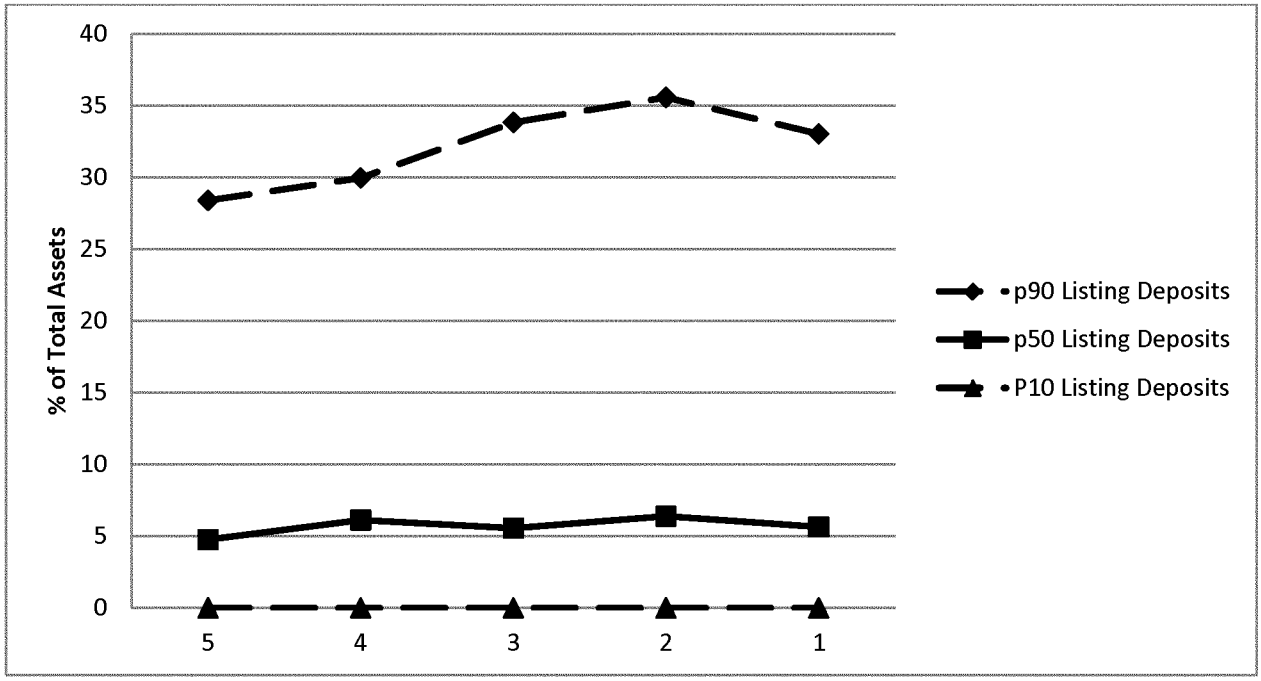
Notes:

[1]Based on 180 failures between April 8, 2011 and December 15, 2017. All failures are after March 2011 when the listing services deposits were first reported on the Call Reports.

service deposit funding at weak banks (not analyzed in this memo) could also inform the regulatory debate about safety and soundness issues associated with listing service deposit usage.

Figure 5

Distribution of Listing Services Deposits to Total Assets Ratio in the Quarters Prior to Failure



Notes:

[1]Based on 63 failures, between January 11, 2013 and December 15, 2017, with full 8 quarters of data on whether the banks had listing services deposits.

Failure Prediction and Listing Service Deposits

We estimate three-year failure prediction models using 2011 and 2014 data to predict failures between 2012 and 2017. We estimate failure models as a function of non-brokered listing service deposits and non-listing, non-brokered deposits. Table 10 reports the estimated coefficients and p-values of the logistic regressions.

In the failure model specification reported in Column (1) of Table 10, only the listing service deposits ratio is included to characterize a bank's liability structure. Column (1) of Table 10 reports that the listing service deposits ratio has a positive and statistically significant effect on a bank's estimated probability of failure.

Because we measure the banks' liability components as ratios, as a bank increases its use of listing service deposits, there are necessarily offsetting changes in the bank's other funding sources. By including other funding measures in the models, we investigate whether the implicit shift in a bank's liability structure (as a bank increases its dependence on listing service and other non-listing, non-brokered deposits) is a possible source of the increase in failure probability.

Column (2) of Table 10 reports the results of the failure probability model when we include a bank's equity to asset ratio to control for bank leverage. By including the equity ratio in the model, the coefficient estimates on listing service deposits measure the effect of increasing a bank's reliance on this deposit source and decreasing its reliance on other liabilities, holding the bank's equity ratio unchanged. The estimated coefficient on the listing service deposits ratio becomes statistically insignificant when equity is held constant.

Column (3) of Table 10 reports the failure model estimates when the model includes a bank's listing service deposits and non-listing, non-brokered deposits. In this specification, the estimated coefficient on the listing deposits ratio measures the effect of increasing listing deposits, holding constant non-listing, non-brokered deposits and reducing other bank liabilities. The estimated coefficient on listing service deposits is positive and statistically significant. Moreover, the estimated coefficient on non-listing, non-brokered deposits is positive and statistically significant. To the extent that non-listing, non-brokered deposits is a measure of banks' core deposits, this result differs from those reported in Tables 1 and 2 based on a dataset with longer bank failure experiences. Column (4) of Table 10 reports the failure model estimates when the model includes a bank's listing deposits, non-listing non-brokered deposits, and equity ratios. In this specification, the estimated coefficient on the listing deposits ratio measures the effect of increasing listing deposits, holding constant non-listing non-brokered deposits and equity, and reducing other bank liabilities. The coefficient of listing deposits becomes statistically insignificant. The coefficient of non-listing, non-brokered deposits is no longer statistically significant when the equity ratio is held constant.

This analysis is based on a small sample limited to failures between 2012 and 2017. We believe it is inappropriate to place a high degree of confidence in the results of the analysis based on this limited sample.

TABLE 10—THREE YEAR FAILURE PREDICTION MODELS INCLUDING LISTING SERVICES DEPOSITS

Variables	Coefficient estimates (1)	Coefficient estimates (2)	Coefficient estimates (3)	Coefficient estimates (4)
Intercept	*** −8.068	*** −2.929	*** −15.281	** −4.416
	[0.000]	[0.000]	[0.000]	[0.019]
Listing services deposits	** 0.021	0.013	*** 0.109	0.028
	[0.025]	[0.248]	[0.000]	[0.215]
Equity		*** −0.537		*** −0.519
		[0.000]		[0.000]
Non-listing, non-brokered deposits			*** 0.087	0.015
			[0.000]	[0.456]
Nonperforming loans	*** 0.137	*** 0.124	*** 0.138	*** 0.125
	[0.000]	[0.001]	[0.000]	[0.001]
Other real estate owned	*** 0.088	* 0.065	* 0.054	0.059
	[0.002]	[0.064]	[0.066]	[0.101]
Income before taxes	*** −0.256	** −0.218	*** −0.310	*** −0.222
	[0.002]	[0.008]	[0.000]	[0.006]
Interest expense	0.394	** 0.728	*** 0.668	*** 0.861
	[0.146]	[0.024]	[0.000]	[0.001]
Asset growth	−0.005	0.002	−0.002	0.003
	[0.687]	[0.890]	[0.858]	[0.835]
CRE loans	−0.011	−0.022	−0.019	−0.023
	[0.335]	[0.104]	[0.151]	[0.102]
C&D loans	−0.009	−0.017	0.0001	−0.015
	[0.693]	[0.548]	[0.996]	[0.584]
C&I loans	0.008	0.036	0.011	0.036
	[0.734]	[0.164]	[0.649]	[0.165]
Consumer loans	0.007	−0.004	−0.018	−0.007
	[0.872]	[0.959]	[0.799]	[0.929]
CAMELS 3	0.941	0.643	0.790	0.650
	[0.274]	[0.382]	[0.313]	[0.373]
CAMELS 4 or 5	*** 3.656	*** 1.459	*** 3.170	*** 1.449
	[0.000]	[0.008]	[0.000]	[0.009]
Pseudo R2	0.500	0.609	0.526	0.609
Wald Chi2	*** 259	*** 374	*** 287	*** 377
N	13,857	13,857	13,857	13,857

Notes:
[1] Using year-end Call Reports 2011 and 2014 to predict 113 failures between 2012 and 2017.
[2] Listing services deposits are defined as estimated amount of deposits obtained through the use of deposit listing services that are not brokered.
[3] Non-listing, non-brokered deposits are defined as domestic deposits minus listing service deposits and brokered deposits.
[4] All financial variables are normalized by total assets with the exception of CAMELS rating 3, CAMELS rating 4 or 5, and Asset Growth. CAMELS rating 3 and CAMELS rating 4 or 5 are dummy variables indicating that the institution is CAMELS 3-rated and the institution is CAMELS 4 or 5-rated, respectively. Asset Growth is the institution's one-year asset growth rate.
[5] The regressions include time fixed effects, but the coefficient estimates are not reported.
[6] Standard errors are clustered by bank.
*** Indicates statistical significance at the 1 percent level. ** Indicates statistical significance at the 5 percent level. * Indicates statistical significance at the 10 percent level. P-values are reported in brackets.

Failure Loss Rate Models Including Listing Service Deposits

In this section, we examine whether banks' reliance on listing service deposits are associated with differential failure loss rates. Data on listing deposits limits the sample to banks that failed between April 8, 2011, and December 15, 2017.

Failed bank loss rates are modeled as a function of the income and balance sheet characteristics of the failed bank. The explanatory variables included in the model are listing service deposits, non-listing, non-brokered deposits, equity, nonperforming loans, other real estate owned, income earned but not collected, and loans to executive officers. In addition, we include a bank's concentration in CRE (commercial real estate), C&D (construction and development), C&I (commercial and industrial), and consumer loans. The model allows loss rates to differ for small (asset size $500 million or less), medium (asset size between $500 million to $1 billion), and large (asset size $1 billion and higher) banks. The year fixed-effects are added to capture any difference in unconditional loss rates across years. Call Report/TFR data are from the last quarter before the bank failure date.

TABLE 11—LOSS RATE MODELS INCLUDING LISTING DEPOSITS

Variable	Coefficient estimate (1)	Coefficient estimate (2)	Coefficient estimate (3)	Coefficient estimate (4)
Intercept	*** 11.256	*** 11.920	−1.982	−0.231
	[0.001]	[0.001]	[0.813]	[0.979]
Listing Services Deposits	** 0.103	* 0.092	** 0.259	** 0.237
	[0.029]	[0.053]	[0.012]	[0.026]
Equity		−0.359		−0.269
		[0.247]		[0.391]
Non-listing, non-brokered deposits			* 0.149	0.135
			[0.086]	[0.126]
Nonperforming loans	** 0.273	** 0.254	** 0.296	** 0.280
	[0.021]	[0.033]	[0.012]	[0.020]
Other real estate owned	*** 0.528	*** 0.520	* 0.507	*** 0.503

TABLE 11—LOSS RATE MODELS INCLUDING LISTING DEPOSITS—Continued

Variable	Coefficient estimate (1)	Coefficient estimate (2)	Coefficient estimate (3)	Coefficient estimate (4)
	[0.000]	[0.000]	[0.001]	[0.001]
Income earned but not collected	*** 13.242	*** 13.167	* 13.802	*** 13.692
	[0.000]	[0.000]	[0.000]	[0.000]
Loan to executive officers	−0.265	−0.287	−0.180	−0.205
	[0.617]	[0.588]	[0.733]	[0.699]
Bank size $500 mil–$1 billion	−4.117	−3.924	−2.638	−2.633
	[0.126]	[0.145]	[0.347]	[0.348]
Bank size > $1 billion	* −5.854	* −5.773	−4.358	−4.439
	[0.089]	[0.094]	[0.217]	[0.209]
CRE loans	−0.030	−0.025	−0.034	−0.030
	[0.607]	[0.668]	[0.558]	[0.608]
C&D loans	0.052	0.052	0.006	0.011
	[0.720]	[0.720]	[0.965]	[0.941]
C&I loans	0.101	0.096	0.105	0.100
	[0.379]	[0.405]	[0.360]	[0.381]
Consumer loans	0.330	0.359	0.242	0.272
	[0.437]	[0.398]	[0.568]	[0.524]
Adjusted R2	0.193	0.195	0.203	0.202
No. of observations	180	180	180	180

Notes:
[1] Estimates based on data from March 2011 to September 2017 to predict loss rates of 180 failures from April 8, 2011 to December 15, 2017.
[2] Listing services deposits are defined as estimated amount of deposits obtained through the use of deposit listing services that are not brokered.
[3] Non-listing, non-brokered deposits are defined as domestic deposits minus listing service deposits and brokered deposits.
[4] All financial variables are normalized by total assets with the exception of *Bank size between $500 mil–$1 bil* and *Bank size > $1 billion. Bank size between $500 mil–$1 bil* is a dummy variable indicating that the institution's asset size is between $500 million and $1 billion. *Bank size > $1 billion* is a dummy variable indicating that the institution's asset size is over $1 billion.
[5] Failure year fixed effects are included but not reported.
*** Indicates statistical significance at the 1 percent level. ** Indicates statistical significance at the 5 percent level. * Indicates statistical significance at the 10 percent level. P-values are reported in brackets.

Table 11 reports the results of the failure loss rate model. Column (1) of Table 11 shows that higher nonperforming loans, other real estate owned, and income earned but not collected are associated with higher loss rates. Large failed banks tend to have lower loss rates compared to small banks.

In the specification reported in Column (1), the listing service deposits ratio is included. The estimated coefficient for the listing service deposits ratio measures the effect of an increase in this ratio and an offsetting reduction in other funding sources on the loss rate. The positive and statistically significant coefficient on listing service deposits suggests that an increase in listing service deposits (and an offsetting decrease in other funds either equity or other liabilities) increases the DIF loss rate.

Column (2) of Table 11 reports results when the failed bank's equity ratio is also included as an explanatory variable. The positive and statistically significant coefficient on the listing service deposits ratio suggests that increasing reliance on listing service deposits, holding bank equity constant and reducing other liabilities, increases the DIF loss rate. The estimated coefficient on equity is not statistically significant.

Column (3) of Table 11 reports results when listing services deposits and non-listing, non-brokered deposits ratios are included as funding measures. The estimated coefficient on listing services deposits ratio remains positive and statistically significant suggesting that, holding the non-listing, non-brokered deposits ratios constant, increasing listing services deposits and decreasing other bank liabilities and possibly equity, increases the failure loss rate.

Column (4) of Table 11 reports results when the listing services deposits, non-listing non-brokered deposits, and equity ratios are included as funding measures. The estimated coefficient on the listing services deposits ratio is positive and statistically significant, suggesting that, holding non-listing non-brokered deposits and equity ratios constant, increasing listing services deposits and decreasing other bank liabilities increases the failure loss rate. An unexpected result is that equity remains statistically insignificant in reducing DIF loss rates. The non-listing, non-brokered deposits ratio also becomes statistically insignificant.

The results reported in Table 11 suggest that the use of listing service deposits are associated with higher loss rates on average. At the same time, the sample size is small and specialized to the failures from 2012 to 2017. Unlike the full brokered deposit sample results (reported in an early section) and FDIC practical resolution experience, equity does not clearly reduce FDIC losses.[82]

Dated at Washington, DC, on December 18, 2018.

By order of the Board of Directors.

Federal Deposit Insurance Corporation.

Valerie Best,

Assistant Executive Secretary.

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[82] The limited data in listing service deposit sample may not be representative of the characteristics of the true failure population. On balance, we believe it is inappropriate to place a high degree of confidence in the results of the analysis of this limited and potentially unrepresentative sample period.